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Extended Household Transitions, Race/Ethnicity, and Early Childhood Cognitive Outcomes*

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Abstract

Beyond mothers' union status transitions, other adults' transitions into and out of the household contribute to family instability, particularly in early childhood. Using the Early Childhood Longitudinal Study-Birth Cohort (N≅8,550), this study examines associations between extended household transitions and age 2 cognitive development. A substantial minority of toddlers experiences these transitions, and their consequences vary by household member type, entry versus exit, and race/ethnicity. Extended household transitions predict lower cognitive scores for white children, but the selection of low-socioeconomic status families into extended households explains these disparities. Grandparent transitions predict significantly higher cognitive scores for African American and Latino children than whites, and some "other adult" transitions predict higher scores for Latinos than African Americans and whites. Extended household transitions' consequences are independent of co-occurring residential moves and partner transitions. Findings suggest that studying extended household transitions is useful for understanding children's early development, and their consequences vary by race/ethnicity.

Keywords

Extended households; household composition; family structure transitions; early childhood; demography; Early Childhood Longitudinal Study-Birth Cohort

1. Introduction

In the United States, racial/ethnic differences in cognitive and behavioral development emerge in early childhood, disadvantaging nonwhite children's academic performance as early as kindergarten entry (Brooks-Gunn and Duncan, 1997; Duncan and Magnuson, 2005). These disparities are of concern for policy because researchers have found that early childhood development is consequential for later outcomes, and policies that invest in early childhood pay off throughout the later life course (Duncan et al., 2007). Much of this

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disadvantage has been attributed to group differences in access to socioeconomic resources in early childhood, including income, parental education, and housing and neighborhood quality (Duncan and Magnuson, 2005; Grogan-Kaylor and Woolley 2010; Phillips, Brooks-Gunn, Duncan, Klebanov, and Crane, 1998). In the United States, race and ethnicity are fundamental dimensions along which group differences in resources are organized (Conley, 2009), with most Latino and nonwhite minorities possessing fewer socioeconomic resources than non-Latino whites. Because the family is the primary social institution through which such resources are filtered to children, a substantial body of research has documented racial/ethnic variation in family structure to partially explain emergent differences in early child well-being (Kiernan and Mensah, 2010; McLanahan and Sandefur, 1994; McLanahan, 2004; Osborne, Manning and Smock, 2007).

Increasingly, research has expanded from static conceptualizations of family structure to consider the independent effects of *changes* in family structure on child well-being. Beginning with research on how children respond to the experiences of divorce and remarriage (Amato, 2005; Cherlin et al., 1991), this literature has broadened to consider the consequences of repeated changes in parents' union status (including entry into and out of cohabitation) for children's cognitive, behavioral, and emotional well-being. A subset of this literature has documented racial/ethnic differences in young children's responses to family structure change (Fomby and Cherlin, 2007; Osborne and McLanahan, 2007).

In the last decade, this body of research has connected theoretical developments on the family as a dynamic social institution to the empirical reorganization of family structure. However, it is incomplete in three respects. First, by focusing on parents' union transitions, existing literature has overlooked the potential consequences of the substantial turbulence young children experience in *extended* household organization, particularly in nonwhite families. Extended household organization refers to the presence of adults other than parents and their partners, such as grandparents, other kin, and housemates. Second, due to prior data limitations, very limited research has considered family structure change during the earliest phases of childhood, when children's developmental experience occurs almost exclusively within the context of the family and when transitions over a short time period may be consequential (although Osborne, Berger, and Magnuson, 2009 have looked at maternal outcomes in this period). Third, a limited amount of recent research has emphasized variation in both the frequency and nature of union transitions on child well-being (Bzostek and Beck 2011, Fomby, in press, Magnuson and Berger, 2009), but it has not compared different types of extended household transitions.

We address these gaps in the literature by investigating racial/ethnic differences in the association between changes in extended household organization and young children's development. Specifically, we assess the separate consequences for children's early cognitive development of continuous coresidence or entry into and out of coresidence with a grandparent or other nonparent/partner adults between the time a child is 9 months and 2 years old, when racial/ethnic disparities in cognitive development begin to emerge (Mollborn, Fomby, and Dennis, 2011). We use nationally representative longitudinal data from a cohort of children born in the United States in 2001. Our racial/ethnic comparison includes non-Latino white, non-Latino African American, and Latino children. Our research questions are based on a broadly defined resource model that assumes family structure influences children at least in part through the investment of socioeconomic resources in children's well-being.

We focus on racial/ethnic differences in extended household organization in early childhood for three reasons. First, prior research has established that extended household organization is more prevalent in early childhood among nonwhite compared to white families

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(Goldscheider and Bures, 2003; Van Hook and Glick, 2007). Second, we anticipate racial/ethnic differences in the availability of socioeconomic resources within extended families that promote children's development. Previous research has suggested that cultural preferences may also drive racial/ethnic variation in extended household arrangements (Tienda and Angel, 1982), which may have different implications for cognitive development than resource-driven motivations for coresidence. Third, considering diversity in extended household organization and its effects enables us to contribute to theoretical developments on the relationship between family organization and child well-being.

2. Background

2.1 Prevalence of extended household transitions

Changes in maternal union status, whether through changes in cohabitation status, divorce, or remarriage, or through multiple unions and exits, are broadly associated with negative outcomes for children's development (Amato, 2001; Manning and Brown, 2006; Osborne and McLanahan, 2007; Sweeney, 2007). Exceptions include children and adolescents who exit high-conflict unions (Booth and Amato, 2001; Jekielek, 1998; Musick and Meier, 2010) and young children who are born into stable cohabiting unions that do not transition to marriage (Brown 2008). Evidence about the relationship between family structure change and the development of very young children is sparse and mixed, with negative associations reported for some outcomes like children's externalizing behavior, verbal ability, and physical health some groups, transitions, and outcomes (Bzostek and Beck 2011; Fomby, in press; Osborne and McLanahan, 2007) and positive or neutral associations for others like emotional problems and quantitative reasoning (Fomby, in press).

There is little evidence about the consequences of changes in *extended* household structure on young children, although such change is frequent. Here we define an extended household member as an adult living in the household who is not the child's parent or a parent's intimate partner. In most cases, extended household members are kin. Overall in the United States, extended household organization has declined dramatically during the last 150 years (Ruggles, 2007). In 1850, 70% of older adults resided with their adult children and grandchildren, compared to 15% in 2000. Scholars have attributed this decline to increasing affluence and changing norms and expectations among older adults and their children, declining morbidity among older adults, and the outsourcing of care and financial support to Social Security and home-based health care providers (Goldscheider and Lawton, 1998; Ruggles, 2007). However, the pace and scale of this decline has varied by race and ethnicity. After 1940, kin coresidence declined more quickly for white than for African American families, with a racial crossover in the prevalence of unmarried adults living with kin occurring after 1970 (Goldscheider and Bures, 2003). Latinos in the United States also coreside in extended households at higher rates compared to non-Latino whites, with the likelihood of laterally extended household organization, or coresidence among siblings, greatest among recent Latino immigrants (e.g., Van Hook and Glick, 2007).

In the United States, the proportion of all children residing with a grandparent (with or without parents present in the household) diminishes from nearly 10% for children under age 6 to 6.7% of school-age children (U.S. Census Bureau, 2006, own analysis). This implies that at least one third of children who reside with a grandparent in early childhood may lose that grandparent as a household member as they get older. Latino children are especially likely to experience a dropoff in grandparent coresidence after early childhood: 26% of children under 6 reside with a grandparent, compared to 8% of older children. Among Latino families, laterally extended households (e.g., a child living with an aunt or uncle rather than a grandparent) are also more likely to dissolve following a child's birth, as parents break off to establish nuclear households with their children (Blank, 1998; Blank

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and Torrecilha, 1998). In a longitudinal study following urban African American children into adolescence, Hunter and Ensminger (1992) found that extended family transitions were more common than nuclear family transitions: The vast majority of children living with extended family had at least one extended family member leave the household during their study.

2.2 Race/ethnicity and motivations for extended household organization

A substantial body of research has debated whether there is racial/ethnic variation in the *motivation* to live in extended households, but that literature has given relatively little attention to how household extension influences child well-being. Typically, extant research has considered whether racial/ethnic variation in the motivation to coreside is attributable to group differences in either *economic need* or *cultural preference*. Economic need, which we call the resource-based perspective (described below), is often defined as a measure of household or family income relative to the poverty threshold for a family of a given size. Cultural preference refers to orienting principles that make coresidence functional and attractive in the context of high cultural values placed on filial responsibility, familism, or porousness in family boundaries. In a cultural preference framework, economic advantage may be a side benefit of coresidence, but it is not the motivating principle (Kamo, 2000). In coresident households, some aspects of family process like the provision of child care or other instrumental care by a family member at no cost or below market rate may be both culturally motivated and a response to economic need (Tienda and Angel, 1982).

Research is mixed on whether extended kin coresidence is best explained by a single motivation or a combination of factors. Overall, extant research suggests that racial/ethnic variation in extended kin coresidence is driven in part by the likelihood that nonwhite-headed households have less income on average, and among African American families, are more likely to be headed by a single parent compared to white-headed households (Angel and Tienda, 1982; Mutchler and Baker, 2009). Cultural preference also influences the likelihood of extended coresidence with older kin and children, although cultural factors may have greater sway in low-income or otherwise disadvantaged households (Burr and Mutchler, 1993; Kamo, 2000; Tienda and Angel, 1982).

2.3 Transitions in coresidence and child well-being

For our purposes, the questions of what motivates extended households and how they operate are salient for understanding whether extended household organization influences children's well-being over time. Our nationally representative data permit a test of the resource-based perspective, but not the cultural preference perspective. Beyond the existing research documenting the influence of resources on racial/ethnic variation in extended household organization, assessing a resource-based explanation is also important because of the compelling evidence that household resources in early childhood matter for children's school readiness (Duncan and Magnuson, 2005; Jencks and Phillips, 1998). On the one hand, entrance into or exit from extended households may influence children's developmental trajectories if the resources available in extended households are transferred to children. On the other hand, if extended household structure results from cultural preference rather than the pooling of resources or greater access to and flexibility in instrumental care, children may be unaffected by changes in household organization beyond changes in parents' union status.

Most work on kin coresidence and child well-being has considered static measures of extended family structure. Mollborn, Fomby, and Dennis (2011) reported that white children had compromised cognitive development at age 2 when they had resided in extended households in infancy compared to living with biological parent(s) only. In contrast,

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coresidence with grandparents predicted higher cognitive development scores for African American children compared to living with parents alone. Latino children had similar cognitive and behavioral scores at age 2, regardless of extended household structure in infancy, once other factors were controlled. Group differences in household income explained a small part of the variation in the association between extended household structure and children's cognitive development, but racial/ethnic differences in the effects of static measures of household organization on child well-being remained largely unexplained by indicators of sociodemographic characteristics and instrumental support.

We move beyond prior work that analyzed static measures of family structure to consider how racial/ethnic differences in the turbulence of extended household organization influence disparities in children's cognitive development. Cognitive development in early childhood impacts the success of children's transitions to school (Baydar et al., 1993; Duncan et al., 1994), which in turn predicts later educational outcomes and academic achievement (Luster et al., 2004). Building on the argument that cognitive disparities are at least partly attributable to variation in household resources (Brooks-Gunn and Duncan, 1997; Duncan and Magnuson, 2005), we anticipate that change or stability in extended household organization benefits children's development when it is associated with higher household income or greater access to other resources that are transferable to children. Conversely, when extended household composition over time is associated with diminished resources, it will have negative implications for children's development.

We anticipate that there are racial/ethnic differences in the degree to which extended household transitions are associated with higher or lower levels of available resources. Fomby and colleagues (2010) found that white adolescents' greater socioeconomic stress in the context of their mothers' partner instability partially explained African American-white differences in the relationships between partner transitions and adolescent risk behaviors. Past research has found that non-Latino white children who coreside with grandparents much more frequently live in poverty than those who do not, but African American and Latino children who live with grandparents have lower poverty rates when they do not (Kreider, 2008). Therefore, the experience of extended household coresidence and transitions may be associated with fewer socioeconomic resources for white children than for others.

Prior research has documented patterns of kin coresidence among nonwhite families that potentially incorporate distinctive economic strategies and cultural motivations. Among Mexican immigrants, for example, Van Hook and Glick (2007) and Blank (1998) argued that lateral household extension represents a culturally validated, short-term strategy for economic and social organization in order to respond to challenges associated with international migration. However, extended households dissolve into nuclear households as members begin to have children and to settle in the United States (Blank, 1998; Blank and Torrecilha, 1998). Under those circumstances, the dissolution of an extended household could have positive consequences for children's development if it reflects financial stability and integration into the host country.

Among African American families, in contrast, vertical extension is potentially more economically productive than lateral extension. Mutchler and Baker (2009) demonstrated that a grandparent's entry to a single-parent household substantially reduces the likelihood that a child will reside in poverty. However, long-term coresidence in a vertically extended household may represent a parent's failure to achieve economic independence, or a system of social organization that compromises child development: African American children aged 5 to 15 years in three-generation households experienced lower cognitive achievement

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compared to comparable adolescents in nuclear households (Dunifon and Kowaleski-Jones, 2007).

Building on this prior research, our study addresses three research questions. First, what are the prevalence and characteristics, by race/ethnicity, of stable extended household organization and extended household change among young children and their families in the United States? The characteristics we examine by race/ethnicity include the type of extended household (grandparents and other adults, who are usually kin), the type of transition (gaining versus losing extended household members), and the co-occurrence of extended household transitions with partner transitions, residential moves, and changes in income. Second, what are the consequences of extended household organization and change for children's early development, and how do they vary by race/ethnicity? We compare racial/ethnic groups directly by interacting race/ethnicity with extended household transitions to document significant differences *between* groups, then conducting post hoc significance tests to compare the associations between extended household organization and children's cognitive scores *within* each racial/ethnic group. Third, how effective are socioeconomic resource explanations for understanding the relationships between extended household transitions and cognitive scores within and between racial/ethnic groups? Our analyses cannot measure cultural preferences, so any remaining racial/ethnic differences in these relationships after accounting for socioeconomic resources may be explained by cultural preferences, unmeasured resources, or other factors.

3. Methods

3.1 Data

This study draws its data from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B), which followed about 10,700 children born in 2001 until they entered kindergarten using parent interviews and direct child assessments (U.S. Department of Education, 2007). The ECLS-B is the first nationally representative study to follow U.S. children through this critical early developmental period. The study drew a sample of all births registered in the vital statistics system of the National Center for Health Statistics using a clustered, list frame sampling design with 96 core primary sampling units composed of counties and county groups. Babies whose mothers were younger than 15 at their birth were excluded from the sample because of confidentiality and sensitivity concerns. Therefore, our findings do not generalize to children of very young mothers.

The first two waves of data, from when the children were about 9 and 24 months old, are the basis for this study. We focus on this period to document the early emergence of racial/ethnic differences in children's cognitive development and to assess how extended family structure change over a relatively short interval may be associated with those emerging differences. The Wave 1 and Wave 2 weighted response rates for the parent interview, which interviewed the primary parent (almost always the biological mother) in person, were 74% and 93%, respectively. Probability and replication weights, constructed by ECLS-B, were included to make findings representative of children born in the United States in 2001. The size and representativeness of the sample, in combination with the well-reputed direct child assessments and prospective household roster data, make the ECLS-B an excellent data source for studying extended household transitions and early child development. We restricted the sample to about 8,650 children with complete parent interviews and child assessments at both waves whose biological mothers were the primary parent interviewed at both waves.[1] The few children who were living with extended family members and not with

[1]Because of confidentiality concerns, ECLS-B requires that all sample sizes be rounded to the nearest 50.

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their mothers were excluded from the analysis sample. Of these eligible cases, about 8,550 (99%) were included in analyses.

3.2 Measures

Dependent variable—Children's cognitive development was assessed at approximately 24 months old (Wave 2). A sizeable psychometric literature has documented advantages and disadvantages of different developmental assessments at this age. The ECLS-B developmental scores are based on 60 minutes of one-on-one assessment using reputable instruments and provide a comprehensive, age-appropriate assessment of a child's developmental progress (see Nord, Edwards, Andreassen, Green, & Wallner-Allen, 2006 for more information on these and other measures). Interviewers assessed cognitive scores using the Bayley Short Form – Research Edition (BSF-R) mental scales. ECLS-B developed the BSF-R from the Bayley Scales of Infant Development, Second Edition (BSID-II). The mental scale assesses early cognitive development, including problem-solving skills, communication skills, expressive and receptive vocabulary, and comprehension. Hillemeier et al. (2011) found that cognitive delays at 24 months were associated with delays at 48 months in the ECLS-B. Evidence associating BSF-R with later life cognitive outcomes remains limited, although the revised Bayley Scale (BSID-II), from which the BSF-R was developed, was shown to be a valid measure of IQ and is positively associated with other IQ measures (Nellis and Gridley, 1994). Siegel (1979) found that low Bayley test scores in infancy predicted low language, perceptual, cognitive, and visual motor scores in later childhood. Past research has shown that early cognitive development measures have limitations for predicting later cognitive scores, but a low Bayley score indicates that a child may have a hard time learning later in life (Dockrell and McShane, 1993; Niccols and Latchman, 2002). See Table 1 for descriptive information about these and all other variables used in analyses.[2]

Household structure transitions—The prospective household structure measures were drawn from household roster information collected from the biological mother at each wave. Respondents identified "people who normally live here. Please do not include anyone staying here temporarily who usually lives somewhere else." The roster did not identify any head of household or distinguish between maternal and paternal relatives. Partner status indicators included whether the biological mother lived with no partner, lived with a spouse, or lived with a cohabiting partner. Coresident extended household members were coded as grandparents or other adults. Unweighted supplemental analyses found that extended household members were kin to the child in 89% of households with at least one other adult. In 14% of such households, an adult was unrelated to the child (some households included both). Of households with nongrandparent relatives, 76% included an aunt or uncle, 11% included adult siblings of the child, 6% included adult cousins, and 13% included other adult kin.

Dichotomous variables captured change in household structure between the Wave 1 and Wave 2 household rosters. Children were coded as keeping (i.e., coresident at both waves), losing (coresident at Wave 1 but not 2), gaining (coresident at Wave 2 but not 1), or never including (not present at Wave 1 or 2): (1) the mother's partner (with biological fathers and nonbiological partners combined because of small subsample sizes), (2) any number of coresident grandparents (with other nongrandparent adults also potentially living in the household), and (3) any number of coresident nonpartner, nongrandparent adults (called

[2]Descriptive information in Table 1 uses the age-standardized version of the mental score, which is designed with a mean of 50 and a standard deviation of 10. Multivariate analyses use the raw score, with a weighted mean of 127 and a weighted standard deviation of 11, and control for age at assessment.

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"other" adults below), but not grandparents.[3] For example, "losing grandparents" indicates that one or more grandparents were present in the household at Wave 1, and that no grandparents resided in the household at Wave 2. The reference category for partner transitions was stably married parents, with stably cohabiting parents included as a separate indicator because of strong evidence that marriage and cohabitation have different implications for children's outcomes (Artis, 2007; Brown, 2004).

Race/ethnicity—We used ECLS-B-constructed measures of children's race/ethnicity that primarily relied on maternal reports. Our analyses focused on Latino (N≅1700), non-Latino African American (N≅1350), and non-Latino white (N≅3650) children. The remaining racial/ethnic groups, including multiracial children, were excluded from analyses because they were too small to examine individually and because the heterogeneity in a combined "other race" category would not permit useful interpretation.

Socioeconomic resources—Three measures tested socioeconomic resource-based explanations for the relationship between extended household transitions and child development: The mother's educational attainment at Wave 1, the household's income-to-needs ratio at Wave 1 (household income as a percentage of the 2001 federal poverty level, which adjusts for household size), and change in the household's income-to-needs ratio between Waves 1 and 2 (with positive values indicating gains in income relative to household size between waves).

Controls—Analyses also included control variables that were expected to be related to race/ethnicity, household structure transitions, and/or child development. To allow us to capture cognitive growth between waves, adjusting for age-based cognitive differences: the Wave 1 equivalent child outcome (using the same assessment tools but targeted to an earlier stage of development) and the child's age at the Wave 2 assessment. Two measure important demographic characteristics linked to race/ethnicity, family structure, and/or child development: maternal age (gave birth to the study child before age 20 vs. not), and child gender. Additional variables assess the mother's family/educational background, which is likely to be related to race/ethnicity, household structure, and child development: whether the mother ever repeated a grade in school, whether the child's mother lived with both biological parents until age 16, and whether the mother's household ever received welfare when the mother was between ages 5 and 16. Two measures relate to immigration, an important point of difference between Latino and other children and an influence on household structure and child development: the mother's nativity and the household's primary language at Wave 1 (coded as English versus other). The last control captures an additional dimension of household structure, the number of additional children living in the household at Wave 1. Additional analyses also control for the child's number of residential moves between waves.

3.3 Analysis Plan

We first present descriptive information on the frequency of extended household transitions between approximately 9 and 24 months of age, as well as the bivariate associations between these transitions and partner transitions, residential moves, and children's cognitive scores. Multivariate regression analyses examined the relationships between transitions in extended household structure and children's cognitive scores at age 2. All models included

[3]In the case of partner transitions, a mother could both lose a partner and gain a partner between Waves 1 and 2. This occurred in fewer than 50 cases, so it was not feasible to create a separate indicator. Instead, we coded them has having lost a partner, who in about 95% of cases was the biological father. For extended household transitions, "gaining" or "losing" grandparents or other adults was defined by the number of coresident adults in that category changing, not by tracking specific individuals.

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interactions between race/ethnicity and extended household transitions. We first controlled for Wave 1 cognitive scores and age at assessment, then added other controls. A third model introduced the resource measures, and a fourth included mothers' partner transitions. We discuss marginally significant ($p<.10$) findings but identify them as such for readers' reference. All analyses included probability weights and accounted for complex survey design using replication weights in the Stata software package.

4. Results

4.1 What Are the Prevalence and Characteristics of Extended Household Transitions?

Table 1 addresses our first research question by detailing nuclear and extended household organization and change between Waves 1 and 2, as well as significant differences between Latino, African American, and white children's households. Most children did not experience any kind of household transition between 9 and 24 months old, but there were important racial/ethnic differences. Nearly one third of African American children had a coresident grandparent for at least one wave, and almost one fourth had a coresident "other" adult (usually laterally extended kin). These proportions were reversed for Latino children, with 29% coresiding with at least one "other" adult at some point and 24% living with a grandparent. In contrast, just 13% of white children lived with a grandparent at any point, and just 9% lived with any "other" adult. Descriptive analyses (not shown) found that extended household transitions were *more* common than partner transitions across all three groups, with about twice the proportion of African American and Latino children experiencing these transitions compared to white children (19% and 22% compared to 10%, respectively).

Not only were transitions in extended household members more prevalent than transitions in mothers' partner status, but these two types of transitions frequently co-occurred. Descriptive analyses (not shown) found that when the child's mother gained a partner between waves, in 43% of cases the household also experienced the loss or gain of grandparents or other adults between Waves 1 and 2 (in most cases, children stopped coresiding with these adults). Similarly, when the mother's partner left the household, in 33% of cases a transition in extended household members also took place (children usually began coresiding with others). This documents a frequent "push-pull" effect in which the introduction of a new partner pushed the mother and child out of an existing extended household structure, and the loss of a partner pulled the mother and child into an extended household. In these cases, young children experienced multiple transitions in household structure during a short time period, and therefore, focusing solely on partner transitions would paint an incomplete picture of their household stability. Instead, multivariate analyses should work to disentangle the consequences of partner and extended household transitions.

Analyses calculating the co-occurrence of residential moves for the child with partner and extended household transitions showed that for every type of transition (gaining or losing the mother's partner, one or more grandparents, and one or more other adults), most of the time the child also experienced a residential move between Waves 1 and 2. Although the survey did not ask whether other adults were moving into or out of the child's household or whether the child was moving into or out of someone else's household, this finding implies that the latter was more common. Taken together, these descriptive results suggest that an operationalization of household structure transitions that includes extended household members captures a meaningful amount of change beyond mothers' union status transitions.

Additional descriptive analyses reported in Table 2 examined initial income and income changes by extended household structures and transitions within each racial/ethnic group in order to understand changes in resources in children's households that accompanied

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transitions. We first examined *grandparent coresidence*, which was associated with living in poverty for white children, compared to never living with a grandparent. White children who lost coresident grandparents between waves or who lived with them at both waves experienced income loss between waves, as a percentage of federal poverty level. White children who moved in with coresident grandparents by Wave 2 experienced the highest percentage in poverty at Wave 1, but gained considerable income relative to household size after combining households with a grandparent. These general patterns by grandparent coresidence were similar for African American children, though their poverty rates were much higher and the income advantage associated with living in a nuclear household was much smaller. Latino children were similar in their lower levels of poverty among those never living with grandparents, but their patterns for gaining and losing grandparents were reversed: Children who gained coresident grandparents between waves had fairly low initial levels of poverty but lost income, and those who lost grandparents between waves had high initial levels of poverty but gained income. These descriptive findings lend support to previous findings that rather than gaining resources by living in a vertically extended household like African American and white children do, Latino children join extended households when resources are scarce and exit extended households when their parents have access to sufficient resources to live on their own (Blank and Torrecilha, 1998).

Children from all racial/ethnic groups had the lowest levels of poverty when they did not live with *other adults* (usually aunts or uncles) at either wave. Gaining other coresident adults at Wave 2 was associated with a decrease in the income-to-needs ratio for all racial/ethnic groups, though initial poverty levels differed. This finding suggests that doubling up with other adults between waves may be a strategy necessitated by financial need that does not provide increased resources. For all groups, losing other adults at Wave 2 was associated with higher initial levels of poverty but an increase in the income-to-needs ratio. This implies that families may end their coresidence with other adults when adequate resources become available. Taken together, these findings suggest that resource levels vary by race/ethnicity and household organization, and that the associations between extended household transitions and household resources differ by race/ethnicity and type of transition.

4.2 Do Extended Household Transitions Predict Cognitive Scores, by Race/Ethnicity?

Our baseline multivariate model (Table 3, Model 1) addressed the question of whether extended household arrangements are differentially associated with children's cognitive scores at age 2 by race/ethnicity. The model included covariates for change or stability in extended household organization, race/ethnicity, and interactions between the two sets of attributes. Children who ever lived with a grandparent or other extended household member (usually a relative) were compared to children who did not reside in an extended household at either wave. The interaction terms compared African American and Latino children to non-Latino white children with the same household configuration. Post hoc significance tests (not shown) compared different household configurations within each racial/ethnic group.

White children—As evidenced by the main effects of household configurations, white children's cognitive scores were one fourth to one third of a weighted standard deviation lower when they experienced any extended household transition compared to always living with parents and their partners only (gaining grandparents and losing other adults were marginally significant with $p<.10$). Grandparent coresidence without a transition also predicted significantly lower scores than living with biological parents only, but stable "other adult" coresidence did not. Post hoc tests showed no significant differences between gaining a type of extended household member and losing that same type.

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Black children—Post hoc tests combined main effects and interaction terms to conduct significance tests comparing household structures for African American children. Unlike white children, African American children's cognitive scores were not significantly lower when they experienced either type of grandparent transition compared to never living with grandparents. Stable coresidence with grandparents significantly *increased* these children's cognitive scores by 1.66 points compared to living with grandparents at neither wave. Although living with grandparents was neutral or positive for African American children's cognitive scores compared to nuclear households, coresidence with "other" adults was not so benign. Losing "other" adults between waves or coresiding at both waves predicted decreased cognitive scores compared to never living with them (−4.93 and −3.02 points, respectively). Gaining other adults between waves did not predict significantly different cognitive scores than never living with them.

Latino children—Post hoc tests found that like African American children, Latino children's cognitive scores were not significantly lower when they experienced a grandparent transitions compared to living in a nuclear household at both waves. In fact, losing a coresident grandparent by age 2 was associated with a statistically significant 2.81-point (one quarter of a standard deviation) *increase* in cognitive scores compared to living with grandparents at neither wave and a 3.12-point increase compared to living with grandparents at both waves. Transitions in coresidence with other adults did not predict significantly different cognitive scores for Latino children compared to nuclear households, but stable coresidence with other adults was associated with a 1.88-point decrease in scores compared to never living with other adults ($p<.05$).

Racial/ethnic differences—The interaction terms in Table 3 provide information about significant racial/ethnic differences in the associations between extended household organization and cognitive scores. As expected given the findings described above, losing or gaining grandparents was associated with significantly higher cognitive scores for African American and Latino children than for white children. African American children's scores were more than one third of a standard deviation higher than white children's scores for either transition type, and Latino children's scores were about half a standard deviation higher. Post hoc significance tests also showed that stable coresidence with grandparents predicted significantly higher cognitive scores for African American than for Latino children. In short, any transition in grandparents' coresidence was deleterious for white children's cognitive development, but neutral or positive for nonwhite children. Adding control variables in Model 2 weakened these relationships only a little.

The lack of significant interactions showed that African American and Latino children did not differ from white children in the consequences of both types of transitions in coresidence with *other adults* (usually laterally extended kin) compared to never living with other adults. However, losing other adults between waves predicted significantly higher cognitive scores for Latino than for African American children. Results were largely similar when control variables were included (model 2), but the main effect of gaining other adults became marginally significant ($p<.10$) and a significant interaction showed that losing other adults compared to never living with other adults predicted cognitive scores that were 4.20 points higher for Latino children compared to white children.

4.3 How Effective Are Resource Explanations for Understanding These Patterns?

Did differences in socioeconomic resources explain the associations between extended household organization and children's cognitive achievement for white, African American, and Latino children? Model 3 introduced maternal education, households' income-to-needs ratio at 9 months, and change in the income-to-needs ratio by age 2. These measures

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predicted the outcome as expected, with lower income-to-needs ratios associated with lower cognitive scores and maternal educational level and change in income predicting higher scores. Socioeconomic resources fully explained all negative relationships between extended household transitions and cognitive scores for *white* children (as evidenced by the main effects), with the exception of a marginally significant negative association with losing other adults ($p<.10$). Supplemental models found that initial socioeconomic resources, rather than change in income, explained the relationships between extended household transitions and cognitive scores among white children. Table 2 showed that white children who lived in extended households in infancy, early childhood, or both periods were initially poorer than white children living in nuclear households, and this early income difference explained children's lower cognitive scores here. Socioeconomic resources are important for understanding the implications of extended households for white children.

For *African American* children, socioeconomic resources in Model 3 (and as supplemental models found, particularly Wave 1 resources) fully explained the positive interaction between gaining a grandparent and race, and the positive interaction between losing a grandparent and race became marginally significant ($p<.10$). These coefficients changed little with the introduction of controls for nuclear family organization and transitions in Model 4. Post hoc tests found that differences by extended household organization *among* African American children remained similar to those in Model 2. Stable coresidence with grandparents was still beneficial for these children's cognitive scores, yet Table 2 showed that this stable vertical household organization did not yield substantial financial benefits at either wave. Similarly, although losing other adults between waves predicted significantly lower cognitive scores, Table 2 shows that the average income-to-needs ratio actually *increased* after this transition. Together, these findings suggest that resource explanations are quite limited for understanding the implications of extended household structures for African American children, and non-socioeconomic factors may be important.

Socioeconomic resources (particularly at Wave 1) fully explained the positive interaction between ethnicity and gaining grandparents among *Latino* children, and reduced the interaction with losing grandparents to marginal significance ($p<.10$). Interestingly, accounting for socioeconomic status did not at all explain the positive interaction between Latino ethnicity and losing other adults. Introducing controls for nuclear household organization and transitions in Model 4 changed these relationships very little. Using the information from this model, post hoc tests indicated that none of the extended household types was associated with significantly different cognitive scores compared to nuclear households among Latino children, except for cognitive scores being 1.89 points higher among children who lost other adults compared to never living with them ($p<.05$). This pattern is striking given the frequently large differences in initial levels of poverty and change in income across different Latino extended household arrangements (see Table 2), suggesting that nonfinancial factors are at work in the relationships between extended household transitions and children's early cognitive development.

It is noteworthy that despite their frequent co-occurrence, the observed effects of extended household transitions were *independent* of the effects of parents' entries into and exits from marriage and cohabitation. The associations between extended household transitions and children's cognitive scores changed very little after Model 4 accounted for nuclear family organization. Subsequent models (not shown) separately introduced two potential explanations for the relationships between extended household transitions and cognitive scores, residential mobility and interactions between Wave 1 income-to-needs ratio and change in income-to-needs ratio between waves. These measures did not significantly predict cognitive scores.

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Figure 1 uses predicted cognitive scores from Table 3, Model 4 to illustrate the complicated interactions between extended household organization and race/ethnicity for hypothetical cases who have average values on all other variables, after accounting for socioeconomic resources and partner transitions. Visually summarizing the findings described above (see above for significance tests), Figure 1 shows that for *white children*, living in a nuclear household (the dark bar in the graph) predicted the highest cognitive scores, and stable extended household organization (the other solid-colored bars) predicted slightly higher scores than any type of extended household transition (the patterned bars). For *African American children,* extended household transitions similarly predicted slightly lower scores than stable extended households did. For these children, however, any type of grandparent coresidence predicted higher scores than other household structures. Any coresidence with other adults consistently predicted lower scores than nuclear household organization: African American children living with other adults at any wave had substantially lower cognitive scores than any other hypothetical cases in the figure. For *Latino children,* hypothetical cases experiencing extended household transitions had the three highest cognitive scores. All types of extended household transitions predicted higher cognitive scores than did nuclear household organization. These findings show that statistically "typical" white children experienced both developmental benefits of nuclear household structures and disadvantages of extended household transitions, which might be expected given past research. However, children of color did not derive these same developmental implications in early childhood.

5. Discussion

A growing literature has sought to explain how socioeconomic inequality contributes to racial/ethnic differences in children's early cognitive development and educational performance. Because the family is the primary institution through which socioeconomic resources are filtered to children, scholars have investigated racial/ethnic variation in dynamic models of family structure in part to understand differences in access to resources, most often focusing on parents' union status. Here, we have expanded the scope of family structure to consider the association of stability and change in two types of *extended household organization* with children's cognitive scores at age 2, when racial/ethnic differences in cognitive development begin to emerge.

We built on prior research that has explored racial/ethnic variation in the prevalence of extended households by looking at coresidence and changes in coresidence from the perspective of children. African American and Latino children were 2–4 times as likely as white children to have lived with grandparents or other nonparent/partner adults at some point by age 2. Children also experienced high rates of turnover in extended household organization: In each racial/ethnic group, the likelihood of experiencing the entrance or exit of extended household members exceeded the likelihood of experiencing a change in a parent's union status. These high rates of turbulence in household organization argue for a broader definition of family structure beyond union status in order to better understand how family structure affects racial/ethnic differences in children's development.

Relatively little research has considered whether the dynamic nature of extended household organization actually matters for children, especially in early childhood when extended family change is at its most frequent and variation in cognitive development begins to emerge. We found that for white children, all types of extended household transitions in infancy or early childhood were associated with children's lower cognitive scores at age 2 ($p<.10$). For African American children, coresidence with a grandparent at both waves, but not shorter-term coresidence, was associated with improved cognitive scores compared to never living with grandparents. For Latino children, living with a grandparent at 9 months

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but not 2 years predicted significantly higher scores compared to never living with grandparents, while stable or late coresidence was statistically equivalent to never living with grandparents. Latino children were exceptional for a more positive effect of losing other adults (usually laterally extended kin) relative to whites once controls were included. These results, in combination with our descriptive finding that these households also gain income relative to household size after this transition, are consistent with prior research on Mexican immigrants that suggests that a young family's move from an extended to nuclear household is indicative of increasing economic and social stability. In summary, nuclear household structures, which are normative in many U.S. contexts, were protective only for white children's early cognitive development. In contrast, however, living in certain types of extended households was often neutral or positive for Latino and African American children, even if they experienced transitions in extended household structure. Hence, the consequences of extended household transitions varied within this sample in several important ways: by type of extended household member (grandparents versus others), by type of transition (entrance versus exit), and by the child's race/ethnicity.

We expected the dynamic nature of extended household organization to matter for children's cognitive development because of its association with available socioeconomic resources. We found that for white children, the deleterious effect of extended household transitions was attributable to lower household income in infancy compared to stable nuclear households. In other words, lower-income families selected into extended household arrangements, and their initial lack of resources, rather than household configuration or change in income, explained children's compromised development at age 2. However, initial income differentials only partially explained observed differences within and across other racial/ethnic groups in the association between extended household organization and cognitive scores, and change in income did not influence these relationships. The magnitude of racial/ethnic differences in the consequences of extended household transitions in the final model varied from about one quarter to nearly one half of a standard deviation.

Given that resource explanations were only partly successful in explaining the relationships between extended household dynamics and children's cognitive scores among Latino and African American children, what other factors might be at work? Future research should address this question. Potential explanations include changes in instrumental or emotional support provided by extended household members, racially specific social norms or cultural preferences about appropriate household structures and transitions tied to negative sanctions against nonnormative families, differences in family processes and levels of conflict associated with specific household types and transitions, or the selection of children from more supportive extended families into extended household structures. We examined the provision of child care by family members as one source of instrumental support that might explain the positive effect of extended coresidence for nonwhite compared to white children's cognitive development, but it had no attenuating effect on the relationships presented here. Nonetheless, future research that can more comprehensively integrate a resource-based analysis with data on cultural preferences may provide a more complete explanation for the patterns we have identified. Including an open-ended question with household roster questionnaires that asks why a household member joined or left the household could go a long way toward sorting out these issues.

Several limitations of this study should be addressed in future research about extended household structure transitions. First, the ECLS-B sample did not include sufficient numbers to study racial/ethnic groups beyond Latinos and non-Latino African Americans and whites. These three racial/ethnic groups are themselves diverse and should be broken into subcategories (e.g., by nativity and country of origin) as sample size allows. In particular, Latinos in the United States are characterized by a variety of countries of origin with

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dissimilar patterns of household organization and by a range of current circumstances (Portes & Bach, 1985). Second, the ECLS-B's snapshots of family structure at each survey wave may have resulted in undercounting of household transitions and did not allow us to consider the timing of these transitions relative to the child's age between 9 and 24 months. Third, the presence of resources like income in a household does not necessarily mean that the resource is shared equally with the child—more fine-grained measures should address this concern in the future. Fourth, characteristics of the extended household members, such as age, gender, and available resources and skills, likely play an important role in understanding the implications of coresidence with the child. Fifth, more research is needed to examine the long-term consequences of age 2 cognitive scores for children of different races/ethnicities. Finally, more detailed quantitative or qualitative data would be ideal for assessing whether other processes such as social norms and family conflicts explain the relationships between extended household transitions and children's early development. Using later waves of ECLS-B data, we hope to track children's development through kindergarten to introduce multiple household structure transitions and later developmental outcomes, while retaining the differentiation among types of household members.

This study finds that independent of partner transitions, extended household transitions are important for understanding children's early development. An expanded focus on household structure dynamics that includes not only parents and their partners, but also grandparents, other kin, and nonkin, seems appropriate for future research. An important theoretical and policy implication is that while transitions among extended household members often predict children's early cognitive outcomes, these relationships differ across racial/ethnic groups. Some policies in effect today, as well as evaluations of these policies, presuppose that single parenthood and family structure transitions are harmful, preference nuclear two-parent families over extended-family households, and assume that family situations have similar implications for all children. Our findings suggest that such policies may only work consistently for children from the racial/ethnic group that typically needs the least help to begin with: whites. Many household structures that are already relatively common among African Americans and Latinos often (though not always) function well in terms of the development of children from these groups. Social policies need to be sensitive to the diversity of solutions that families and communities may have put in place that work for children. One size does not fit all in improving the early developmental outcomes of white, African American, and Latino children.

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Highlights

- Extended household transitions predict children's early cognitive development.
- Grandparent and other nonparent adult transitions have different consequences.
- The consequences of extended household transitions vary in important ways by race/ethnicity.
- Extended transitions are negative for Whites because low-income families experience them.
- Grandparent transitions are neutral or positive for Black and Latino children.
- Most other adult transitions predict cognitive scores similarly across racial/ethnic groups.

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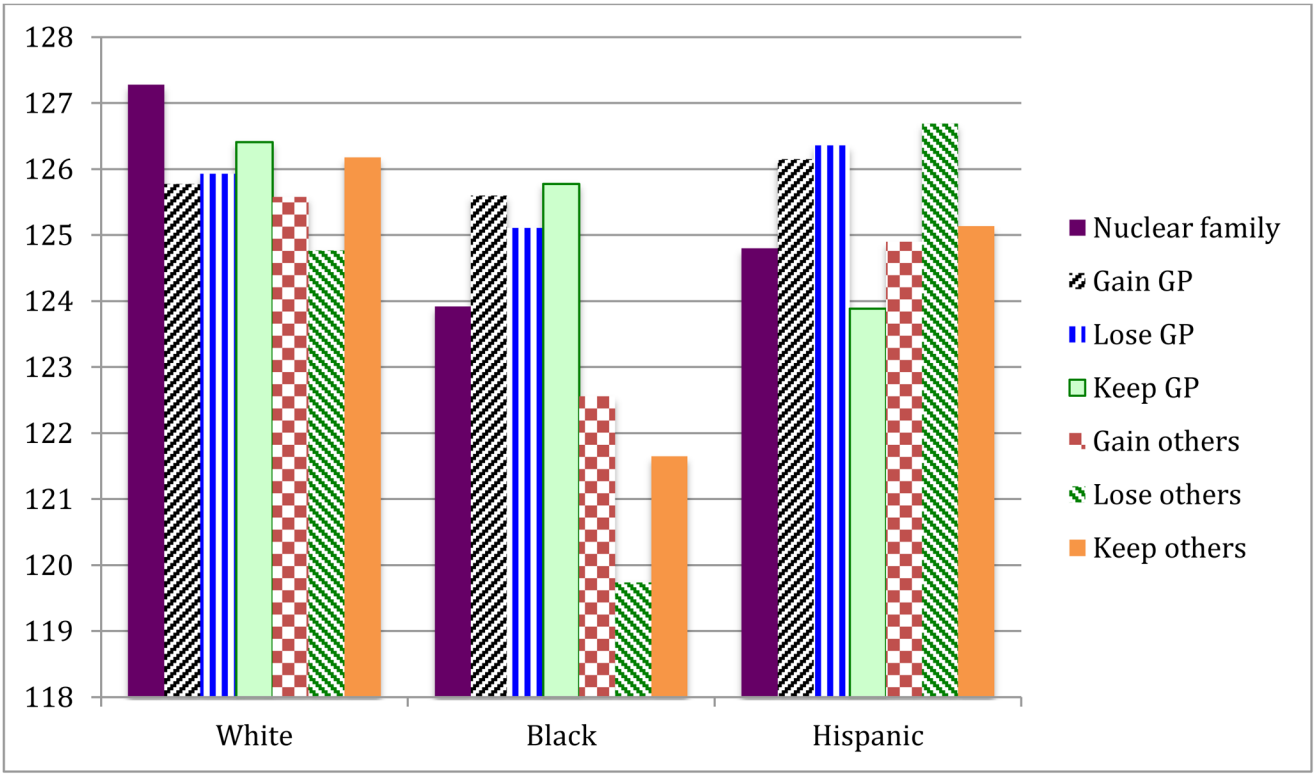

Figure 1. Predicted Age 2 Cognitive Scores, by Race/Ethnicity and Household Structure

Notes: Source: Early Childhood Longitudinal Study-Birth Cohort, 2001. N≈6700.
Predictions use estimates from Table 3, Model 4. GP = grandparents. Others = other adults.
Analyses account for sample design effects and probability weights.
Predicted values are computed using weighted sample means (if continuous)/medians (if ordinal) /modes (if dichotomous) for all variables except race/ethnicity and extended household structure.

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Table 1

Weighted Means and Proportions, by Race/Ethnicity

	All (N≈8550)	SD	White (N≈3650)	African American (N≈1350)	Latino (N≈1700)
Wave 1 cognitive T-score	50.08	(9.89)	50.60 #&	49.30 #	49.57 &
Wave 2 cognitive T-score	50.07	(9.99)	52.58 #&	47.28 #	46.40 &
Wave 1 family structure					
Nuclear: Married to bio dad	0.66		0.80 #&	0.28 #$	0.56 $&
Single	0.19		0.09 #&	0.58 #$	0.18 $&
Cohabiting with bio dad	0.14		0.09 #&	0.13 #$	0.25 $&
Nonbio partner	0.01		0.01 #	0.01 #	0.01
Extended: None	0.78		0.87 #&	0.66 #	0.65 &
Grandparent(s) only	0.10		0.07 #&	0.16 #$	0.12 $&
Other adult(s) only	0.07		0.03 #&	0.08 #$	0.15 $&
Grandparent(s) and other(s)	0.05		0.03 #&	0.10 #	0.08 &
Wave 1–2 transitions					
Partner: Neither wave	0.15		0.07 #&	0.51 #$	0.14 $&
Gain partner	0.04		0.03 #	0.07 #$	0.04 $
Lose partner	0.05		0.04 #	0.06 #	0.06
Keep partner	0.76		0.86 #&	0.36 #$	0.76 $&
Grandparents: Neither wave	0.82		0.88 #&	0.70 #$	0.76 $&
Gain grandparents	0.03		0.03 &	0.04	0.04 &
Lose grandparents	0.05		0.04 #	0.07 #	0.05
Keep grandparents	0.10		0.06 #&	0.19 #$	0.15 $&
Other adults: Neither wave	0.84		0.92 #&	0.77 #$	0.71 $&
Gain other adults	0.04		0.03 #&	0.06 #	0.06 &
Lose other adults	0.05		0.03 #&	0.06 #$	0.09 $&
Keep other adults	0.07		0.03 #&	0.11 #	0.14 &
Wave 2 assessment age	24.38	(1.16)	24.35	24.39	24.44

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	All (N≈8550)	SD	White (N≈3650)	African American (N≈1350)	Latino (N≈1700)
# others in household under 18	1.12	(1.18)	1.00 #&	1.40 #$	1.24 $&
Female child	0.49		0.49	0.48	0.49
Mom repeated a grade	0.15		0.12 #&	0.21 #	0.21 &
Mom live with parents until 16	0.59		0.64 #&	0.36 #$	0.59 $&
Mom on welfare age 5 to 16	0.11		0.08 #&	0.24 #$	0.10 $&
Foreign-born mother	0.21		0.05 #&	0.11 #$	0.57 $&
English is primary language	0.81		0.97 #&	0.96 #$	0.42 $&
Teenage mother at birth	0.11		0.07 #&	0.20 #$	0.14 $&
Mom's Wave 1 education (yrs)	12.78	(2.99)	13.76 #&	12.17 #$	10.86 $&
Wave 1 household income					
Under 100% of poverty line	0.23		0.12 #&	0.46 #$	0.35 $&
100–199%	0.29		0.23 #&	0.29 #$	0.38 $&
200–299%	0.12		0.14 #&	0.09 #	0.11 &
300–399%	0.12		0.16 #&	0.07 #	0.06 &
400% or greater	0.24		0.35 #&	0.08 #	0.09 &
Number of moves since wave 1	0.42	(0.69)	0.40 #&	0.50 #	0.45 &
Change in % of poverty line	0.05	(1.32)	0.06	0.03	0.06

Source: Early Childhood Longitudinal Study-Birth Cohort, 2001.

Notes: SD = standard deviation

White/African American difference significant at p<.05

& White/Latino difference significant at p<.05

$ African American/Latino difference significant at p<.05

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Table 2

Means for Cognitive Scores and Income by Race/Ethnicity and Extended Household Transitions

	Cognitive Score				
	Mean	**S.E.**	**Wave 1 % Poor**	**Wave 1 % Poor or Near Poor**	**Income Change (% of Poverty Line)**
White (N≈3650)					
Never coresident grandparents	52.95	0.26	9.57	30.70	7.76
Gain grandparents	48.59	1.73 #	33.11	74.09	28.17
Lose grandparents	50.14	0.82 #	22.93	65.49	−19.93
Keep grandparents	50.36	1.03 #	23.17	56.00	−16.79
Never other coresident adults	52.91	0.26	10.35	32.60	6.76
Gain others	48.52	1.37 #	17.75	52.91	−25.11
Lose others	48.44	1.48 #	30.75	67.34	27.01
Keep others	49.80	1.13 #	23.90	52.64	−16.72
African American (N≈1350)					
Never coresident grandparents	47.15	0.40	44.77	72.34	6.26
Gain grandparents	46.80	1.33	69.50	91.28	35.44
Lose grandparents	46.64	0.79	41.17	84.49	−13.19
Keep grandparents	48.11	0.77	50.18	80.18	−7.91
Never other coresident adults	47.86	0.40	44.60	72.87	5.85
Gain others	46.46	1.62	57.06	78.31	−16.28
Lose others	43.63	0.83 #	54.36	90.07	14.93
Keep others	45.81	0.87 #%	48.50	82.65	−11.37
Latino (N≈1700)					
Never coresident grandparents	46.24	0.37	33.07	73.10	7.74
Gain grandparents	48.06	1.47	35.55	74.10	−13.14
Lose grandparents	49.08	1.10 #	46.40	74.25	11.14
Keep grandparents	45.86	0.80 %	42.20	75.78	−0.58
Never other coresident adults	46.85	0.43	29.29	67.95	5.14
Gain others	45.26	1.07	40.37	82.40	−0.78
Lose others	46.65	0.87	52.55	86.19	20.21

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	Cognitive Score				
	Mean	**S.E.**	**Wave 1 % Poor**	**Wave 1 % Poor or Near Poor**	**Income Change (% of Poverty Line)**
Keep others	44.40	0.68 *#%*	52.13	90.51	3.28

Source: Early Childhood Longitudinal Study-Birth Cohort, 2001.

Notes:

Score is different from "never" at p<.05

$ different from "gain" at p<.05 (no occurrences)

% different from "lose" at p<.05

Never=not at waves 1 or 2; gain=at wave 2 but not 1; lose=at wave 1 but not 2; keep=present at both waves.

Poor=under federal poverty line for household size; near poor=101–200% of federal poverty line for household size. Income change is measured between Wave 1 (9 months) and Wave 2 (24 months).

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Table 3

Regression of Cognitive Scores on Extended Households, Race/Ethnicity, Resources, and Controls

Variable	Model 1	Model 2	Model 3	Model 4
Wave 1 cognitive score	0.25 ***	0.22 ***	0.21 ***	0.21 ***
Wave 2 assessment age	1.87 ***	1.96 ***	1.99 ***	2.00 ***
Grandparent transitions [b]				
Gain grandparent(s)	−3.31 †	−3.14 †	−1.76	−1.50
Lose grandparent(s)	−2.65 **	−2.01 *	−1.03	−1.35
Keep grandparent(s)	−2.20 *	−1.91 *	−1.08	−0.87
Other adult transitions [b]				
Gain other adult(s)	−2.78 *	−2.24 †	−1.86	−1.70
Lose other adult(s)	−2.84 †	−2.77 †	−2.48 †	−2.51 †
Keep other adult(s)	−2.04	−1.83	−1.29	−1.09
Child's race/ethnicity [c]				
African American (AA)	−5.56 ***	−4.51 ***	−3.51 ***	−3.36 ***
Latino/a (Lat)	−6.42 ***	−3.83 ***	−2.61 ***	−2.47 ***
Interactions				
AA * gain grandparent	4.83 *	4.79 *	3.49	3.17
AA * lose grandparent	3.78 **	3.23 *	2.38 †	2.54 †
AA * keep grandparent	3.86 **	3.47 **	2.81 *	2.72 *
Lat * gain grandparent	5.19 **	4.48 *	2.79	2.84
Lat * lose grandparent	5.46 ***	4.23 **	2.75 †	2.90 †
Lat * keep grandparent	1.88	1.34	0.02	−0.04
AA * gain other adult	1.09	0.37	0.37	0.34
AA * lose other adult	−2.08	−1.56	−1.61	−1.68
AA * keep other adult	−0.98	−0.54	−1.10	−1.18
Lat * gain other adult	0.84	1.78	1.85	1.79
Lat * lose other adult	2.67	4.20 *	4.40 **	4.39 **
Lat * keep other adult	0.16	1.69	1.63	1.43
# in household under 18		−0.66 ***	−0.37 *	−0.40 *
Female child		3.28 ***	3.28 ***	3.27 ***
Repeated a grade in school		−2.11 ***	−1.24 **	−1.21 **
Mom live with both parents		1.01 **	0.57	0.52
Mom on welfare as child		−0.61	−0.13	−0.08
Teenage mother		−0.66 †	0.42	0.47
Foreign-born mother		−1.46 *	−1.10 †	−1.11 †
English main language		3.16 ***	2.46 ***	2.55 ***

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Variable	Model 1	Model 2	Model 3	Model 4
Mother's Wave 1 education			0.35 ***	0.34 ***
Wave 1 household income [e]				
<100% poverty line			−2.67 ***	−2.51 ***
100–199%			−2.70 ***	−2.55 ***
200–299%			−2.33 ***	−2.24 ***
300–399%			−0.47	−0.45
Income change % poverty line			0.28 *	0.25 *
Wave 1 nuclear family [f]				
Stable cohabiting				−0.92 †
Gain partner				1.35 *
Lose partner				−1.33 †
Never partner				−0.64
Constant	72.11 ***	67.15 ***	63.35 ***	63.21 ***
R-squared	0.18	0.23	0.25	0.26
Design-based F	26.76 ***	34.07 ***	28.81 ***	24.76 ***

Source: Early Childhood Longitudinal Study-Birth Cohort, 2001. N≈6,700.

Notes: Analyses account for sample design effects.

* p<.05

** p<.01

*** p<.001

[a] 1=yes. Reference categories:

[b] Never

[c] Non-Latino white

[d] High school degree

[e] ≥400%

[f] Stable married