Running head: CHILDHOOD RESIDENTIAL INSTABILITY

Early Childhood Residential Instability and School Readiness:
Evidence from the Fragile Families and Child Wellbeing Study

Kathleen M. Ziol-Guest, Ph.D.*
Institute for Children and Poverty, New York, NY and Statistics Norway
44 Cooper Square, 4th Floor
New York, NY 10003
212.358.8086 (v) / 212.358.8090 (f)
kziol-guest@icpny.org

Claire McKenna
Institute for Children and Poverty, New York, NY
44 Cooper Square, 4th Floor
New York, NY 10003
212.358.8086 (v) / 212.358.8090 (f)
cmckenna@icpny.org

Keywords: housing instability; Fragile Families and Child Wellbeing Study; behavior problems;

test scores

*Corresponding author

Abstract

This paper assesses the consequences of residential instability during the first five years of a child's life for a host of school readiness outcomes. Using data from the Fragile Families and Child Wellbeing Study, we examine the relationship between multiple moves and children's cognitive and behavioral readiness at age five. We further test this relationship for differences among poor, near poor, and not poor children. We find that moving three or more times in a child's first five years is significantly associated with increases in several measures of internalizing and externalizing behavior. These effects are strongest for children who live in poverty.

Early Childhood Residential Instability and School Readiness: Evidence from the Fragile

Families and Child Wellbeing Study

Moving is a relatively common experience among families. Between 2002 and 2003

40.1 million U.S. residents moved, representing a moving rate of around 14 percent (Schachter,

2004). In 2002, 6.5 percent of all children, and 10.1 percent of low-income children, had been

living in their current homes less than 6 months (Roy, Maynard, & Weiss, 2008), illustrating

important differences in residential stability by socioeconomic status. In fact, over this time

period, the moving rate for those above poverty was 12.8 percent whereas the rate for those

below was 24.1 percent.

Existing studies link housing instability to a range of child and adolescent outcomes,

from lower school achievement to poorer social and emotional adjustment (e.g. Adam, 2004).

Housing instability might mean moving from one school to another, which suggests that it could

be especially detrimental for school-age children and adolescents. At the same time, there is

reason to believe that housing instability in early childhood (from birth to age five) will have

especially potent, and potentially long-lasting, impacts. One study, for example, found that

frequent moves during early childhood were more detrimental for school attainment than were

frequent moves during adolescence (Haveman, Wolfe, & Spaulding, 1991).

The primary goal of this paper is to examine the relationship between residential

instability and school readiness among a national sample of five year-old children. By

examining young children and their very early experiences, we are able to test if frequent moves

impact readiness for school prior to school entry. A review of geographic mobility data from the

American Housing Survey of the US Census indicates that among families who moved within

the same metropolitan area in 2005, the largest group (43%) had children under 6 years old. This

may suggest that if the highest rates of housing instability occur among families with preschool-age children, it is especially important to understand its effects among five year-olds. We use the most recent publically available in-home survey of the Fragile Families and Child Wellbeing Survey to examine these associations. We further contribute to the literature and what little is known about the impact of housing instability on low versus higher-income children, by demonstrating that poor children are more likely than their higher income counterparts to experience housing instability and residential mobility.

<div align="center">Background</div>

The home environment is one of the most important influences on young children's emotional, cognitive, and behavioral development (Bradley, Caldwell, & Rock, 1988; Bradley, et al, 1989). While there are many aspects of the home environment that may directly or indirectly influence child wellbeing, disruption and instability in the home environment also may play an important role (Ackerman, Kogos, Youngstrom, Schoff, & Izard, 1999; Adam & Chase-Lansdale, 2002). One source of instability is residential mobility, or frequent moves. Regardless of the reasons, moving likely disrupts a child's living environment and social connections outside of just the home.

Literature across various disciplines documents the relationship between residential instability and children's school performance, highlighting the impact on younger school-age children as well as adolescents. These studies find that, on average, students who experience residential moves perform less well than students who do not. Specifically, moving is related to reduced academic performance (Ingersoll, Camman, & Eckerlin, 1989; Haveman,Wolfe, & Spaulding, 1991; Pribesh & Downey, 1999; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993), greater rates of high school dropout (Astone & McLanahan, 1994; Crowder & South,

2003; Swanson & Schneider, 1999; South, Haynie, & Bose, 2007), and worse emotional and

behavioral outcomes (Pittman & Bowen, 1994; Wood, et al, 1993) often resulting in lower levels

of educational attainment (e.g. Haveman, Wolfe, & Spaulding, 1991). Even though high rates of

residential mobility are associated with poverty (Ackerman, Kogos, & Youngstrom, 1999),

analyses of the National Health Interview Survey show strong associations between moving

three or more times and increased behavioral, emotional, and school problems (Shinn &

Weitzman, 1996), even when poverty does not complicate the picture.

Residential instability may influence educational achievement and behavior problems

through its relationship with increased school mobility (Kerbow, 1996). A large body of

literature focusing on older children links residential instability to school moves. This school

mobility, or frequently changing schools, is associated with worse academic outcomes (e.g.

Crowder & South, 2003; Swanson & Schneider, 1999; South, Haynie, & Bose, 2007) and

emotional and behavioral problems (e.g. Pittman & Bowen 1994), as well as reduced social

competence and self-esteem. For preschool-age children and those who haven't yet entered the

school system, housing instability may affect the stability of early care arrangements. This

disruption could adversely affect children's developing school readiness skills resulting in

longer-run implications for school achievement and attainment. Should these differences exist

prior to school entry, they may help explain the relationship between mobility and academic

attainment later in adolescence.

Why young children may be especially vulnerable to housing instability

Due to the co-occurrence of residential and school mobility, the existing literature

examining the relationship between housing instability and children's school and behavior

outcomes has largely been limited to school-age children or adolescents. However, there is

reason to believe that these associations may be seen in even younger children, including those just getting ready to start school. Specifically, early childhood may be an especially vulnerable period for housing instability, due to its establishment as a critical period for brain development and for setting in place the physiological systems that will shape future cognitive, social, emotional, and health outcomes. Significant stress on these systems in early childhood may compromise brain development and lead to poorer later-life outcomes in many realms of development (Shonkoff & Phillips, 2000).

The distinct stages of child development, the transitions from one stage to the next, and the conditions under which the various stages and transitions take place are of great import to child development (Bronfenbrenner & Morris, 1998). Stable family environments whether characterized in terms of living arrangements and family structure, employment and economic conditions, or housing and neighborhood situations strengthen and promote positive family psychological processes such as parental emotional well-being and parenting (Chase-Lansdale & Pittman, 2002; McLoyd, 1990; McLoyd, Jayartne, Ceballo, & Borquez, 1994). Early childhood may be particularly sensitive to instability given the importance of the family as the context for development and well-being. Due to this context, housing instability in early childhood may be a critical period for shaping children's ability, health, and achievement (Bronfenbrenner & Morris, 1998; Shonkoff & Phillips, 2000).

Frequent moves are also a source of stress for parents, potentially affecting parents' psychological stress or harsh parenting behaviors. These stresses will be especially important during early childhood given the primacy of sensitive parent-child interactions for the development of young children's emotional skills (Fox, 1994). Depression and other forms of psychological distress can profoundly affect parents' interactions with their children and,

ultimately, negatively influencing children's own behavior and achievement (Zahn-Waxler, Duggal, & Gruber, 2002).

Economic models of child development (e.g., Becker, 1981) view families with higher economic resources as being better able to purchase or produce important "inputs" into their young children's development (e.g., enriched home learning environments and childcare settings outside the home; safe and stimulating neighborhood environments), and, with older children, higher-quality schools and university education. The degree to which these inputs are purchased is presumed to vary with their cost, the family's household income, and parents' preferences for purchases that meet their own versus their children's needs. Housing instability in early childhood may affect the stability of children's early care arrangements. Low-income parents may be less able to smooth consumption of high-quality care arrangements for their children in the aftermath of a housing transition compared to higher income families. This could adversely affect children's developing school readiness skills, with longer-run implications for school achievement and attainment.

Research in sociology suggests the ways in which young children may be affected by housing instability (Astone & McLanahan 1994; McLanahan & Sandefur 1994). Instability may alter families' social capital by affecting close ties or social networks that provide economic or emotional support and information; thus making the development of normal bonds among young children (with friends, babysitters, neighbors, parks, community centers, etc.) more difficult. In this sense, residential mobility is an indicator of children's access to social capital; with higher mobility the social relations that make up one's social capital are broken each time the child moves (Coleman, 1988). This diminished access to social capital may extend to parents and their networks for securing child-care or other preschool-related activities that may enhance

children's school readiness and other capabilities. In general the short-term effects of housing instability on social capital are likely disruptive, and may have long-term consequences for children's achievement and adjustment.

Finally, literature in epidemiology has suggested that the early years represent a sensitive period during which social processes become embedded in biology. As such, epigenetic modifications could be responsible for associations between early childhood housing instability and later outcomes (Weaver et al. 2004). For example, exposure to some types of early life stressors can result in physiological changes known to affect eventual adult health characteristics such as body mass (Gunstad et al. 2006). Given the family stress generally associated with residential moves, early childhood residential instability may show not only longer-term links to well-being, but also short-term associations with measures of development.

The present study draws on national data from the Fragile Families and Child Wellbeing Study, a national prospective survey of births, to estimate linkages between housing mobility in early childhood and children's school readiness. We measure housing instability by the number of the moves between birth and age five. The analyses relate an array of school readiness measures (designed to assess cognitive ability as well as emotional and behavioral problems) to moving at least three times plus a host of demographic control variables measured around the child's birth as well as economic status of the child's family over his/her lifetime. Because children in families with fewer resources may be more at risk for experiencing declining assessment due to the stress of a move, we conduct the analysis on sub-samples of poor, near poor, and not poor children. Low-income children face significant developmental challenges to their physical health, school readiness and achievement, and social and emotional well-being. These challenges may be compounded by their families' housing experiences. In fact, new work

in this area, while not focused specifically on housing instability but rather on poverty (a significant correlate of housing instability) has found elevated levels of a range of stress hormones among children growing up poor; moreover, the longer the children had lived in poverty, the higher their levels of physiological stress hormones (Evans & Schamberg, 2009).

Method

Sample

We conducted a secondary analysis of data from the Fragile Families and Child Wellbeing Study (FFCW), a longitudinal study that examines the conditions and capabilities of new parents and the welfare of their children. The FFCW study follows a cohort of 4,898 children born in 20 large U.S. cities between 1998 and 2001 (for information on sample and design of the study please see Reichman et al. 2001). Mothers and fathers were interviewed in the hospital after the birth of the child, and again by phone when the child was one, three, and five years of age. At years three and five, FFCW researchers conducted additional in-home assessments of approximately 3,000 households (78% of three-year core respondents and 73% of five-year core respondents). Mothers were interviewed, and the home environment and children's health and development were assessed.

Analyses focused on mothers who participated in all survey waves, including the five-year in-home survey, and who were living with their children at least most of the time (*n* = 2,679). Mothers who reported multiple births at baseline (95 observations) were excluded from our analyses. Observations were dropped for covariates with missing data. The final analysis resulted in a sample of 1,838 where mothers reported on both the dependent and independent variables.

Children's School Readiness

Cognitive ability. To measure children's cognitive ability, FFCW researchers administered the Peabody Picture Vocabulary Test-III (PPVT; Dunn and Dunn, 1997) and the Woodcock-Johnson Letter-Word Identification test (W-J; Woodcock and Johnson, 1990). The PPVT measures children's receptive vocabulary, or ability to recognize a word when he/she hears it. The interviewer read aloud a word and the focal child either pointed to the picture representing the word or identified the corresponding number of the picture. The Letter-Word Identification test is one of two subtests in the Basic Skills cluster of the Reading section of the Woodcock-Johnson Tests of Achievement. The focal child matched a pictorial representation of a word with a picture of the object; in the second portion he/she was shown letters and words in large type on a tabletop easel and prompted to say them out loud. FFCW researchers derived age-standardized scores for both tests ($M = 100$, $SD = 15$) from raw scores recorded at test time. For children age three to six, the PPVT demonstrates high internal reliability ($\alpha = .94$) and validity (Williams & Wang, 1997). For the W-J, internal reliability for preschool age children is .92 (Woodcock & Mather, 1989).

Behavioral School Readiness. Nine subscales adapted from the Child Behavior Checklist/4-18 (CBCL; Achenbach, 1991) were generated based on responses to items in the five-year in-home assessment. They include: aggressive behavior, delinquent behavior, social withdrawal, anxiety/depression, attention problems, social problems, internalizing behavior, externalizing behavior, and prosocial behavior. Mothers reported on the extent to which their children demonstrated the behavioral indicators for each subscale in the two months leading up to the survey date. Response choices were "0" for not true, "1" for somewhat or sometimes true, and "2" for very or often true. Mean scores for each subscale were generated. Mean scores

closer to two indicate more problematic behavior. Cases missing responses to more than 20

percent of subscale items were dropped.

The aggressive behavior subscale consists of 20 items (α = .85) including those such as

are "argues a lot" and "physically attacks people." Sample delinquent behavior subscale items,

of ten total (α = .48), are "lies or cheats" and "steals at home." Selected indicators for social

withdrawal are "would rather be alone than with others" and "is shy or timid." There are nine

items in all (α = .60). Items from the anxiety/depression subscale, of 14 total (α = .69), are

"complains of loneliness" and "is nervous, high strung, or tense." Sample subscale items for

attention problems, of 11 total (α = .73), are "acts too young for age" and "is impulsive or acts

without thinking." Selected social problems subscale items, of eight total (α = .41), are "acts too

young for (his or her) age" and "does not get along with other kids." The aggressive and

delinquent behavior subscale items comprise the total externalizing subscale (α = .86). The total

internalizing subscale consists of items from the social withdrawal and anxiety/depression

subscales (α = .76).

The in-home survey also includes 13 items that comprise the Express, or prosocial, aspect

of the two-part positive behavior subscale (α = .80) from the Adaptive Social Behavior Inventory

(ASBI; Hogan, Scott, and Bauer, 1992). Sample items are "understands others' feelings" and

"plays games and talks with other children."

Independent Variables

Residential instability. Based on previous research (e.g., Simpson & Fowler, 1994;

Haveman, Wolfe, & Spaulding, 1991; Wood, et al, 1993), a mother is considered to have

experienced residential instability if she moved residences at least *three* times over her child's

lifetime. This is captured with a dichotomous variable based on the sum of responses from the

one-, three-, and five-year core surveys in which mothers reported number of residential moves since the prior survey.

Child, maternal, and household characteristics. Child's gender (boy=0, girl=1) and age in months were recorded at the five-year in-home survey. Mother's age at her first birth was recorded at the one-year survey. Mother's race, citizenship, and education were measured at baseline. Mother's race was self-reported and includes non-Hispanic white, non-Hispanic black, Hispanic, and non-Hispanic other race (e.g., Asian, American Indian, and other). Mothers who stated that they were born in the U.S. were coded U.S.-born. Mother's education is captured with four variables: less than high school degree, high school degree or General Educational Development (GED), some college, and bachelor's or graduate degree. Mother's intellectual endowment to the focal child is captured with her PPVT score, administered at the three-year or five-year in-home surveys. Finally, all models control for whether or not the in-home interview was conducted in Spanish.

Household structure is captured with five variables. First, a dichotomous variable from the baseline survey indicates whether or not the birth of the focal child was the mother's first. Using the household roster compiled by FFCW researchers, continuous variables were generated representing the number of minor biological siblings and other children living in the household with the focal child at the five-year survey. Finally, all models control for whether or not the mother was married to the focal child's biological father at baseline, and whether or not the biological father lived in the household at the five-year survey.

Pre and post-natal care. Measures of pre- and post-natal care were collected at the baseline and one-year surveys. Mother's investment in her pregnancy is captured with a dichotomous variable indicating whether or not she visited a doctor or healthcare professional

within the first three months of her pregnancy. Mothers also reported at baseline whether or not they smoked during pregnancy. At the one-year survey mothers reported whether or not the focal child was ever breastfed.

Child and maternal health. Low birth weight (LBW) was calculated at baseline and refers to focal children who weighed less than 2,500 grams at birth. Measures of the mother's health were based on the mother's report at the baseline survey. Mothers reported if their health in general was excellent, very good, good, fair, or poor. A dichotomous variable was constructed representing either poor health (fair or poor) or not poor health (excellent, very good, or good).

Homeownership. A continuous variable was constructed indicating approximately the percent of the focal child's life living in a home owned by a biological parent or other family member. It functions as a measure of household wealth and unobserved neighborhood characteristics that could affect children's well-being. At baseline mothers reported whether or not they lived in homes owned, rented, or being bought by someone in their families. In subsequent waves they reported whether or not they owned or rented their homes or lived in homes owned or rented by family members. If a mother reported living in an owned home in two consecutive surveys, it was assumed that she lived in an owned home during the months in between regardless of whether or not she reported moving. For mothers who reported living in an owned home in nonconsecutive surveys (e.g., at baseline or at baseline and year three), or in two or three consecutive surveys and not in the next survey wave (or waves) (e.g., at baseline and year one or at baseline through year three), the number of months living in an owned home was assumed to be half of the period between the current and subsequent surveys. Therefore, the sample is restricted to mothers who participated in all four core surveys. Second, the number of months living in owned home is not imputed forward for mothers who reported living in an

owned home in the five-year survey but did not in the three-year survey. The number of months living in an owned home was divided by the focal child's age in months at the five-year survey and multiplied by 100. A flag is included for cases for which the number of owning months was imputed.

Average poverty ratio. We rely on poverty measures constructed by FFCW researchers in the core surveys that equal the ratio of total household income to the official poverty threshold of the previous year established by the U.S. Census, expressed as a proportion. (For more information on FFCW constructed variables please see "Introduction to the Public Use Data.") The average poverty ratio, expressed as a percent, represents the average of all poverty ratios in each survey year for each child.

Data Analysis and Statistical Methods

Ordinary least squares (OLS) regressions were used to test the association between residential instability and children's school readiness, as represented by PPVT and W-J scores and mean scores for selected CBCL subscales. Descriptive statistics were calculated using the national weights provided by the FFCW five-year core survey. Regression analyses are unweighted. Finally, standardized regression coefficients are also presented to assess the strength of the association between each independent variable and the outcomes of interest.

<center>Results</center>

Sample Description

Table 1 presents weighted means and standard deviations for all independent variables in the analyses for the total sample (*N = 1,346*), as well as by whether or not the household moved residences three or more times over the focal child's lifetime. Among the entire sample, 20

percent of children moved three or more times, with the average (median) number of moves 1.5 (1.0).

Those who moved three or more times differ from those who did not on a number of dimensions. Specifically, among households that moved three or more times mothers were younger at first birth, are less educated, and less likely to have been married to the child's father at birth or living with him when the child is five than mothers who did not move three or more times. Families who experienced residential instability owned their own home for a smaller proportion of the child's life compared to those who did not move.

Finally, children who move three or more times before the age of five are more likely to live in poverty than children who did not. Specifically, children who moved three or more times have lifetime incomes on average at 170 percent of the federal poverty threshold, compared to 295 percent among the non-movers. In addition, these mothers are more likely to have smoked during pregnancy and given birth to children with low birth weight.

Table 2 presents the weighted descriptive statistics of the measures of children's school readiness again for the total sample as well as by residential instability. Children who experience three or more moves before age 5 score 4.5 points, or one-third standard deviation, lower on the PPVT than children who do not. Children who experience more residential instability also have greater attention problems, a difference of .14 standard deviation.

Multivariate Results

OLS regression analyses were conducted to examine the relationship between residential instability and children's school readiness controlling for the characteristics described in the previous section. Subgroup analyses were conducted to determine the extent to which this relationship differs by the condition of poverty. Using the average poverty ratio, three sub-

samples were created: a sample of poor children (ratio less than 100 percent; income-to-needs), near poor children (between 100 and 200 percent), and not poor children (200 percent or greater). The hypothesis is that frequent moves during early childhood have a greater negative impact on children from poor households.

Table 3 presents the regression coefficients, standard errors, and standardized coefficients. With respect to cognitive outcomes, results suggest that there is no statistically significant relationship between residential instability and receptive vocabulary and letter-word identification. In fact, the largest predictor of children's cognitive scores is mother's PPVT. Other characteristics that have strong associations include the number of siblings the child lives with, mother's race, and average poverty ratio.

Residential instability during early childhood is associated with significant increases at age five in selected problem behaviors that reduce school readiness. Children who experience three or more moves in early life display more aggressive ($\beta = .05, p < .01$) and delinquent behaviors ($\beta = .02, p < .05$) at age five than children who do not. The extent of externalizing behavior and attention problems for these children also increases; moving three or more times predicts respective increases in mean scores at age five of .07 and .11 standard deviations ($p < .01$).

Comparing standardized coefficients indicates that moving three or more times during early childhood has the greatest negative impact on the extent to which children age 5 have attention problems (*beta* = .11), externalizing behavior (*beta* = .07), and aggressive (*beta* = .07) and delinquent behaviors (*beta* = .06). In addition, the absolute effect of residential instability on attention problems is comparable to that of key demographic variables, including child's sex ($\beta =$

-.10, $p < .001$) and mother's race as non-Hispanic black, compared to non-Hispanic white ($\beta = -$ .14, $p < .001$).

Residential instability in early childhood is not associated with a higher incidence at age 5 of social withdrawal, prosocial behavior, social problems, and anxiety and/or depression. Mean scores for these subscales increase, but by smaller and statistically insignificant amounts.

Subgroup analyses. To determine the extent to which the effects of residential instability differ by poverty status, the sample was split into three subgroups according to mother's average poverty ratio in the child's first five years. Table 4 presents the findings for these separate regressions. Regression results indicate that frequent moves in early childhood are worse for five-year old children who reside in poor households. Though residential instability among this group is not significantly associated with scores for receptive vocabulary ($\beta = -1.88$, ns) or letter-word identification ($\beta = -1.16$, ns), the link is strong between it and behavioral school readiness. Among the higher-income children, residential instability has an unexpected strong and positive influence on PPVT.

For all behavioral outcomes except prosocial behavior, residential instability is significantly associated with greater behavioral problems, but only among poor children. Specifically, five-year olds in poor households who experience three or more moves have more aggressive behavior ($\beta = .10$, $p < .01$) delinquent behavior ($\beta = .04$, $p < .01$), and externalizing behaviors, consisting of aggressive and delinquent behaviors ($\beta = .08$, $p < .01$). Frequent moves in early childhood among poor households are also associated with behavior at age five indicative of attention problems ($\beta = .11$, p < .001) social problems ($\beta = .06$, $p < .001$), and social withdrawal ($\beta = .05$, $p < .05$). Frequent moves are associated with anxious and/or

depressive behavior increases for children age five in poor households; but this increase is only significant at trend level.

Finally, although the coefficient on the housing instability measure is in the expected, negative direction, subgroup results show a weak and statistically insignificant association between residential instability in early childhood and prosocial behaviors in children age five. For near poor and not poor households, with average poverty ratios equal to or more than one, the coefficients on the residential instability indicator for all school readiness behavioral outcomes are insignificant.

Beta coefficients highlight the magnitude of the effect sizes for residential instability. Among poor children, frequent moves account for more than one-tenth a standard deviation increase in aggressive behavior, delinquent behavior, and social problems; and almost a one-fifth standard deviation increase in attention problems. In addition, it ranks among the most important predictors of selected behavioral school readiness outcomes for this population. Only mother's race as non-Hispanic black, compared to non-Hispanic white, has a greater absolute effect (*beta* = -.25, *p* < .001, *beta* = -.37, *p* < .05) on the extent to which these children have attention problems (*beta* = .19, *p* < .001) and aggressive behavior (*beta* = .13, *p* < .010). Children who live below the poverty threshold and who experienced residential instability have increases in delinquent behavior equal to .11 standard deviation (p < .01). Only US-born status (*beta* = .12, *p* < .05) and whether or not a child's biological father lives in the household when he or she is five years old (*beta* = .12, *p* < .05) predicts greater changes, either above or below zero. Besides residential instability (*beta* = .13, p < .01), mother's race as non-Hispanic black, compared to non-Hispanic white (*beta* = -.14), is the only significant predictor (*p* < .10) of externalizing behavior in poor children age five. Finally, only mother's PPVT score at year three or five (*beta*

= .09, *p* < .05) has a greater effect than residential instability (*beta* = .13, *p* < .01) on whether or not children age five show social withdrawal.

Discussion

This study complements the existing literature and illustrates the significant association between housing instability and young children's school readiness. Specifically, we investigated: (1) whether there is a relationship between housing instability and young children's cognitive and behavioral development prior to school entry; and (2) whether these relationships differ depending on whether the child spent his or her life in poverty or not. Findings suggest that housing instability is associated with greater aggressive behavior, delinquent behavior, and attention problems among the entire sample of children. In sub-sample analyses these associations are only significant for poor children. In addition, among children in poverty, moving is also associated with greater social withdrawal, anxious/depressed behavior, and social problems. One possible counterintuitive finding indicates a positive influence of residential instability on PPVT among higher-income children.

The significant relationship between instability and socioemotional outcomes is important, particularly in light of one study suggesting that three or more moves in early childhood is associated with a 13.7 percentage-point decrease off the base probability of graduating from high school -- 71% graduation rate versus 86% for those who did not (Haveman, Wolfe, & Spaulding, 1991). The importance of moving in early childhood, coupled with the literature on the relationship between moving and scholastic and behavioral outcomes, suggests that these relationships may manifest themselves earlier in childhood. Specifically, that the mechanism explaining the differences in adolescent outcomes may be these school readiness measures in young children about to enter school. That these disparities exist in five-year olds

imply that they may continue once children enter school.

In the total sample analysis there is no significant relationship between residential instability and test scores. However, among the highest income group of children (greater than 200% of the federal poverty level) moving three or more times before the age of five is associated with a .08 standard deviation increase in PPVT. A limitation of the data is that there is no information on the quality of the neighborhood that children are moving to. The impact of frequent moves on children's school readiness might be buffered if the neighborhoods to which families move experience less crime or violence, or lower poverty rates, for example. This may explain this positive relationship between instability and children's test scores among those most likely to be moving into better neighborhoods.

Taken together, these findings illustrate the relationship between residential instability and behavioral and socioemotional measures of school readiness, and the absence of a significant relationship with the cognitive measures. Existing studies document the child and adolescent relationship between instability and reduced academic performance, including dropping out of school. No literature that we are aware of presents the association between housing instability and measures of cognitive achievement such as grade point average or test scores. It is possible that instability disrupts a child's socioemotional development, which is demonstrated in adolescence with increased risk behaviors, dropout, and school problems. It may then be that increased behavioral problems result in lower levels of educational attainment.

Unlike previous literature in national survey data (Shinn & Weitzman, 1996), our total sample results (significant relationship between instability and behavioral outcomes) hold up only among children living in poverty. Studies of disadvantaged families suggest that family instability (including measures of residential moves) are related to preschool children's

externalizing behavior even when taking other family process variables into consideration (Ackerman, et al, 1999). In a study with a sample of Head Start children, residential instability compromised the warmth and harmony of the sibling relationship (Stoneman, Brody, Churchill, & Winn, 1999). Stoneman and colleagues suggest that residential instability compromises the relationship between young, low-income children and their older siblings. The current study cannot test for this relationship, but given the robustness of the findings to the poorest children, residential instability is most disruptive for low-income children.

Limitations

Our regression-adjusted estimates of the effects of housing instability on young children's school readiness are both statistically significant and qualitatively important; however, we are unable to assert causality due to the observational nature of the study design. Rather than housing instability causing children's behavior problems, children's behavior problems may cause instability in the family including moving. Alternatively, omitted variables of the family or neighborhood/community may cause both instability as well as behavior problems. Families who move more frequently exhibit more disadvantages than other families prior to moving (Pribesh & Downey, 1999). Since we are not able to disentangle these effects, we do control for as many observables as we have available and include sub-sample analyses by poverty level.

Furthermore, it is difficult to identify the potential mechanisms driving our results. We hypothesized that the relationship between housing instability and children's school readiness may operate through various ways as highlighted in different theoretical frameworks. We did not test this, as the temporal ordering of such potential mechanisms and moving is not known within the data. Because the relationship between instability and behavioral outcomes is most consistent and robust among the poorest children, it is possible that moving is a source of stress

and reduced access to social capital among parents.

One final data limitation is that our measure of homeownership is constructed from several questions in each survey (which vary from survey to survey), and does not necessarily represent the "true" value for a family. It is included to proxy for neighborhood quality, which is not available in the public data, and other parent characteristics (e.g. wealth). That we find no significant association between it and school readiness does not indicate that there are no neighborhood effects.

Conclusion

We find that residential instability in a child's early life is associated with significant reductions in behavioral school readiness at age five. Moving is particularly harmful for poor children, who experience more moves on average than families living above the poverty threshold. Ideally, one would want to limit the number of moves that poor children make, but the various policy levers that accomplish this are unclear. Policies that provide poor families with additional income support versus direct housing assistance deserve careful consideration as a plausible option.

One such proposal gaining support, and one that is politically palatable is an expansion of the federal Earned Income Tax Credit (EITC), a refundable tax credit for low- and moderate-income working families.   Currently the federal EITC reduces by roughly one-fifth the number of working families that bear severe housing-cost burdens -- that is spend more than 50 percent of gross income on housing (Stegman, Davis & Quercia, 2004). A separate, increased benefit could be introduced for families with three or more children, a group who historically has higher poverty rates than smaller families. Alternatively, given the impacts seen in early childhood, these additional benefits may be most relevant for families with very young children. Second,

the EITC could be adjusted to reflect housing costs, which vary widely by region, state, and

metropolitan area. One proposal which requires the least amount of administrative overhaul,

bases the credit on a "median housing-cost standard" (versus the actual housing costs of each

eligible family), and adjusts for a nationally weighted distribution of median housing costs across

selected metropolitan areas (Stegman, et al, 2004). Individual states might also consider such

proposals for their own EITC programs. By providing families with more income to spend on

housing, income support policy prescriptions could limit the number times they move (for

example, by preparing them for spending shocks such as unexpected rental increase) and by

extension provide children a more stable environment.

References

Achenbach, T.M. (1991). Manual for the Child Behavior Checklist/4-18 and 1991 profile.

Burlington, VT: University of Vermont, Department of Psychiatry.

Ackerman, B. P., Kogos, J., Youngstrom, E., Schoff, K., & Izard, C. (1999). Family instability

and the problem behaviors of children from economically disadvantaged families.

Developmental Psyschology, 35, 258-268.

Adam, E. (2004). Parental and residential stability and children's adjustment. *Current Directions*

in Psychological Science, 13, 210-213.

Adam, E. & Chase-Lansdale, P. L. (2002). Home sweet home(s): Parental separations,

residential moves, and adjustment problems in low-income adolescent girls.

Developmental Psychology, 38, 792-805.

Astone, N. M., & McLanahan, S. S. (1994). Family structure, residential mobility, and school

dropout: A research note. *Demography, 31,* 575-584.

Becker, G. (1981). (Revised and Enlarged in 1991) *A Treatise on Family*. Cambridge, MA:

Harvard University Press.

Bradley, R. H., Caldwell, B. M., & Rock. S. L. (1988). Home environment and school

performance: A ten-year follow-up and examination of three models of environmental

action. *Child Development, 59,* 852-867.

Bradley, R. H., Caldwell, B. M., Rock, S. L., Ramey, C. T., Barnard, K. E., Gray, C., Hammond,

M. A., Mitchell, S., Gottfried, A. W., Siegel, L., & Johnson, D. L. (1989). Home

environment and cognitive development in the first three years of life: A collaborative

study involving six sites and three ethnic groups in North America. *Developmental*

Psychology, 25, 217-235.

Bronfenbrenner, U. & Morris, P. (1998). The ecology of developmental processes. In Richard M. Lerner, ed., *Theoretical Models of Human Development* (pp. 993-1028). Vol. 1 of the *Handbook of Child Psychology,* 5th ed., Editor-in-chief: William Damon. New York: Wiley.

Chase-Lansdale, P.L., & Pittman, L.D. (2002). Welfare reform and parenting: Reasonable expectations. In M.K. Shields (Issue Ed.), *Future of Children*, Vol. 12, No. 1: Children and Welfare Reform (pp. 167-183). The David and Lucile Packard Foundation, Los Altos, CA.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94,* S94-S120.

Crowder, K., & South, S. J. (2003). Neighborhood distress and school dropout: The variable significance of community context. *Social Science Research, 32,* 659-698.

Dunn, L.M., & Dunn, L.M. (1997). *Examiner's manual for the Peabody Picture Vocabulary Test, Third Edition*. Circle Pines, MN: American Guidance Service.

Evans, G. W. & Schamberg, M. A. (2009). Childhood poverty, chronic stress, and adult working memory. *Proceedings of the National Academy of Sciences, 106,* 6545-6549.

Fox, N. (1994). *The development of emotion regulation: biological and behavioral considerations*. Monographs of the Society for Research in Child Development, 59.

Gunstad, J., Paul, R. H., Spitznagel, M. B., et al. (2006). Exposure to early life trauma is associated with adult obesity. *Psychiatry Research, 142*, 31-37.

Haveman, R., Wolfe, B., & Spaulding, J. (1991). Childhood events and circumstances influencing high school completion. *Demography, 28*, 133-157.

Hendershott, A. B. (1989). Residential mobility, social support and adolescent self-concept.

Adolescence, 24, 217-232.

Hogan, A.E., Scott, K.G., & Bauer, C.R. (1992). The Adaptive Social Behavior Inventory

(ASBI): A new assessment of social competence in high-risk five-year-olds. *Journal of*

Psychoeducational Assessment, 10, 230-239.

Ingersoll, G. M., Scamman, J. P., & Eckerling, W. D. (1989). Geographic mobility and student

achievement in an urban setting. *Educational Evaluation and Policy Analysis, 11,* 143-

149.

Kerbow, D. (1996). Patterns of urban student mobility and local school reform. *Journal of*

Education for Students Placed at Rich, 1, 147-169.

McLanahan, S. S. & Sandefur, G. D. (1994). *Growing up with a Single Parent.* Cambridge, MA:

Harvard University Press.

McLoyd, V.C. (1990). The impact of economic hardship on Black families and children:

Psychological distress, parenting, and socioemotional development. *Child Development*,

61, 311-346.

McLoyd, V.C., Jayaratne, T.E., Ceballo, R., & Borquez, J. (1994). Unemployment and work

interruption among African American single mothers: Effects on parenting and

socioemotional functioning. *Child Development, 65*, 562–589.

Pittman, J. F. & Bowen, G. L. (1994). Adolescents on the move: Adjustments to family

relocation, *Youth & Society, 26,* 69-91.

Pribesh, S., & Downey, D. B. (1999). Why are residential and school moves associated with poor

school performance? *Demography, 36,* 521-534.

Roy, J., Maynard, M., and Weiss, E. (2008). *The Hidden Costs of the Housing Crisis*. The

Partnership for America's Economic Success. Available at

http://www.partnershipforsuccess.org/index.php?id=01.

Schachter, J. (2004). *Geographic mobility: 2002 to 2003*. Washington, DC: U.S. Census Bureau.

Shinn, M. and Weitzman, B. (1996). Homeless families are different. In Baumohl, J. (ed.),

Homelessness in America. Phoenix, AZ: Oryx Press.

Shonkoff, J., & Phillips, D. (Eds.). (2000). *From neurons to neighborhoods: The science of early*

childhood development Washington, DC: National Academy Press.

Simpson, G.A., & Fowler, M. G. (1994). Geographic mobility and children's

emotional/behavioral adjustment and school functioning. *Pediatrics, 93,* 303-309.

South, S. J., Haynie, D. L., & Bose, S. (2007). Student mobility and school dropout. *Social*

Science Research, 36, 68-94.

Stegman, M. A., Davis, W. R., & Quercia, R. G. (2004). The Earned Income Tax Credit as an

Instrument of Housing Policy. *Housing Policy Debate, 15*, 203-260.

Stoneman, Z., Brody, G. H., Churchill, S. L., & Winn, L. L. (1999). Effects of residential

instability on Head Start children and their relationships with older siblings:: Influences

of child emotionality and conflict between family caregivers. *Child Development, 70,*

1246-1262.

Swanson, C. B., & Schneider, B. (1999). Students on the move: Residential and educational

mobility in America's schools. *Sociology of Education, 72,* 54-67.

Weaver, I. C. G., Cervoni, N., Champagne, F. A., D'Alessio, A. C., Sharma, S., Seckl, J. R.,

Dymove, S., Szyf, M, & Meaney, M. J. (2004). Epigenetic programming by maternal

behavior. *Nature Neuroscience, 7,* 847-854.

Wood, D., Halfon, N., Scarlata, D., Newacheck, P., & Nessim, S. (1993). Impact of family

relocation on children's growth, development, school function, and behavior. *JAMA,*

270, 1334-1338.

Woodcock, R.W., & Johnson, M.B. (1990). *Manual for the Woodcock-Johnson Tests of Achievement-Revised*. Allen, TX: RCL Enterprises.

Woodcock, R.W., & Mather, N. (1989). WJ-R Tests of Achievement: Examiner's Manual. In: R.W. Woodcock and M.B. Johnson, *Woodcock-Johnson Psycho-Educational Battery-Revised.* Chicago: Riverside.

Zahn-Waxler, C., Duggal, S., & Gruber, R. (2002). Parental psychopathology. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 4: Social conditions and applied parenting* (2nd ed.) (pp. 295-327). Mahwah, NJ: Lawrence Erlbaum Associates.

Table 1
Weighted Descriptive Statistics of Independent Variables

	Total Sample (n=1,346)		Moved <3 Times (n=1,081)		Moved 3+ Times (n=264)		P-value
	Mean or %	SD	Mean or %	SD	Mean or %	SD	
Residential instability							
Moved 3+ times	19.7%	--	--	--	--	--	--
Number of moves	1.44	1.56	0.81	0.78	4.04	1.21	<.001
Child characteristics							
Focal child female	42.9%	--	41.1%	--	50.0%	--	0.236
Focal child age, year 5 (months)	63.91	2.28	63.87	2.27	64.07	2.32	0.191
Maternal characteristics							
Age, first birth (years)	23.31	5.72	23.86	5.86	21.05	4.45	<.001
Non-Hispanic White	40.4%	--	43.2%	--	29.0%	--	0.041
Non-Hispanic Black	29.6%	--	26.4%	--	42.6%	--	0.016
Non-Hispanic of other race	7.0%	--	8.2%	--	2.0%	--	0.018
Hispanic	23.0%	--	22.2%	--	26.3%	--	0.543
Born in U.S.	87.1%	--	85.3%	--	94.3%	--	0.012
Less than high school degree	20.5%	--	16.6%	--	36.4%	--	<.001
High school degree or GED	35.8%	--	35.4%	--	37.4%	--	0.788
Some college	20.4%	--	19.3%	--	24.9%	--	0.423
Bachelor's or graduate degree	23.3%	--	28.7%	--	1.4%	--	<.001
PPVT score, year 3 or 5	92.18	12.91	91.95	13.12	93.14	11.95	0.179
Interview in Spanish	2.4%	--	2.9%	--	0.0%	--	0.277
Household characteristics							
Child first born	37.0%	--	33.7%	--	50.5%	--	0.020
Number siblings, year 5	2.40	1.06	2.48	1.05	2.09	1.08	<.001
Number other children, year 5	0.12	0.499	0.10	0.37	0.22	0.83	<.001
Mother married to BF, baseline	58.2%	--	64.8%	--	31.6%	--	<.001
Mother living with BF, year 5	55.5%	--	61.0%	--	32.9%	--	<.001
Pre- and post-natal care							

Visited doctor in first trimester	87.3%	---	87.6%	---	86.0%	---	0.695
Smoked during pregnancy	16.0%	---	12.8%	---	29.1%	---	0.001
Breastfed	63.6%	---	65.3%	---	56.8%	---	0.239
Child and maternal health							
Low birth weight	5.6%	---	4.5%	---	10.2%	---	0.019
Mother health not good, baseline	6.6%	---	5.7%	---	10.1%	---	0.238
Homeownership							
Percent child's life in owned home	37.58	42.38	43.44	43.28	13.60	27.73	<.001
Poverty Ratio							
Average lifetime	270.73	256.13	295.25	275.13	170.43	109.16	<.001

Note: Continuous outcomes reported for 947 respondents who moved less than three times. Continuous outcomes reported for 399 respondents who moved three or more times. Chi-square test performed to test differences in percentages for dichotmous variables. One-way ANOVA performed to test differences in means for continuous variables.

Table 2
Weighted Descriptive Statistics of Children's School Readiness Outcomes

	Total Sample		Moved <3 Times		Moved 3+ Times		
	Mean	SD	Mean	SD	Mean	SD	P-value
Cognitive ability							
PPVT (standardized)	97.55	15.54	98.46	15.43	93.84	15.44	<.001
W-J (standardized)	102.82	13.99	102.93	13.13	102.34	17.08	0.537
Behavioral school readiness							
Aggressive behavior	0.55	0.30	0.55	0.30	0.56	0.32	0.703
Delinquent behavior	0.20	0.18	0.20	0.17	0.21	0.21	0.447
Social withdrawal	0.24	0.22	0.24	0.22	0.22	0.22	0.132
Anxious/depressed behavior	0.25	0.22	0.24	0.22	0.25	0.21	0.490
Attention problems	0.29	0.28	0.28	0.27	0.32	0.30	0.043
Social problems	0.25	0.22	0.25	0.22	0.25	0.20	0.904
Internalizing behavior	0.24	0.19	0.24	0.19	0.24	0.18	0.813
Externalizing behavior	0.43	0.24	0.43	0.24	0.44	0.27	0.634
Prosocial behavior	1.62	0.25	1.62	0.24	1.62	0.25	0.978

Note: PPVT score reported for 1,350 respondents. W-J for 1,348 respondents. Aggressive behavior, attention problems, social problems and externalizing behavior reported for 1,310 respondents. Delinquent behavior for 1,357 respondents. Social withdrawal for 1,355 respondents. Anxious/depressed behavior and internalizing behavior for 1,309 respondents. Prosocial behavior for 1,356 respondents.

Table 3

Ordinary Least Squares Regression Analyses: Children's School Readiness

	PPVT (standardized)				W-J (standardized)				Aggressive Behavior			
	B		SE	Beta	B		SE	Beta	B		SE	Beta
Moved 3+ times	-0.80		0.71	-0.02	-1.14		0.76	-0.03	0.05	***	0.02	0.07
Focal child female	2.00	***	0.60	0.07	3.72	***	0.65	0.12	-0.03	**	0.02	-0.05
Focal child age, year 5 (months)	0.30	***	0.10	0.06	0.36	***	0.11	0.07	-0.01	***	0.00	-0.07
Mother age, first birth (years)	0.19	**	0.08	0.06	0.13		0.09	0.04	0.00	*	0.00	-0.06
Black	-5.26	***	0.92	-0.17	5.47	***	0.99	0.18	-0.04		0.02	-0.06
Other	-0.97		1.99	-0.01	4.92	**	2.15	0.05	0.03		0.05	0.02
Hispanic	-5.64	***	1.06	-0.15	0.48		1.15	0.01	-0.03		0.03	-0.03
Mother US-born	1.78		1.40	0.03	-5.14	***	1.51	-0.09	-0.02		0.04	-0.02
Some high school	-2.12		1.60	-0.06	-4.51	***	1.72	-0.14	0.10	**	0.04	0.15
High school diploma	-2.47	*	1.47	-0.08	-2.46		1.59	-0.08	0.08	**	0.04	0.12
Some college	0.28		1.35	0.01	-1.04		1.45	-0.03	0.06	*	0.03	0.08
Mother PPVT score, year 3 or 5	0.29	***	0.03	0.24	0.16	***	0.03	0.13	0.00		0.00	0.00
Interview in Spanish	0.64		3.09	0.00	-3.63		3.33	-0.03	0.09		0.08	0.03
Focal child first born	-1.26	*	0.74	-0.04	0.20		0.80	0.01	-0.02		0.02	-0.02
Number siblings, year 5	-1.44	***	0.29	-0.12	-1.42	***	0.31	-0.12	0.01		0.01	0.03
Number other children, year 5	-1.17	**	0.54	-0.04	-1.00	*	0.58	-0.04	-0.02		0.01	-0.03
Mother married to BF, baseline	-2.13	**	0.97	-0.06	-0.41		1.05	-0.01	-0.02		0.02	-0.03
Mother living with BF, year 5	1.24	*	0.71	0.04	1.47	*	0.77	0.05	-0.07	***	0.02	-0.10
Visited doctor in first trimester	0.25		0.80	0.01	0.38		0.86	0.01	0.02		0.02	0.02
Smoked during pregnancy	0.43		0.80	0.01	-1.13		0.86	-0.03	0.06	***	0.02	0.07
Breastfed	1.86	***	0.66	0.06	1.05		0.72	0.03	0.01		0.02	0.02
Low birth weight	-1.52		1.04	-0.03	0.28		1.13	0.01	0.01		0.03	0.01
Mother health not good, baseline	-1.18		1.22	-0.02	0.03		1.32	0.00	0.06	*	0.03	0.04
Percent child's life in owned home	0.02	*	0.01	0.05	-0.01		0.01	-0.02	0.00	**	0.00	0.07
Average poverty ratio	0.01	***	0.00	0.10	0.01	***	0.00	0.10	0.00		0.00	-0.06

	Delinquent Behavior			Social Withdrawal			Anxious/Depressed Behavior		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
Constant	49.38 ***	8.34	---	67.45 ***	9.02	---	1.03 ***	0.21	---
Number of observations	1,827			1,822			1,757		
F-Test	28.80 ***			14.10 ***			5.38 ***		
R-Squared	0.29			0.17			0.07		
Moved 3+ times	0.02 **	0.01	0.06	0.02	0.01	0.04	0.02	0.01	0.03
Focal child female	-0.04 ***	0.01	-0.11	-0.03 ***	0.01	-0.06	0.01	0.01	0.01
Focal child age, year 5 (months)	0.00	0.00	-0.04	0.00	0.00	-0.04	0.00	0.00	-0.01
Mother age, first birth (years)	0.00	0.00	-0.04	0.00	0.00	0.02	0.00	0.00	0.02
Black	0.00	0.01	0.00	-0.03 **	0.02	-0.08	-0.04 **	0.02	-0.08
Other	0.02	0.03	0.02	0.04	0.03	0.03	0.02	0.03	0.02
Hispanic	0.00	0.01	0.00	0.01	0.02	0.02	0.01	0.02	0.02
Mother US-born	0.03	0.02	0.04	0.02	0.02	0.02	-0.02	0.02	-0.02
Some high school	0.03	0.02	0.09	0.04	0.03	0.09	0.04	0.03	0.09
High school diploma	0.02	0.02	0.07	0.03	0.02	0.07	0.04	0.02	0.08
Some college	0.01	0.02	0.03	0.01	0.02	0.02	0.01	0.02	0.02
Mother PPVT score, year 3 or 5	0.00 *	0.00	-0.05	0.00 ***	0.00	-0.12	0.00 ***	0.00	-0.10
Interview in Spanish	0.03	0.04	0.02	-0.09 *	0.05	-0.04	0.05	0.05	0.02
Focal child first born	0.01	0.01	0.02	0.01	0.01	0.03	0.03 ***	0.01	0.07
Number siblings, year 5	0.01 *	0.00	0.05	0.01 **	0.00	0.07	0.00	0.00	0.00
Number other children, year 5	-0.01	0.01	-0.02	0.00	0.01	0.01	-0.01	0.01	-0.02
Mother married to BF, baseline	0.00	0.01	-0.01	-0.01	0.02	-0.02	-0.03 **	0.02	-0.06
Mother living with BF, year 5	-0.04 ***	0.01	-0.11	-0.01	0.01	-0.02	-0.02	0.01	-0.04
Visited doctor in first trimester	-0.01	0.01	-0.02	-0.02	0.01	-0.03	0.01	0.01	0.01
Smoked during pregnancy	0.02 **	0.01	0.06	0.00	0.01	0.00	0.01	0.01	0.01
Breastfed	0.01	0.01	0.04	0.01	0.01	0.01	0.03 ***	0.01	0.08

Note: * p < .10; ** p < .05; *** p < .01.

Non-Hispanic White and Bachelor's or Graduate degree omitted.

	Attention Problems			Social Problems			Internalizing Behavior		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
Moved 3+ times	0.06 ***	0.01	0.11	0.02	0.01	0.04	0.02 *	0.01	0.04
Focal child female	-0.05 ***	0.01	-0.10	0.00	0.01	0.00	-0.01	0.01	-0.02
Focal child age, year 5 (months)	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	-0.02
Mother age, first birth (years)	0.00	0.00	-0.01	0.00	0.00	0.01	0.00	0.00	0.02
Black	-0.07 ***	0.02	-0.14	0.00	0.02	-0.01	-0.04 ***	0.01	-0.10
Other	-0.04	0.04	-0.03	0.00	0.03	0.00	0.03	0.03	0.03
Hispanic	-0.03	0.02	-0.05	0.02	0.02	0.03	0.01	0.02	0.02
Mother US-born	0.03	0.03	0.03	0.03	0.02	0.04	0.00	0.02	-0.01
Some high school	0.04	0.03	0.08	0.02	0.03	0.05	0.04	0.02	0.09
High school diploma	0.04	0.03	0.07	0.02	0.02	0.04	0.03	0.02	0.09
Some college	-0.01	0.03	-0.01	-0.02	0.02	-0.04	0.01	0.02	0.02
Mother PPVT score, year 3 or 5	0.00	0.00	-0.03	0.00 ***	0.00	-0.11	0.00 ***	0.00	-0.13
Interview in Spanish	0.10 *	0.06	0.04	0.09	0.05	0.04	-0.01	0.05	-0.01
Focal child first born	0.04 ***	0.01	0.07	0.01	0.01	0.01	0.02 **	0.01	0.06
Number siblings, year 5	0.01	0.01	0.04	0.01	0.00	0.04	0.00	0.00	0.03
Number other children, year 5	-0.01	0.01	-0.01	0.00	0.01	0.00	0.00	0.01	-0.01
Mother married to BF, baseline	0.00	0.02	0.00	0.00	0.02	-0.01	-0.02 *	0.01	-0.05
Mother living with BF, year 5	-0.03 **	0.01	-0.07	-0.02 *	0.01	-0.05	-0.02	0.01	-0.04
Low birth weight	0.00	0.01	-0.01	0.01	0.02	0.01	-0.02	0.02	-0.03
Mother health not good, baseline	0.01	0.02	0.01	0.01	0.02	0.01	0.06 ***	0.02	0.07
Percent child's life in owned home	0.00	0.00	0.05	0.00	0.00	0.01	0.00 *	0.00	0.05
Average poverty ratio	0.00 **	0.00	-0.03	0.00 ***	0.00	-0.08	0.00	0.00	-0.04
Constant	0.35 ***	0.11	---	0.66 ***	0.14	---	0.35 **	0.14	---
Number of observations	1,837			1,834			1,756		
F-Test	5.20 ***			5.10 ***			3.88 ***		
R-Squared	0.07			0.07			0.06		

Note: * p < .10; ** p < .05; *** p < .01.
Non-Hispanic White and Bachelor's or Graduate degree omitted.

	B	SE	Beta	B	SE	Beta	B	SE	Beta
Visited doctor in first trimester	-0.02	0.02	-0.03	0.00	0.01	0.00	0.00	0.01	-0.01
Smoked during pregnancy	0.02	0.02	0.03	0.03**	0.01	0.05	0.01	0.01	0.01
Breastfed	0.02	0.01	0.03	0.01	0.01	0.03	0.02**	0.01	0.07
Low birth weight	0.02	0.02	0.02	0.00	0.02	0.01	-0.01	0.02	-0.02
Mother health not good, baseline	0.05**	0.02	0.05	0.03	0.02	0.03	0.04**	0.02	0.05
Percent child's life in owned home	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.04
Average poverty ratio	0.00*	0.00	-0.07	0.00**	0.00	-0.08	0.00*	0.00	-0.07
Constant	0.28*	0.17	---	0.31**	0.14	---	0.50***	0.12	---
Number of observations	1,757			1,757			1,756		
F-Test	5.40***			4.50***			4.75***		
R-Squared	0.08			0.06			0.07		

Note: * p < .10; ** p < .05; *** p < .01.
Non-Hispanic White and Bachelor's or Graduate degree omitted.

	Externalizing Behavior			Prosocial Behavior		
	B	SE	Beta	B	SE	Beta
Moved 3+ times	0.04***	0.01	0.07	0.01	0.01	0.03
Focal child female	-0.03***	0.01	-0.07	0.03**	0.01	0.05
Focal child age, year 5 (months)	-0.01***	0.00	-0.07	0.00	0.00	0.01
Mother age, first birth (years)	0.00**	0.00	-0.07	0.00***	0.00	-0.08
Black	-0.03	0.02	-0.05	0.00	0.02	0.00
Other	0.03	0.04	0.02	-0.01	0.04	-0.01
Hispanic	-0.02	0.02	-0.03	0.03	0.02	0.04
Mother US-born	-0.01	0.03	-0.01	0.07**	0.03	0.07
Some high school	0.08**	0.03	0.14	-0.01	0.03	-0.01
High school diploma	0.06**	0.03	0.11	-0.01	0.03	-0.02
Some college	0.04	0.03	0.07	0.02	0.03	0.03
Mother PPVT score, year 3 or 5	0.00	0.00	-0.01	0.00***	0.00	0.13
Interview in Spanish	0.07	0.06	0.03	0.00	0.06	0.00
Focal child first born	-0.01	0.01	-0.01	0.02	0.01	0.04

	b (1)	SE (1)	β (1)	b (2)	SE (2)	β (2)
Number siblings, year 5	0.01	0.01	0.04	-0.01 *	0.01	-0.05
Number other children, year 5	-0.01	0.01	-0.03	-0.01	0.01	-0.03
Mother married to BF, baseline	-0.01	0.02	-0.02	-0.01	0.02	-0.01
Mother living with BF, year 5	-0.06 ***	0.01	-0.11	0.01	0.01	0.03
Visited doctor in first trimester	0.01	0.02	0.01	0.00	0.01	0.01
Smoked during pregnancy	0.05 ***	0.02	0.07	0.02	0.02	0.03
Breastfed	0.01	0.01	0.02	0.03 **	0.01	0.06
Low birth weight	0.01	0.02	0.01	-0.01	0.02	-0.01
Mother health not good, baseline	0.04 *	0.02	0.04	0.01	0.02	0.01
Percent child's life in owned home	0.00 **	0.00	0.07	0.00 ***	0.00	0.01
Average poverty ratio	0.00	0.00	-0.06	0.00 ***	0.00	0.10
Constant	0.81 ***	0.17	---	1.30 ***	0.16	---
Number of observations	1,757			1,836		
F-Test	5.88 ***			5.36 ***		
R-Squared	0.08			0.07		

Note: * p < .10; ** p < .05; *** p < .01.
Non-Hispanic White and Bachelor's or Graduate degree omitted.

Table 4

Ordinary Least Squares Regression Analyses: Children's School Readiness by Poverty Group

	PPVT (Standardized)			W-J (Standardized)		
	B	SE	Beta	B	SE	Beta
Moved 3+ times, 0-99	-1.88	1.17	-0.06	-1.16	1.19	-0.04
Moved 3+ times, 100-199	-1.44	1.18	-0.05	-1.56	1.26	-0.05
Moved 3+ times, 200+	2.90 **	1.38	0.08	-0.58	1.66	-0.02

Note: * p < .10; ** p < .05; *** p < .01.

	Aggressive Behavior			Delinquent Behavior		
	B	SE	Beta	B	SE	Beta
Moved 3+ times, 0-99	0.10 ***	0.03	0.13	0.04 ***	0.02	0.11
Moved 3+ times, 100-199	0.02	0.03	0.02	0.00	0.02	0.00
Moved 3+ times, 200+	0.01	0.03	0.02	0.02	0.02	0.04

Note: * p < .10; ** p < .05; *** p < .01.

	Anxious/Depressed Behavior			Attention Problems		
	B	SE	Beta	B	SE	Beta
Moved 3+ times, 0-99	0.03 *	0.02	0.07	0.11 ***	0.02	0.19
Moved 3+ times, 100-199	0.00	0.02	0.00	0.01	0.02	0.03
Moved 3+ times, 200+	0.01	0.02	0.01	0.04	0.03	0.06

Note: * p < .10; ** p < .05; *** p < .01.

	Internalizing Behavior			Externalizing Behavior		
	B	SE	Beta	B	SE	Beta
Moved 3+ times, 0-99	0.04 **	0.02	0.09	0.08 ***	0.02	0.13
Moved 3+ times, 100-199	0.01	0.02	0.01	0.01	0.02	0.02
Moved 3+ times, 200+	-0.01	0.02	-0.01	0.01	0.03	0.03

Note: * p < .10; ** p < .05; *** p < .01.

	Social Withdrawal			Social Problems			Prosocial Behavior		
	B	SE	Beta	B	SE	Beta	B	SE	Beta
Moved 3+ times, 0-99	0.05 **	0.02	0.09	0.06 ***	0.02	0.12	-0.01	0.02	-0.01
Moved 3+ times, 100-199	0.01	0.02	0.03	-0.03	0.02	-0.06	0.03	0.02	0.06
Moved 3+ times, 200+	-0.03	0.02	-0.06	0.01	0.02	0.01	0.02	0.03	0.03