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Residential Mobility and Social and Academic Outcomes for Elementary-Aged Children

A thesis submitted in partial satisfaction of the requirements for the degree Master of Arts in

Education

by

Jeffrey Yo

2022

ABSTRACT OF THE THESIS

Residential Mobility and Social and Academic Outcomes for Elementary-Aged Children

by

Jeffrey Yo

Master of Arts in Education

University of California, Los Angeles, 2022

Professor Rashmita S. Mistry, Chair

While residential mobility is common in the United States, residential mobility's influence in children's development is unclear. Coley and Kull's (2016) work in the residential mobility empirical literature, which uses the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, suggests that residential mobility is negatively associated with children's cognitive skills and socioemotional outcomes. Yet, they note small associations, which leaves the role residential mobility has on child's development unresolved. To investigate residential mobility's role in children development, this study replicates and extends Coley & Kull's study using the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11, a more contemporary cohort, to assess the frequency and timing of residential moves on child functioning. Counter to expectations, findings show no association between the frequency and timing of residential mobility and students' fifth grade child functioning. Implications for research design and policy involving residential mobility as a trigger for student services are discussed.

The thesis of Jeffrey Yo is approved.

Lucrecia Santibañez

Anna Justine Markowitz

Rashmita S. Mistry, Committee Chair

University of California, Los Angeles

2022

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Introduction

Residential mobility is common in the United States—between 2018 and 2019, 11.1% of households with children younger than 18 years old, which includes over eight million children, experienced at least one residential move (U.S. Census Bureau, 2019). Residential mobility can lead to changes in neighborhood and school contexts, which can interrupt a child's learning and development in school (Fowler et al., 2017). These moves may be particularly deleterious for early elementary school-aged children from families with low incomes, who are more likely to experience such moves (Ziol-Guest & McKenna, 2014) during a critical time in their academic development (Morrison et al., 2019).

Despite the prevalence of residential mobility in the United States, the role that residential mobility plays in a child's development is unclear. While some researchers have documented how residential moves can create stress, interrupt a child's development, an interruption that may matter more for younger children and those from families experiencing economic adversity (Coley & Kull, 2016; Cutuli et al., 2013; Obradović et al., 2009; Ziol-Guest & McKenna, 2014), other researchers show that residential mobility does not have a statistically significant association with children's developmental outcomes once accounting for child and family factors (Howland et al., 2017; Tobin, 2016).

A seminal article that contributes to the residential mobility empirical literature, is Coley and Kull's (2016) study, which uses the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 to determine the ways that residential mobility is associated with children's cognitive and behavioral outcomes. While their study finds that cumulative residential mobility is negatively associated with children's child functioning, they note that these associations of residential mobility are small, which leaves the role of residential mobility unresolved.

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To further investigate the role that residential mobility has on children's development, this study replicates and extends Coley & Kull's (2016) study using the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11, a more contemporary cohort, to assess the frequency and timing of residential moves on child functioning (i.e., academic and socioemotional outcomes), as well as the extent to which socioeconomic status moderated these associations.

Conceptualizing Residential Mobility

While residential mobility is simply defined as a change in residence, the factors and possible stressors associated with a residential move vary. Some residential moves are due to economic reasons (e.g., losing or job or changing jobs) or disruptions in the family or household (Anderson, Leventhal, & Dupéré, 2014; Anderson, Leventhal, Newman, et al., 2014; Ziol-Guest & McKenna, 2014). Other residential moves could be more strategic (e.g., moving to neighborhood associated with a better school, moving to a safer neighborhood) (Anderson, Leventhal, Newman, et al., 2014; Cordes et al., 2019). Certain groups, such as military families or families experiencing poverty, are also more prone to move and experience more residential mobility (Bradshaw et al., 2010; Ziol-Guest & McKenna, 2014).

Residential mobility also differs from school mobility (Coley & Kull, 2016; Lleras & McKillip, 2017; Welsh, 2017). For instance, while a residential move can co-occur with a school move, a student can experience one, or several, residential moves while experiencing no changes in school; and vice versa. School moves can be part of a normative transition (e.g., students matriculate from elementary school to middle school) or non-normative, such as moving to a new school during the academic year (Lleras & McKillip, 2017).

Consistent with the existing residential mobility literature, I posit that residential mobility, irrespective of the reasons why, requires children to adapt to new environments and has the potential to disrupt their development (Coley & Kull, 2016; Suárez-Orozco et al., 2010; Ziol-Guest & McKenna, 2014). Although I do not specifically examine precursors that may precipitate a residential move or the extent to which residential moves are related to corresponding school moves (or vice versa) in the current study, I do account for these corollaries through inclusion of a comprehensive set of covariates, specifically the child's socioeconomic background.

A Bioecological Perspective to Understanding Relations Among Residential Mobility, Student Development, and Socioeconomic Status

Our examination of the associations between residential mobility, student achievement, and socioeconomic status is guided by a bioecological framework, and more specifically the process-person-context-time model (PPCT; Bronfenbrenner & Morris, 2006). In PPCT, the process component refers to the proximal processes that occur within a child's primary context (e.g., parent-child interactions). The person factor refers to the child's biological and psychological characteristics that contribute to the child's development (e.g., race, age). Context refers to the nested structures that encapsulate the child's environment while time refers to types of epochs that influence development: micro-time (e.g., the duration of a certain activity) and macro-time (e.g., time over months and years).

According to a bioecological perspective, children's development is heavily influenced by proximal processes, a series of regular and enduring interactions that the child has with individuals such as primary caregivers, teachers, and peers (Bronfenbrenner & Morris, 2006). These interactions are iterative, bidirectional, and increase in complexity overtime. The nature of

the proximal process is influenced by the child's immediate context (e.g., a child's home), which is further embedded within a series of larger, interconnected contexts (e.g., a child's neighborhood, community). Consequently, whenever children move, they experience a disruption in their proximal processes. Examples include changes in their routines and physical surroundings, which can lead to changes to other contexts, such as their family and peer networks as well as their school and neighborhood environments. Certain moves may be more disruptive than others; children who experience a residential move that coincides with a school change will need to adapt to a new neighborhood and a new school context simultaneously. The cumulative frequency of moves, as well as their timing, also play a role as more change and adjustment to environments result in more disruptions to the proximal process (Coley & Kull, 2016; Ziol-Guest & McKenna, 2014).

SES can also be represented in Bronfenbrenner's PPCT model as a context component that influences the proximal process. To illustrate, one's SES can relate to various factors that the child interacts with, such as the number of resources and educational items (e.g., books, toys) that a child has at home, the quality of the living conditions the child resides, and the types of extracurricular activities the child can participate. Those experiencing poverty may have even greater risks in their context such environmental chaos (i.e., uncertainty and instability in day-to-day life) and food insecurity (Coley et al., 2015; Johnson & Markowitz, 2018). These differences in context, as reflected through SES, influence the nature and quality of the child's proximal process and development.

SES and Residential Mobility

The negative association between SES and academic achievement is well-documented (Caro et al., 2009; Paulus et al., 2021; Sirin, 2005). For instance, higher-SES families are able to

provide additional resources to further a child's academic development and performance compared to families from lower-SES backgrounds (Paulus et al., 2021). Furthermore, there is evidence of a negative association between residential mobility and academic achievement as detailed in our previous sections (Coley & Kull, 2016; Lleras & McKillip, 2017; Obradović et al., 2009; Suárez-Orozco et al., 2010; Welsh, 2017; Ziol-Guest & McKenna, 2014).

What is less clear is whether there is a significant association between residential mobility and student outcomes after considering socioeconomic status. Here, the findings are mixed. Some studies suggest that residential mobility affects children's developmental outcomes, above and beyond the effects of SES (Cutuli et al., 2013; Obradović et al., 2009; Ziol-Guest & McKenna, 2014). Cutuli and colleagues (2013), for example, used administrative data collected by the Minneapolis Public Schools on third- through eighth-graders from the 2005-2006 to 2009-2010 school years and compared the standardized scores of children experiencing high residential mobility (HHM) with those who were not mobile but whose family income was below 130% of the poverty line. Their findings indicated that HHM students had lower academic achievement as compared with those who were not mobile but whose families had low incomes.

Other findings suggest that residential mobility has no meaningful association with children's developmental outcomes after factoring in SES (Howland et al., 2017; Tobin, 2016). For instance, using administrative data from a large Northeastern city on third- through fifth-graders from the 2007-2008 and 2008-2009 school years, Tobin (2016) examined differences between homeless and housed low-SES elementary school students in standardized math and language arts scores for the city overall, as well as in its two poorest districts. She finds that housing status is not a meaningful predictor of academic achievement in either language arts or math.

Some findings suggest that SES elevates the negative associations between residential mobility and children's developmental outcomes (Schafft, 2006; Ziol-Guest & McKenna, 2014). For example, Ziol-Guest and McKenna's (2014) examined the association between housing instability and school readiness among participants in the Fragile Families and Child Wellbeing Study, where they compared children across different family SES categories (i.e., poor, near poor, and not poor). They found that, only among poor children, moving three or more times in their first five years is significantly associated with worse cognitive and socioemotional behaviors.

Given these discrepancies in the literature, it is unclear whether the association, if any, between residential mobility and developmental outcomes will differ once family SES is considered. In the current study, I sought to clarify the relationship between these two constructs by exploring the associations between mobility and child functioning, stratified by SES.

An In-Depth Examination of Coley and Kull's (2016) Study

The inconsistent evidence regarding the associations among residential mobility, developmental outcomes, and SES, is also reflected in Coley and Kull's (2016) empirical work in the residential mobility literature. Coley and Kull (2016) analyzed data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999 (ECLS-K) of children from kindergarten to eighth grade to explore the effects of cumulative residential mobility, developmental timing of residential mobility, and school mobility on children's cognitive and psychosocial skills. Their findings show that cumulative residential mobility was negatively associated with children's cognitive skills and children's psychosocial outcomes.

While Kull and Coley do find a statistically significant association between residential mobility and child functioning, which suggests that residential mobility plays a deleterious role

on children's development, beyond the influence of SES, a closer inspection brings their interpretation to question. For one, the effect sizes of their residential mobility coefficients, even when using the most stringent modeling strategies, are small, with their effect sizes ranging from 0.01 to 0.11 SD units per move. These findings, while statistically significant, may not have practical significance; a residential move that hardly has an association with a child's academic and socioemotional outcomes, may not be a risk policymakers should consider relative to other factors, such as race and parent education, which have a larger association with these outcomes.

The small residential mobility effect size may potentially be due to their study design, which does not explicitly account for SES. While it is true that they include household income as a covariate in their models, such a covariate is insufficient in seeing whether residential mobility is moderated by SES, particularly longitudinally. This is especially important in capturing populations that are persistently experiencing poverty or are persistently considered low-income (Dickerson & Popli, 2016; Lee, 2011; Najman et al., 2009). Hence, even with Coley and Kull's findings, it is hard to conclude the role that residential mobility has on children's development, which is why I sought to replicate and extend Coley and Kull's work with a more contemporary cohort, stratified by family income.

The Current Study

Utilizing the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), a nationally representative sample of students who were followed from kindergarten through fifth grade, this study replicates Coley and Kull's (2016) work by examining the extent to which the frequency and timing of residential moves is associated with elementary school students' academic and socioemotional outcomes, stratified by SES. The primary research questions were:

1. Controlling for residential mobility prior to kindergarten, to what extent do the cumulative number of moves, from kindergarten through fifth grade, relate to children's fifth grade outcomes?

    Hypothesis 1: The cumulative number of moves between kindergarten and fifth grade will be deleteriously associated with children's fifth grade outcomes; children who experience more residential moves between kindergarten to fifth grade were expected to have worse fifth grade academic and socioemotional scores as compared with those experiencing fewer residential moves.

2. Controlling for residential mobility prior to kindergarten, to what extent do residential moves differ in their association with children's fifth grade academic outcomes based on the grade in school in which they occur?

    Hypothesis 2: Residential moves from earlier grades will be more strongly associated with children's fifth grade outcomes as compared with moves during the later grades. Given that one's academic and socioemotional foundation is built in the earlier years, disruptions occurring in the earlier elementary school years may be more influential, which will be reflected as a greater negative association between residential mobility and fifth-grade outcomes.

3. To what extent does the association of the frequency and timing of residential mobility differ by family income?

    Hypothesis 3: Given the existing literature showing the developmental risks associated with poverty, I hypothesize a stronger negative association between residential mobility and student outcomes for children with longer durations of low SES.

Methods

Data Source and Procedure

Data comes from the Early Childhood Longitudinal Study-Kindergarten Class of 2010-2011 (ECLS-K:2011), which followed a nationally representative sample students from kindergarten through fifth grade. Facilitated by the National Center for Education Statistics, the ECLS-K:2011 used a dual-frame multistage sampling design to identify a random sample of children selected from public and private schools within 90 primary sampling units (PSU) consisting of county and county groups (Tourangeau et al., 2015). Multimethod and multi-informant data were collected from children, parents, and teachers in the fall and spring of kindergarten, first, and second grade, and the spring of third, fourth, and fifth grade. Response rates were 87% for children, 74% for parents, 82% for teachers, and 89% for administrators in the base year of data collection, and 72%, 68%, 82%, and 82% at the fifth-grade wave of data collection (Tourangeau et al., 2015, 2019).

Analytic Sample

The analytic sample ($n =5,320$) includes all children who had valid data on survey weights (W9C19P_9T29B), strata, and PSU. The "W9C19P_9T29B" weight ensures that the estimates of this sample are generalizable to the population of U.S. children who attended kindergarten in 2010-2011 and adjusts for nonresponse associated with child assessment/child questionnaire data from each kindergarten round to the spring fifth grade wave, parent data from the fall kindergarten wave to spring fifth grade wave, and teacher data from the spring kindergarten wave to spring fifth grade wave. In the spring of kindergarten, this sample was 51% boys and 49% girls, with an average age of 73 months ($SD = 7.22$ months). The majority (52%)

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of children were identified by their parents as White, 13% Black, 25% Hispanic[1], 5% Asian/Pacific Islander, 1% American Indian/Native American, and 4% Multiracial (see Table 1, for weighted sample descriptives).

Measures

Residential Mobility

During the fall kindergarten grade survey waves, parents were asked to report the number of different residences the family had lived in for a period of four months or longer since the child was born. In the spring second grade survey wave, parents were asked to report the number of different residences the family had lived in for a period of four months or longer since spring 2011. It is important to note that both questions' wording likely undercounted mobility as it missed very short-term residences that lasted less than four months. For the second, third, fourth, and fifth grade spring waves, parents were asked whether they have moved since the last interview wave. "Yes" and "No" responses will be coded as one and zero residential moves, respectively. The responses to all these questions will be used to create summed counts of residential moves from birth to fall of kindergarten and then from fall of kindergarten to spring of third grade.

Child Functioning Outcomes

Child cognitive, social, emotional, and behavioral skills were drawn from measurements from the fall of kindergarten, and spring of fifth grade. Reading assessments contained questions measuring basic skills (e.g., word recognition), vocabulary knowledge, and reading comprehension. The mathematics assessments contained questions measuring skills in conceptual knowledge, procedural knowledge, and problem solving (Tourangeau et al., 2015,

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[1] The term Hispanic is used as per the race/ethnicity category listed in the ECLS-K:2011 (Tourangeau et al., 2015).

2019). These skills were directly assessed using validated assessments scored with item-response

theory (IRT) procedures (Tourangeau et al., 2015). Reading and math were assessed in a two-

step process in which children were first given a common set of routing questions with varying

levels of difficulty. The level of difficulty in the second step was determined by the child's

answers to the first section's questions. Consequently, instead of receiving all the same reading

and math questions available, children received a targeted set of questions that minimized the

assessment length.

Because children are compared on scores based on their answers to different questions,

IRT scale scores were used. By using the overall pattern of right and wrong responses, as well as

each item's characteristics to estimate ability, IRT can adjust for omitted responses to

administered items, level of difficulty, guessing, and makes possible longitudinal measurement

of achievement gains, even when the administered assessments are not identical over time. Thus,

IRT scores represent estimates of the number of questions the child would have answered

correctly had he or she been administered all items in the reading and math assessments. Alpha

reliabilities were strong for assessments of both math ($\alpha = .92$) and reading skills ($\alpha = .86–.95$)

(Tourangeau et al., 2019).

Social, emotional, and behavioral skills were reported by teachers from the kindergarten

to fifth-grade waves with an adapted version of the Social Ratings Scale (Gresham & Elliot,

1990). Items (1 = *never* to 4 = *very often*) were used to create four subscales. Children's self-

control (four items; $\alpha = .79–.81$) was assessed using items such as "child can control behaviors,"

and interpersonal skills (five items; $\alpha = .85-.88$) were measured with items such as "child shows

sensitivity to feelings of others." Additional subscales assessed children's internalizing problems

(four items, $\alpha = .73-.79$), captured with items such as "child shows low self esteem," and

externalizing problems (six items, α = .86-.89), indicated with items such as "child acts impulsively."

Family SES (Low Income)

To determine whether a child's family income was considered low-income, household reported income, adjusted for family size, was compared to the poverty thresholds provided by the U.S. Census Bureau. I computed a variable based on the duration of time that a child lived in a family with income at or below 200% of the poverty line (i.e., always, at least once, never) from kindergarten to fifth grade (Tourangeau et al., 2019).

Covariates

A wide range of child and family characteristics were assessed in the ECLS-K:2011 and are included in analyses due to their associations with mobility in prior research (Anderson, Leventhal, & Dupéré, 2014; Coley & Kull, 2016; Lleras & McKillip, 2017; Ziol-Guest & McKenna, 2014). These covariates included the child's math and reading scores prior to fifth grade, child age in months, child gender (female = 1), birth weight (low birth weight = 1), child's race (White, Black, Hispanic, Asian/Pacific Islander, American Indian, Multiracial), whether child was a first-time kindergartener (first-time = 1), and whether the child receives special education services (receives special education services = 1). To control for any influence related to school mobility on academic outcomes, the cumulative number of school moves was also included as a covariate.

Parent covariates include whether the mother was married at the child's birth (not married = 1) and the highest level of parental education (Bachelor's Degree or Higher = 1). Family covariates include whether the child is part of an immigrant household (immigrant household = 1), primary language at home (English = 1), family income at the Spring

kindergarten wave ($0-$50,000, $50,000 - $100,000), and whether the family received food

stamps at the spring kindergarten wave. School and neighborhood covariates include private or

public school (private =1) at kindergarten and fifth grade, the percent of children receiving free

and reduced lunch (0%-50%, 50-100%), and location (city, suburban, town, and rural).

Analytic Plan

Analyses involved conducting a series of weighted least squares (WLS) regressions

models using R. Children's fifth grade academic IRT scores, as well as the teacher reported

socioemotional scores, are considered as separate outcomes. Residential mobility serves as the

predictor for all research questions. Family's low-income status is included as a covariate in the

full sample analyses and as a criterion to subsample the analytic sample for the stratification

analyses.

Missing Data

Prior to conducting analyses, missing data were examined for the analytic sample.

Missing data ranged from 0% to 8.68% at the variable level. To maximize the sample size and

capitalize on the nationally representative sample, missing data were multiply imputed using

multiple imputation by chained equations to create 20 imputed data sets with valid data on all

analytic variables for the analytic sample of 5,320 children.

Sampling Weights

Sampling weights are available to adjust for ECLS-K:2011's complex sampling design,

its differential response rates, and allow for estimates to generalize to the larger population of

U.S. children who attended kindergarten in 2010–2011. Given that this analytic model includes

kindergarten and fifth grade child assessment data, as well as parent and teacher data from

kindergarten to third grade, the W9C19P_9T29B weight was applied in determining my

descriptives as it best adjusts for response rates associated with the study variables.

Analysis Plan for Research Question #1

To examine the extent to which cumulative number of moves from kindergarten to fifth

grade relate to children's fifth grade outcomes, regression models included children's fifth grade

child outcomes and the cumulative number of residential moves from kindergarten to fifth grade

as the predictor. The form of the model is:

$$\text{Childfunc}_{i5th} = \alpha_1 + \beta_1 \text{resmobility}_{ik-5} + \beta_2 \text{resmobility}_{ib-k} + \beta_3 \text{Childfunc}_{ik} + \beta_4 \text{covariates} + e_i \ (1)$$

where Childfunc_{i5th} is the child outcome score of the ith child at the end of fifth grade and

$\text{resmobility}_{ik-5}$ is the cumulative number of residential moves child i experienced from

kindergarten to fifth grade. The model explicitly includes lagged variables for both residential

mobility (i.e., moves from birth to kindergarten) and child functioning (i.e., academic or

socioemotional outcomes in kindergarten), and a set of child, family, school, and neighborhood

covariates. The strength, direction, and significance of the cumulative residential mobility

coefficient, β_1, is examined to see the extent that the cumulative number of residential moves

from kindergarten to fifth grade associates with children's fifth grade outcomes. For each

outcome, three types of regressions were run: null models that only included the predictor

regressed against the outcome, null and lagged models only included the predictor and lagged

variables, and full models that included the predictor, lagged variables, and covariates.

Analysis Plan for Research Question #2

To examine the extent to which residential moves differ in their association with a child's

fifth grade outcomes, based upon the grade in which a child experiences a residential move, the

following models were used:

$$\text{Childfunc}_{i5th} = \alpha_1 + \beta_1\text{resmobility}_{ik\text{-}1} + \beta_3\text{Childfunc}_{ik} + \beta_4\text{covariates} + e_i \quad (2.1)$$

$$\text{Childfunc}_{i5th} = \alpha_1 + \beta_1\text{resmobility}_{i1\text{-}2} + \beta_3\text{Childfunc}_{i1} + \beta_4\text{covariates} + e_i \quad (2.2)$$

$$\text{Childfunc}_{i5th} = \alpha_1 + \beta_1\text{resmobility}_{i2\text{-}3} + \beta_3\text{Childfunc}_{i2} + \beta_4\text{covariates} + e_i \quad (2.3)$$

$$\text{Childfunc}_{i5th} = \alpha_1 + \beta_1\text{resmobility}_{i3\text{-}4} + \beta_3\text{Childfunc}_{i3} + \beta_4\text{covariates} + e_i \quad (2.4)$$

$$\text{Childfunc}_{i5th} = \alpha_1 + \beta_1\text{resmobility}_{i4\text{-}5} + \beta_3\text{Childfunc}_{i4} + \beta_4\text{covariates} + e_i \quad (2.5)$$

These five models predict fifth grade scores from residential experiences where residential experience time points are entered separately. Child outcome lagged variable are also included. The residential moves child i experiences from spring kindergarten to spring first grade, spring first to spring second grade, spring second to spring third grade, spring third to spring fourth, and spring fourth to spring fifth will be represented respectively by $\text{resmobility}_{ik\text{-}1}$, $\text{resmobility}_{i1\text{-}2}$, $\text{resmobility}_{i2\text{-}3}$, $\text{resmobility}_{i3\text{-}4}$, $\text{resmobility}_{i4\text{-}5}$.

A regression model that controlled for all other residential experiences across elementary school, including a kindergarten reading/math lagged variable was also run:

$$\text{Childfunc}_{i5th} = \alpha_1 + \beta_1\text{resmobility}_{ik\text{-}1} + \beta_2\text{resmobility}_{i1\text{-}2} + \beta_3\text{resmobility}_{i2\text{-}3} + \beta_4\text{resmobility}_{i3\text{-}4} + \beta_1\text{resmobility}_{i4\text{-}5} + \beta_5\text{resmobility}_{ib\text{-}k} + \beta_6\text{Childfunc}_{ik} + \beta_4\text{covariates} + e_i \quad (2.6)$$

where Childfunc_{i5th} and the resmobility coefficients are defined as above. All models control for child, family, teacher, and school covariates. The strength, direction, and significance of the residential mobility coefficients are compared to see when, from first to fifth grade, residential mobility has the greatest association on children's fifth grade outcomes. In both regression models, three types of regressions were run for each outcome: null models that only included the predictor regressed against the outcome, null and lagged models only included the predictor and lagged variables, and full models that included the predictor, lagged variables, and covariates.

Analysis Plan for Research Question #3

To evaluate the differential associations between children's fifth grade outcomes and the frequency and timing of residential mobility by SES, regression models presented for Research Questions #1 and #2 above were run for three subsamples defined by the duration – always, at least once, never – of experience of low-income (i.e., less than 200% the poverty level from kindergarten to fifth grade).

Supplementary Analysis

To better control for selection and provide a more rigorous test of residential mobility's potential causal role, individual fixed effects (FE) regressions were incorporated to address unmeasured heterogeneity bias. These individual FE regressions assessed residential moves and child functioning in approximately 1-year chunks between kindergarten and fifth grade (between spring of kindergarten to spring of first, spring of first to spring of second, spring of second to spring of third, and spring of third to spring of fourth, spring of fourth to spring of fifth). These models, however, could not test the effects of early childhood residential mobility as time-varying covariates and child functioning was not assessed prior to kindergarten. Models controlled for child age, family income, food stamps, school moves, and parent marital status measured at the spring of kindergarten, spring of first, spring of second, spring of third, spring of fourth, and spring of fifth grades. Equation 3 shows the specification for the FE models in which each i's functioning at each wave t is differenced from their mean functioning $\bar{\imath}$.

$$\text{Childfunc}_{it-\bar{\imath}} = B_{0it-\bar{\imath}} + B_1\text{resmobility}_{it-\bar{\imath}} + B_2\text{covariates}_{it-\bar{\imath}} + e_{it-\bar{\imath}} \quad (3)$$

FE models will also be run by three subsamples defined by the duration – always, at least once, never – of experiencing of low-income. For each outcome, two types of regressions were run:

null models that only included the predictor regressed against the outcome, and full models that included the predictor and covariates.

Results

Descriptive Results

Table 1 presents weighted descriptives for the full analytic sample as well as the three subsamples stratified by family low-income status. Cumulatively, from kindergarten to fifth grade, children ranged from 0 to 4 moving experiences with an average of 0.43 moving experiences. In the full sample, from kindergarten to fifth grade, 21%, 7% and 2% experienced one, two, and three moving experiences, respectively. Stratified by low-income status, the cumulative number of moving experiences was highest among the always low-income subgroup, followed by the sometimes low-income. Children in the never low-income subgroup experienced the fewest number of moving experiences.

Research Question #1: Cumulative Residential Moving Experiences and Fifth Grade Child Functioning

Tables 2 and 3 presents results of the series of weighted least-squares (WLS) regression models that assessed the association between cumulative number of residential moving experiences and child functioning outcomes at fifth grade. Comparing across regressions in these tables, the null models showed the expected relationship between residential mobility and these outcomes. To elaborate, there is a significant negative association between the cumulative number of residential moving experiences and fifth grade child functioning outcomes, a significant negative relationship between residential mobility and fifth grade teacher-reported self-control and interpersonal scores, and a significant positive relationship between residential mobility and fifth grade teacher-reported internalizing and externalizing scores. However, after

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including lagged variables, only the relationships between cumulative residential mobility and reading, math and internalizing scores stay significant. Furthermore, after incorporating covariates, the relationship disappears as the effect size in the cumulative residential mobility coefficient drop in magnitude and become insignificant for all outcomes.

Research Question #2: Associations Between Residential Mobility and Developmental Timing

The models presented in Tables 4 to 6 assess the developmental timing of residential mobility and children's fifth grade child functioning outcomes. Tables 4 and 5 show models that estimate the independent association of residential mobility at any year from kindergarten to fifth grade on academic and socioemotional outcomes by controlling for all other residential experiences across the elementary school years, respectively. Table 6 shows the regression coefficient estimates of the association of residential mobility for a specific year from kindergarten to fifth grade for each child functioning outcome while controlling for the residential experience of the prior elementary school year.

As shown from these models, the overwhelming pattern suggests that residential moving experiences, when analyzed over specific developmental periods, are not associated with fifth grade academic outcomes, especially after accounting for the covariates.

Research Question #3: SES Stratification

To test whether the associations observed in the above models differed as a function of SES, analyses compared results stratified by a SES (i.e., always, at least once, and never below 200% poverty level from kindergarten to fifth grade). Results showed overall null findings; there were no consistent patterns of association between residential mobility and academic outcomes stratified by SES (see Tables 7 to 9).

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Supplemental Analyses – Individual Fixed Effects Regression

To explore within-child associations, Tables 10 and 11 present student fixed effects (FE) regression coefficients. Table 10 shows the FE models when run across the whole analytic sample, whereas Table 11 shows the FE regression coefficient estimates when stratified by SES (i.e., always, at least once, and never below 200% poverty level from kindergarten to fifth grade). Models showed no consistent patterns of association between residential mobility and child functioning.

<center>**Discussion**</center>

This study examined the influence of the frequency and timing of residential mobility on elementary school students' academic outcomes, stratified by SES. Using nationally representative data of U.S. students who were followed from kindergarten through fifth grade, results suggest no strong association between cumulative residential moving experiences and fifth grade child functioning. Furthermore, I saw no associations between the timing of a child's experiences of residential mobility and their outcomes in fifth grade. Hence, my study is unable to fully replicate Coley & Kull's (2016) findings; residential mobility – cumulative and grade-by-grade – was not associated with student's fifth grade academic and socioemotional outcomes.

The overall null findings were surprising given the existing literature detailing the ways residential mobility adversely affects children's development and academic outcomes. These findings may suggest that residential mobility, while possibly influential on a child's development, may not be the most salient factor. In the current analysis, null models showed an initial significant association between residential mobility and child functioning, but these associations became insignificant when individual, family, and school covariates were accounted for. This aligns with research that suggests that factors such as race, ethnicity, social class, and

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school characteristics play more salient roles in a child's development and that the residential

mobility effect is subsumed by these factors (Howland et al., 2017).

Such null findings also suggest the need to look at residential mobility in the context of

other factors instead of in isolation. For instance, a child who changes residencies as way to

move to a better school and neighborhood may have an entirely different moving experience

compared to a child being forced to move due to eviction. Hence, a limitation of the current

study is that these motivating factors were unaccounted; future studies should consider these

qualitatively different moving experiences, as well as other factors, such as race and class, in

studying the effects of residential mobility.

Another possible reason for my null findings may be related to the study design, which

differed from Coley and Kull's study in several ways (see Table 12 for a detailed study

comparison). One major difference is the wording of the residential mobility survey question

between these two studies. The ECLS-K's asks parents "how many times they moved" every two

years, leading to continuous measures of residential mobility. However, the ECLS-K:2011 asked

parents "whether they moved from the last survey wave" each year, leading to dichotomous

measures of residential mobility at more frequent time points. It is fair to say that both measures

have flaws; while providing dichotomized measures of residential mobility can limit the

measure's power (Coley & Kull, 2016), having continuous measures, particularly over stretches

of long periods (e.g., two or more years) can lead to measurement error. Such error was shown in

the various outliers present in the ECLS-K residential mobility measures (Coley & Kull, 2016).

Nevertheless, it is possible that the measure of residential mobility used in the current study is

not sensitive enough to detect an association between residential mobility and fifth grade

academic outcomes. Future studies focusing should incorporate more nuanced and sensitive measures of residential mobility.

My context of my analytic sample also differed significantly from Coley and Kull's. Although both studies used nationally representative data, the national contexts at the times of data collection differ. When the ECLS-K, which was the dataset Coley and Kull used, began their first data collection wave in the fall of 1998, the United States was experiencing a time of economic prosperity, as shown through the rise of the internet, the federal budget surplus during the Clinton Administration, and the overall strong economy. On the other hand, the ECLS-K:2011, which was the current study's data source, began their data collection during a time when the United States was recovering from one of the worst recessions in recent history. Hence, the differing contexts surrounding these two cohorts may play a role in the current study's inability to replicate Coley and Kull's study.

Issues surrounding attrition can also be a factor; Coley and Kull had a much larger analytic sample as they used a more inclusive weight that included children who had a valid kindergarten survey data weight, compared to the current study which only included children who had valid student, parent, and teacher data from the kindergarten wave to the fifth-grade wave. While my approach ensured that most of my sample does not consist of imputed data, unlike Coley and Kull's study, using a more restrictive weight makes my sample more susceptible to attrition bias. For instance, it is possible that the children who are most residentially mobile are more likely to leave the study and hence be unrepresented in the sample. As a result, my study may underestimate the risks associated with residential mobility due to attrition. A future study should run sensitivity analysis varying different weights, and hence sample size, to see if results change.

Lastly, my study may not fully replicate Coley and Kull's study given that their study used the restricted-use ECLS-K dataset, whereas my study used the public-use ECLS-K:2011 dataset. Consequently, certain covariates in Coley and Kull's study that were available exclusively in the restricted-use data (i.e., child's birth country, geographic region) were unavailable in my study. Future studies should replicate Coley and Kull's study using the restricted-use ECLS-K:2011 dataset to incorporate these variables unavailable in the public-use dataset.

Limitations and Future Directions

There are several limitations to the current study. First, while this study tries to account for other factors that could influence the association between residential mobility and academic outcomes, it is possible that certain factors not captured by this data source could influence this association. In addition, as a correlational study, the directionality between residential mobility and academic outcomes cannot be determined.

Given the limitations of this study's dichotomized measure of residential mobility as listed previously, future research should also apply a more critical lens towards residential mobility measures. As research has documented the risks associated with residential mobility, particularly studies that focus on a more neighborhood context (Cordes et al., 2019; Goldhaber et al., 2022), studies should thoughtfully incorporate residential mobility measures that consider the local environment surrounding a residential move. Residential mobility measures should also factor into distance; as a child moves farther away, the greater likelihood for that child to adjust to new school and neighborhood contexts, disrupting that child's development (Cordes et al., 2019). Furthermore, given the various reasons that may lead a child to move (e.g., eviction, moving to a better neighborhood), future studies should explore how the reason for a move plays

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into children's residential mobility and their child functioning. Lastly, this study did not differentiate summer moves from moves that occur during the school year. As children's learning experiences in the summer differ compared to their experiences in the school year (Alexander et al., 2007), future studies should differentiate between disruptions caused by a summer residential move, as opposed to a move during the school year, to have a more nuanced understanding of residential mobility.

Conclusion

Given that over eight million U.S. children experience residential mobility each year, there is a great need to study the consequences of residential mobility on children's development. While study findings show that residential mobility may not have an influence above and beyond other factors such as race, family, and school characteristics, it does not suggest the need to disregard residential mobility in servicing children. In fact, such findings may urge parents, educators, and other relevant stakeholders to take a more comprehensive approach in serving children; residential mobility, as well as other factors, may disrupt children during this developmental period, with potential consequences that persist into fifth grade and beyond. By providing services that holistically address the needs of students (e.g., academic support, free/reduced school meals) instead of policies that only address residential transience, we can best provide an environment that promotes children's healthy development and well-being.

Conceptual Map

**Residential Mobility from
Kindergarten to Fifth Grade**

Academic Achievement
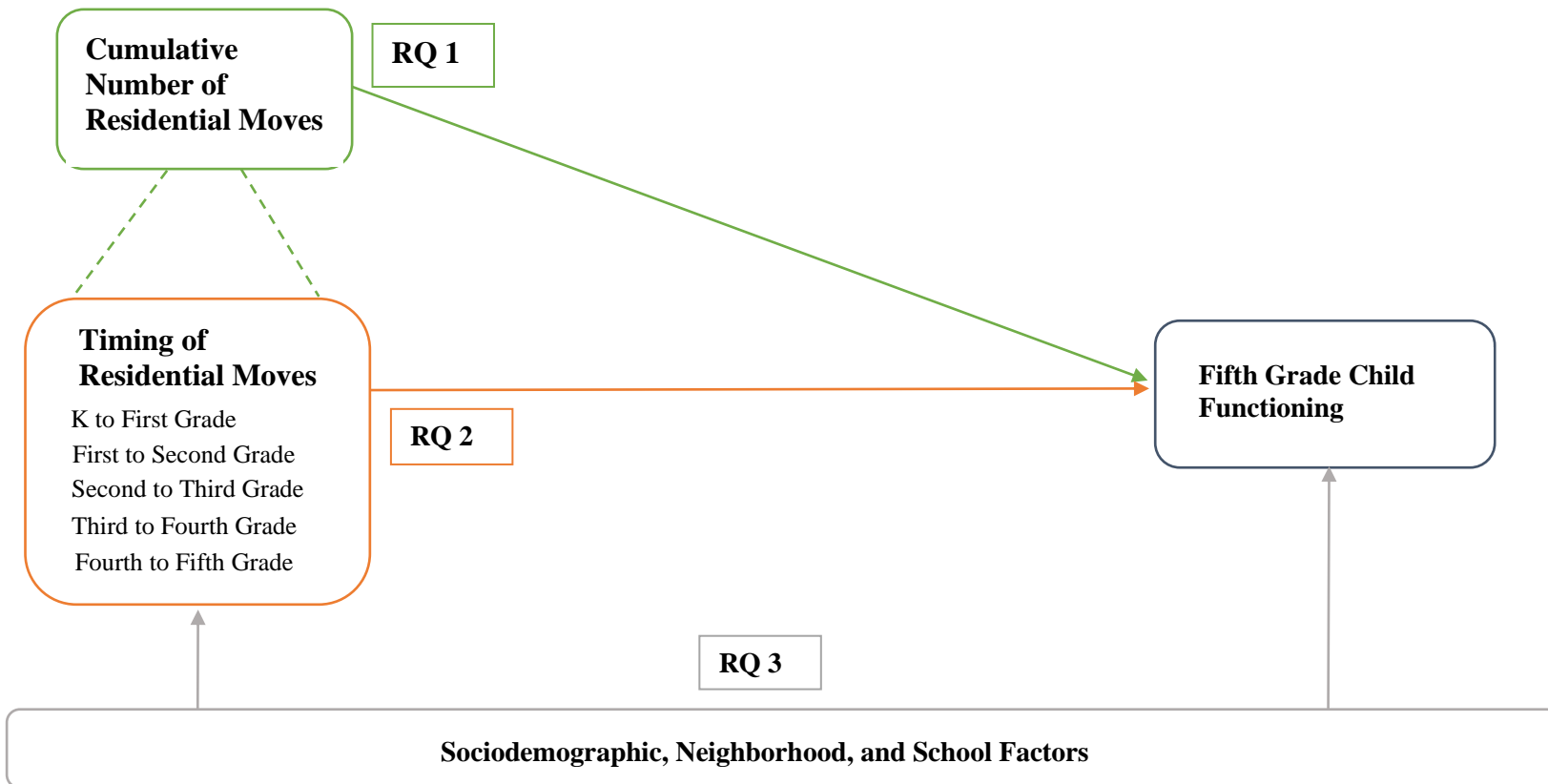
Figure 1. Conceptual map showing the relationship between residential mobility and fifth grade academic outcomes, and the various factors that influence the risks associated with residential mobility. Research questions examining the respective relationships are also identified.

Table 1. Weighted Descriptives

	Full Analytic Sample (N = 5320)		Always below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1194)		At least once below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1110)		Never below 200% Poverty Line from Kindergarten to Fifth Grade (N = 2649)	
	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD
Math & Reading Scores (IRT)								
Fifth Grade Reading	137.25	48.71	130.09	42.25	137.81	42.81	142.5	21.98
Fourth Grade Reading	130.14	46.18	123.18	39.68	130.32	43.76	135.48	21.88
Third Grade Reading	121.89	46.97	114.77	34.06	121.99	46.78	127.4	24.45
Second Grade Reading	113.37	55.29	105.6	41.32	113.35	55.94	119.5	26.91
First Grade Reading	96.01	61.39	88.41	44.88	96.14	58.63	101.9	34.58
Spring Kindergarten Reading	69.98	48.74	64.69	34.45	69.57	43.45	74.41	30.77
Fall Kindergarten Reading	55.13	38.11	50.87	23.39	54.47	40.01	58.91	22.89
Fifth Grade Math	120.54	61.06	112.57	47.22	120.19	56.61	127.02	27.94
Fourth Grade Math	113.58	66.14	105.91	57.03	113.04	56.83	119.96	27.80
Third Grade Math	105.25	58.57	97.68	48.6	104.88	53.45	111.45	28.49
Second Grade Math	91.23	68.97	83.56	50.11	90.28	63.25	97.91	34.63
First Grade Math	73.68	52.42	66.82	37.24	73.02	48.79	79.52	25.41
Spring Kindergarten Math	50.99	51.32	45.04	32.61	50.43	46.97	56.03	27.63
Fall Kindergarten Math	36.72	41.93	31.48	27.67	36.11	37.6	41.25	21.64
Socioemotional Outcomes								
Fifth Grade Self-control	3.30	1.51	3.18	1.44	3.28	2.01	3.41	1.12
Fourth Grade Self-control	3.29	1.54	3.18	1.7	3.25	1.61	3.4	1.09
Third Grade Self-control	3.28	1.49	3.16	1.53	3.26	1.79	3.38	1.05
Second Grade Self-control	3.24	1.77	3.14	1.54	3.23	1.71	3.33	1.13
First Grade Self-control	3.25	1.75	3.13	1.6	3.24	1.81	3.34	1.08
Spring Kindergarten Self-control	3.20	1.95	3.12	1.66	3.19	2.35	3.28	1.24
Fall Kindergarten Self-control	3.10	1.78	3.00	1.73	3.1	2.02	3.18	1.05
Fifth Grade Interpersonal	3.14	1.65	3.02	1.6	3.12	2.12	3.24	1.19
Fourth Grade Interpersonal	3.13	1.75	2.99	1.85	3.12	1.85	3.24	1.26

Table 1. Weighted Descriptives

	Full Analytic Sample (N = 5320)		Always below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1194)		At least once below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1110)		Never below 200% Poverty Line from Kindergarten to Fifth Grade (N = 2649)	
	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD
Third Grade Interpersonal	3.14	1.65	3.02	1.52	3.13	2.1	3.25	1.26
Second Grade Interpersonal	3.15	1.69	3.03	1.75	3.14	1.87	3.25	1.06
First Grade Interpersonal	3.18	2.01	3.06	1.78	3.19	2.19	3.27	1.18
Spring Kindergarten Interpersonal	3.18	2.19	3.1	1.83	3.15	2.55	3.25	1.38
Fall Kindergarten Interpersonal	3.01	1.85	2.88	1.59	3.02	2.31	3.1	1.22
Fifth Grade Internalizing	1.56	1.38	1.61	1.27	1.59	2.01	1.5	0.7
Fourth Grade Internalizing	1.58	1.42	1.64	1.36	1.62	1.92	1.52	1.00
Third Grade Internalizing	1.59	1.61	1.63	1.57	1.63	1.71	1.53	0.84
Second Grade Internalizing	1.56	1.26	1.61	1.12	1.6	1.89	1.5	0.91
First Grade Internalizing	1.53	1.45	1.58	1.55	1.55	1.75	1.48	0.71
Spring Kindergarten Internalizing	1.49	1.34	1.53	1.28	1.5	1.88	1.45	0.88
Fall Kindergarten Internalizing	1.46	1.37	1.49	1.2	1.46	1.88	1.42	0.8
Fifth Grade Externalizing	1.63	1.35	1.7	1.33	1.65	1.93	1.55	1.03
Fourth Grade Externalizing	1.64	1.3	1.71	1.45	1.68	1.49	1.57	0.94
Third Grade Externalizing	1.67	1.36	1.75	1.36	1.69	1.8	1.59	1.00
Second Grade Externalizing	1.70	1.61	1.76	1.5	1.72	2.02	1.63	1.01
First Grade Externalizing	1.70	1.32	1.76	1.34	1.73	1.82	1.62	0.98
Spring Kindergarten Externalizing	1.62	1.89	1.7	1.8	1.65	2.24	1.53	1.20
Fall Kindergarten Externalizing	1.59	1.71	1.67	1.57	1.61	2.25	1.51	1.06
Instability								
Cumulative number of moving experiences	0.43	2.42	0.56	2.18	0.52	2.68	0.26	1.05
Number of residential moves from birth to fall of Kindergarten	0.87	3.21	0.99	2.76	1.02	4.19	0.66	1.61
Timing of Moving Experience								
Birth-K-1st Grade	54%		59%		58%		46%	
K-1st Grade	7%		9%		8%		3%	

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Table 1. Weighted Descriptives

	Full Analytic Sample (N = 5320)		Always below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1194)		At least once below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1110)		Never below 200% Poverty Line from Kindergarten to Fifth Grade (N = 2649)	
	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD
1st-2nd Grade	9%		11%		12%		4%	
2nd-3rd Grade	10%		13%		12%		6%	
3rd-4th Grade	9%		14%		10%		6%	
4th-5th Grade	8%		9%		10%		7%	
Early Elementary: K-2nd	13%		17%		18%		7%	
Later Elementary: 3rd-5th	23%		28%		27%		16%	
Number of Years Experiencing a Move								
1 Year	21%		23%		27%		16%	
2 Years	7%		10%		9%		4%	
3 Years	2%		3%		2%		1%	
4 Years	<1%		1%		<1%		<1%	
5 Years	<1%		<1%		0%		0%	
Child/Family Covariates								
Age in Kindergarten	73.49	13.35	73.42	12.42	73.58	16.06	73.49	9.07
White	52%		28%		52%		71%	
Black	13%		22%		14%		6%	
Hispanic	25%		43%		24%		10%	
Asian/Pacific Islander	5%		3%		4%		7%	
American Indian	1%		1%		2%		1%	
Multiracial	4%		2%		5%		6%	
Child Gender (Male)	51%		53%		49%		52%	
Low Birth Weight (Yes)	10%		12%		11%		8%	
Mother Married at Child's Birth	69%		48%		64%		88%	
Highest Parent Education - Bachelor's or Higher	42%		17%		32%		70%	
Immigrant Household (Yes)	31%		48%		30%		18%	

Table 1. Weighted Descriptives

	Full Analytic Sample (N = 5320)		Always below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1194)		At least once below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1110)		Never below 200% Poverty Line from Kindergarten to Fifth Grade (N = 2649)	
	Mean/%	SD	Mean/%	SD	Mean/%	SD	Mean/%	SD
Home Language - English	83%		65%		87%		95%	
Food Stamps at Spring Kindergarten	26%		60%		24%		1%	
Family Income at Spring Kindergarten								
$0-$50K	50%		94%		63%		6%	
$50-$100K	37%		6%		29%		67%	
School Covariates								
First-time Kindergartener	95%		92%		94%		98%	
Special Education - Kindergarten	4%		5%		5%		3%	
Cumulative number of School Moves	0.27	4.26	0.24	3.24	0.29	3.28	0.27	2.31
School Type								
Private School at Kindergarten	11%		3%		9%		18%	
Private School at 5th Grade	8%		2%		6%		13%	
Fifth Grade School Free and Reduced Lunch (%)								
0%-50%	49%		20%		45%		74%	
50%-100%	51%		80%		55%		26%	
Urbanicity								
City	32%		40%		31%		26%	
Suburb	34%		25%		33%		41%	
Town	12%		11%		13%		11%	
Rural	23%		24%		23%		22%	

Note: Used the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data from each kindergarten round and the spring fifth grade wave, parent data from the fall kindergarten wave to spring fifth grade wave, and teacher data from the spring kindergarten wave to spring fifth grade wave. Used the jackknife method with corresponding replicate weights to adjust for the complex sampling design and to show nationally representative results.

Table 2. Weighted Least Squares Regressions on Child's Fifth Grade Math and Reading Scores on Cumulative Number of Moving Experiences from Kindergarten to Fifth Grade

	Fifth Grade Reading Scores			Fifth Grade Math Scores		
	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)
(Intercept)	138.01**	101.98**	105.32**	121.55**	85.86**	115.23**
	(0.40)	(1.29)	(4.73)	(0.52)	(1.01)	(5.23)
Cumulative number of moving experiences	-1.77**	-1.18**	-0.25	-2.38**	-1.26**	-0.31
	(0.39)	(0.37)	(0.36)	(0.50)	(0.38)	(0.36)
Number of residential moves from birth to fall of Kindergarten		-0.20	0.18		0.09	0.52**
		(0.22)	(0.22)		(0.19)	(0.16)
Fall Kindergarten Reading		0.65**	0.52**			
		(0.02)	(0.02)			
Fall Kindergarten Math					0.96**	0.84**
					(0.02)	(0.02)
Age in Kindergarten			-0.08			-0.39**
			(0.05)			(0.07)
Black			-5.31**			-8.69**
			(0.85)			(0.94)
Hispanic			-1.44			-2.66**
			(0.99)			(0.92)
Asian/Pacific Islander			-0.58			-0.50
			(0.95)			(1.01)
American Indian/Alaskan Native			-4.10**			0.28
			(1.47)			(1.57)
Multiracial			1.12			-1.12
			(0.92)			(0.96)
Child Gender (Female)			-0.11			-3.01**
			(0.43)			(0.37)
Low Birth Weight (Yes)			-1.06			-0.75
			(0.80)			(0.77)
Mother Married at Child's Birth			1.10*			1.36*
			(0.53)			(0.62)

Table 2. Weighted Least Squares Regressions on Child's Fifth Grade Math and Reading Scores on Cumulative Number of Moving Experiences from Kindergarten to Fifth Grade

	Fifth Grade Reading Scores			Fifth Grade Math Scores		
	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)
Highest Parent Education - High School			2.22[+]			1.28
			(1.15)			(1.25)
Highest Parent Education - Some College			5.10[**]			4.14[**]
			(1.17)			(1.37)
Highest Parent Education - Bachelor's or Higher			5.69[**]			5.04[**]
			(1.33)			(1.49)
Family Income at Spring K $0-$50K			-0.64			-0.23
			(0.77)			(0.75)
Always Low Income Status			-1.74			-0.62
			(1.16)			(0.93)
Ever Low Income Status			0.95			0.62
			(0.73)			(0.62)
Food Stamps at Spring K			-1.11			-1.16
			(0.87)			(0.80)
Immigrant Household (Yes)			1.12			0.62
			(0.77)			(0.87)
Home Language - English			1.37			-2.63[*]
			(0.95)			(1.04)
First-time Kindergartener			5.40[**]			6.28[**]
			(1.39)			(1.94)
Special Education - Kindergarten			-13.21[**]			-11.25[**]
			(1.69)			(1.94)
Cumulative number of School Moves			0.48			0.93[*]
			(0.51)			(0.47)
School Type at Kindergarten - Private			0.17			0.27
			(1.05)			(0.82)
School Type at 5th Grade - Private			-0.02			-3.50[**]
			(1.08)			(1.08)

Table 2. Weighted Least Squares Regressions on Child's Fifth Grade Math and Reading Scores on Cumulative Number of Moving Experiences from Kindergarten to Fifth Grade

	Fifth Grade Reading Scores			Fifth Grade Math Scores		
	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)
5th Grade School Percent Free and Reduce Lunch: 50%-100%			-1.49^{**}			-1.74^{**}
			(0.57)			(0.49)
Urbanicity - Town			0.61			-1.04
			(0.71)			(0.83)
Urbanicity - Suburb			0.07			-1.45^{**}
			(0.69)			(0.53)
Urbanicity - City			0.77			-0.53
			(0.80)			(0.67)
R^2	0.01	0.23	0.33	0.02	0.39	0.48
BIC (null)	-46	-1383	-1873	-79	-2606	-3202

Note. $N = 5320$. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Analytic sample only includes participants with a valid survey weight. Null models present bivariate relationships between the cumulative number of years the child experienced residential mobility from kindergarten to fifth grade and the child's fifth grade math/reading scores; null and lagged models add lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten academic achievement variables; full model adds lagged variables and covariates.
$^{**}p < 0.01$; $^{*}p < 0.05$; $^{+}p < 0.1$

Table 3. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Cumulative Number of Moving Experiences from Kindergarten to Fifth Grade

	Self-Control			Interpersonal Skills			Internalizing			Externalizing		
	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)
(Intercept)	3.32**	2.43**	2.67**	3.15**	2.36**	2.50**	1.54**	1.27**	1.31**	1.60**	0.98**	1.38**
	(0.01)	(0.06)	(0.19)	(0.01)	(0.06)	(0.18)	(0.01)	(0.03)	(0.16)	(0.01)	(0.02)	(0.16)
Cumulative number of moving experiences	-0.04**	-0.01	0.01	-0.04**	-0.01	0.00	0.05**	0.03**	0.02+	0.05**	0.01	0.00
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Number of residential moves from birth to fall of Kindergarten		-0.05**	-0.03**		-0.05**	-0.03*		0.04**	0.03**		0.04**	0.02**
		(0.01)	(0.01)		(0.01)	(0.01)		(0.01)	(0.01)		(0.01)	(0.01)
Fall Kindergarten Self-Control		0.30**	0.24**									
		(0.02)	(0.02)									
Fall Kindergarten Interpersonal					0.27**	0.20**						
					(0.02)	(0.02)						
Fall Kindergarten Internalizing								0.16**	0.15**			
								(0.02)	(0.02)			
Fall Kindergarten Externalizing											0.38**	0.32**
											(0.01)	(0.02)
Age in Kindergarten			-0.00			-0.00			-0.00			-0.00*
			(0.00)			(0.00)			(0.00)			(0.00)
Black			-0.15**			-0.14**			-0.15**			0.11*
			(0.04)			(0.05)			(0.03)			(0.05)
Hispanic			0.03			0.01			-0.03			-0.09**
			(0.03)			(0.03)			(0.03)			(0.03)
Asian/Pacific Islander			0.04			-0.06			0.00			-0.07+
			(0.05)			(0.05)			(0.04)			(0.04)

Table 3. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Cumulative Number of Moving Experiences from Kindergarten to Fifth Grade

	Self-Control			Interpersonal Skills			Internalizing			Externalizing		
	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)
American Indian/Alaskan Native			0.08			0.16**			-0.06			-0.10**
			(0.06)			(0.06)			(0.06)			(0.03)
Multiracial			0.05			0.04			0.01			-0.08*
			(0.04)			(0.05)			(0.04)			(0.04)
Child Gender (Female)			0.22**			0.28**			0.00			-0.21**
			(0.02)			(0.02)			(0.01)			(0.02)
Low Birth Weight (Yes)			0.02			0.03			0.08**			0.00
			(0.03)			(0.03)			(0.03)			(0.03)
Mother Married at Child's Birth			0.12**			0.11**			-0.05**			-0.12**
			(0.02)			(0.03)			(0.02)			(0.02)
Highest Parent Education - High School			-0.00			0.00			-0.04			0.02
			(0.05)			(0.05)			(0.06)			(0.05)
Highest Parent Education - Some College			-0.01			0.01			-0.07			0.04
			(0.05)			(0.05)			(0.06)			(0.06)
Highest Parent Education - Bachelor's or Higher			0.02			0.05			-0.11+			0.01
			(0.05)			(0.06)			(0.06)			(0.06)
Family Income at Spring K $0-$50K			-0.03			-0.06+			0.02			0.02
			(0.03)			(0.03)			(0.03)			(0.03)
Always Low Income Status			-0.06			-0.04			0.09*			-0.00
			(0.04)			(0.05)			(0.04)			(0.04)
Ever Low Income Status			-0.03			-0.02			0.05*			-0.00
			(0.03)			(0.03)			(0.03)			(0.03)

Table 3. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Cumulative Number of Moving Experiences from Kindergarten to Fifth Grade

	Self-Control			Interpersonal Skills			Internalizing			Externalizing		
	Null Model	Null & Lagged Model	Full Model	Null Model	Null & Lagged Model	Full Model	Null Model	Null & Lagged Model	Full Model	Null Model	Null & Lagged Model	Full Model
	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)	B (SE B)
Food Stamps at Spring K			-0.05			-0.06[+]			-0.02			0.06[+]
			(0.03)			(0.04)			(0.03)			(0.03)
Immigrant Household (Yes)			-0.02			-0.02			-0.02			0.01
			(0.03)			(0.03)			(0.03)			(0.03)
Home Language - English			-0.09[*]			-0.12[**]			0.13[**]			0.05
			(0.04)			(0.04)			(0.04)			(0.04)
First-time Kindergartener			-0.03			0.00			-0.02			0.03
			(0.04)			(0.04)			(0.04)			(0.04)
Special Education - Kindergarten			-0.20[**]			-0.21[**]			0.23[**]			0.06
			(0.05)			(0.06)			(0.05)			(0.05)
Cumulative number of School Moves			-0.01			-0.01			-0.02			0.01
			(0.02)			(0.02)			(0.02)			(0.01)
School Type at Kindergarten - Private			0.00			-0.07			-0.05[+]			-0.05
			(0.04)			(0.05)			(0.03)			(0.05)
School Type at 5th Grade - Private			-0.10[+]			0.03			0.06			0.15[**]
			(0.05)			(0.06)			(0.05)			(0.05)
5th Grade School Percent Free and Reduce Lunch: 50%-100%			-0.03			0.03			-0.02			0.02
			(0.02)			(0.02)			(0.02)			(0.02)
Urbanicity - Town			-0.00			-0.01			0.01			-0.03
			(0.04)			(0.05)			(0.03)			(0.05)
Urbanicity - Suburb			-0.03			-0.03			0.05			0.01
			(0.03)			(0.03)			(0.03)			(0.02)

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Table 3. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Cumulative Number of Moving Experiences from Kindergarten to Fifth Grade

	Self-Control			Interpersonal Skills			Internalizing			Externalizing		
	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)
Urbanicity - City			-0.04 (0.03)			-0.02 (0.04)			0.06^+ (0.03)			0.03 (0.03)
R^2	0.01	0.10	0.17	0.01	0.08	0.15	0.00	0.04	0.05	0.00	0.16	0.22
BIC (null)	-28	-555	-725	-24	-410	-579	4	-187	-41	-17	-927	-1073

Note. N = 5320. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Analytic sample only includes participants with a valid survey weight. Null models present bivariate relationships between the cumulative number of years the child experienced residential mobility from kindergarten to fifth grade and the child's fifth grade socioemotional outcomes; null and lagged models add lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten socioemotional variables; full model adds lagged variables and covariates.
$^{**}p < 0.01$; $^*p < 0.05$; $^+p < 0.1$

Table 4. Weighted Least Squares Regressions on Child's Fifth Grade Math and Reading Scores on Moving Experiences by Grade Level Longitudinally

	Fifth Grade Reading Scores			Fifth Grade Math Scores		
	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)
(Intercept)	138.20**	101.93**	105.10**	121.65**	85.93**	115.12**
	(0.44)	(1.30)	(4.74)	(0.57)	(1.00)	(5.26)
Number of residential moves from birth to fall of Kindergarten	-0.26	-0.21	0.17	-0.13	0.08	0.52**
	(0.30)	(0.22)	(0.23)	(0.29)	(0.20)	(0.16)
Moving Experience: K-1st Grade	-1.26	0.11	0.99	-2.19*	-0.92	0.07
	(1.11)	(0.93)	(0.78)	(1.05)	(0.86)	(0.69)
Moving Experience: 1st-2nd Grade	-1.45	-0.47	0.42	-2.25*	-0.61	0.33
	(1.14)	(1.04)	(0.86)	(1.05)	(0.84)	(0.72)
Moving Experience: 2nd-3rd Grade	-1.61	-1.22	-0.52	-1.63	-0.91	-0.31
	(1.12)	(0.99)	(0.79)	(1.25)	(0.89)	(0.75)
Moving Experience: 3rd-4th Grade	-3.42**	-3.02**	-1.38	-5.24**	-2.97**	-1.49
	(1.13)	(0.99)	(0.93)	(1.41)	(1.04)	(1.01)
Moving Experience: 4th-5th Grade	-0.39	-0.86	-0.42	-0.03	-0.71	-0.02
	(1.32)	(1.18)	(1.04)	(1.39)	(1.00)	(0.82)
Fall Kindergarten Reading		0.65**	0.53**			
		(0.02)	(0.02)			
Fall Kindergarten Math					0.96**	0.84**
					(0.02)	(0.02)
Age in Kindergarten			-0.08			-0.38**
			(0.05)			(0.07)
Black			-5.31**			-8.69**
			(0.85)			(0.95)
Hispanic			-1.42			-2.63**
			(0.98)			(0.91)
Asian/Pacific Islander			-0.52			-0.44
			(0.94)			(1.00)
American Indian/Alaskan Native			-3.95**			0.38
			(1.48)			(1.54)

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Table 4. Weighted Least Squares Regressions on Child's Fifth Grade Math and Reading Scores on Moving Experiences by Grade Level Longitudinally

	Fifth Grade Reading Scores			Fifth Grade Math Scores		
	Null Model	Null & Lagged Model	Full Model	Null Model	Null & Lagged Model	Full Model
	B	B	B	B	B	B
	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)
Multiracial			1.14			-1.11
			(0.93)			(0.96)
Child Gender (Female)			-0.13			-3.02**
			(0.43)			(0.37)
Low Birth Weight (Yes)			-1.05			-0.75
			(0.79)			(0.75)
Mother Married at Child's Birth			1.13*			1.38*
			(0.53)			(0.62)
Highest Parent Education - High School			2.21+			1.26
			(1.15)			(1.25)
Highest Parent Education - Some College			5.10**			4.13**
			(1.17)			(1.37)
Highest Parent Education - Bachelor's or Higher			5.68**			5.04**
			(1.33)			(1.49)
Family Income at Spring K $0-$50K			-0.64			-0.24
			(0.77)			(0.75)
Always Low Income Status			-1.71			-0.59
			(1.17)			(0.93)
Ever Low Income Status			0.93			0.61
			(0.73)			(0.62)
Food Stamps at Spring K			-1.09			-1.14
			(0.87)			(0.80)
Immigrant Household (Yes)			1.08			0.57
			(0.77)			(0.86)
Home Language - English			1.39			-2.62*
			(0.94)			(1.04)
First-time Kindergartener			5.38**			6.23**
			(1.37)			(1.92)
Special Education - Kindergarten			-13.17**			-11.23**

Table 4. Weighted Least Squares Regressions on Child's Fifth Grade Math and Reading Scores on Moving Experiences by Grade Level Longitudinally

	Fifth Grade Reading Scores			Fifth Grade Math Scores		
	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)	Null Model B (SE B)	Null & Lagged Model B (SE B)	Full Model B (SE B)
			(1.70)			(1.94)
Cumulative number of School Moves			0.47			0.93[*]
			(0.51)			(0.47)
School Type at Kindergarten - Private			0.17			0.25
			(1.05)			(0.82)
School Type at 5th Grade - Private			0.01			-3.49[**]
			(1.08)			(1.08)
5th Grade School Percent Free and Reduce Lunch: 50%-100%			-1.51[**]			-1.76[**]
			(0.57)			(0.49)
Urbanicity - Town			0.62			-1.04
			(0.70)			(0.83)
Urbanicity - Suburb			0.10			-1.43[**]
			(0.68)			(0.52)
Urbanicity - City			0.83			-0.48
			(0.78)			(0.67)
R^2	0.01	0.23	0.33	0.01	0.39	0.48
BIC (null)	10	-1330	-1840	-9	-2560	-3163

Note. N = 5320. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Analytic sample only includes participants with a valid survey weight. Null models estimate the independent association of residential mobility at any year from kindergarten to fifth grade on academic outcomes by controlling for all other residential experiences across the elementary school years; null and lagged models add lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten academic achievement variables; full model adds lagged variables and covariates.

$^{**}p < 0.01$; $^{*}p < 0.05$; $^{+}p < 0.1$

Table 5. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Moving Experiences by Grade Level Longitudinally

	Self-Control			Interpersonal			Internalizing			Externalizing		
	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)
(Intercept)	3.36**	2.43**	2.67**	3.20**	2.36**	2.48**	1.51**	1.28**	1.31**	1.56**	0.98**	1.37**
	(0.01)	(0.06)	(0.19)	(0.01)	(0.06)	(0.18)	(0.01)	(0.03)	(0.16)	(0.01)	(0.03)	(0.16)
Number of residential moves from birth to fall of Kindergarten	-0.06**	-0.05**	-0.03**	-0.06**	-0.05**	-0.03*	0.04**	0.04**	0.03**	0.06**	0.04**	0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Moving Experience: K-1st Grade	-0.08+	-0.06	-0.05	-0.03	-0.01	-0.01	0.08*	0.07+	0.06	0.09+	0.06	0.06
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
Moving Experience: 1st-2nd Grade	0.01	0.02	0.04	0.04	0.05	0.07	0.01	0.02	0.00	0.01	0.01	0.00
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)
Moving Experience: 2nd-3rd Grade	-0.01	-0.02	-0.00	-0.01	-0.01	-0.01	-0.00	-0.00	-0.01	-0.03	-0.03	-0.04
	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
Moving Experience: 3rd-4th Grade	-0.03	0.01	0.04	-0.07	-0.04	-0.01	0.10**	0.09**	0.07*	0.09*	0.04	0.03
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)	(0.03)	(0.03)	(0.03)	(0.05)	(0.04)	(0.04)
Moving Experience: 4th-5th Grade	-0.01	-0.00	0.01	-0.04	-0.05	-0.04	-0.00	0.00	-0.01	0.01	0.00	-0.01
	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)
Fall Kindergarten Self-Control		0.30**	0.24**									
		(0.02)	(0.02)									
Fall Kindergarten Interpersonal					0.27**	0.20**						
					(0.02)	(0.02)						
Fall Kindergarten Internalizing								0.16**	0.15**			

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Table 5. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Moving Experiences by Grade Level Longitudinally

	Self-Control			Interpersonal			Internalizing			Externalizing		
	Null Model	Null & Lagged Model	Full Model	Null Model	Null & Lagged Model	Full Model	Null Model	Null & Lagged Model	Full Model	Null Model	Null & Lagged Model	Full Model
	B	B	B	B	B	B	B	B	B	B	B	B
	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)
								(0.02)	(0.02)			
Fall Kindergarten Externalizing											0.38[**]	0.32[**]
											(0.01)	(0.02)
Age in Kindergarten			-0.00			0.00			-0.00			-0.00[*]
			(0.00)			(0.00)			(0.00)			(0.00)
Black			-0.15[**]			-0.14[**]			-0.15[**]			0.11[*]
			(0.04)			(0.05)			(0.03)			(0.05)
Hispanic			0.03			0.01			-0.03			-0.09[**]
			(0.03)			(0.03)			(0.03)			(0.03)
Asian/Pacific Islander			0.04			-0.06			0.00			-0.07[+]
			(0.05)			(0.05)			(0.04)			(0.04)
American Indian/Alaskan Native			0.08			0.16[**]			-0.05			-0.09[**]
			(0.07)			(0.06)			(0.06)			(0.03)
Multiracial			0.05			0.03			0.01			-0.08[*]
			(0.04)			(0.05)			(0.04)			(0.04)
Child Gender (Female)			0.22[**]			0.28[**]			0.00			-0.21[**]
			(0.02)			(0.02)			(0.01)			(0.02)
Low Birth Weight (Yes)			0.02			0.03			0.08[**]			0.00
			(0.03)			(0.03)			(0.03)			(0.03)
Mother Married at Child's Birth			0.12[**]			0.11[**]			-0.05[**]			-0.12[**]
			(0.02)			(0.03)			(0.02)			(0.02)
Highest Parent Education - High School			-0.00			-0.00			-0.04			0.02
			(0.05)			(0.05)			(0.06)			(0.05)
Highest Parent Education - Some College			-0.01			0.01			-0.06			0.04

Table 5. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Moving Experiences by Grade Level Longitudinally

	Self-Control			Interpersonal			Internalizing			Externalizing		
	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)
			(0.05)			(0.05)			(0.06)			(0.06)
Highest Parent Education - Bachelor's or Higher			0.02			0.05			-0.11[+]			0.01
			(0.05)			(0.06)			(0.06)			(0.06)
Family Income at Spring K $0-$50K			-0.03			-0.06[+]			0.03			0.02
			(0.03)			(0.03)			(0.03)			(0.03)
Always Low Income Status			-0.06			-0.04			0.09[*]			-0.00
			(0.04)			(0.05)			(0.04)			(0.04)
Ever Low Income Status			-0.03			-0.02			0.05[*]			-0.00
			(0.03)			(0.03)			(0.03)			(0.03)
Food Stamps at Spring K			-0.05			-0.06[+]			-0.02			0.06[+]
			(0.03)			(0.04)			(0.03)			(0.03)
Immigrant Household (Yes)			-0.02			-0.02			-0.02			0.01
			(0.03)			(0.03)			(0.03)			(0.04)
Home Language - English			-0.09[*]			-0.12[**]			0.13[**]			0.05
			(0.04)			(0.04)			(0.04)			(0.04)
First-time Kindergartener			-0.03			0.01			-0.02			0.03
			(0.04)			(0.04)			(0.04)			(0.04)
Special Education - Kindergarten			-0.20[**]			-0.21[**]			0.23[**]			0.06
			(0.05)			(0.06)			(0.05)			(0.05)
Cumulative number of School Moves			-0.01			-0.01			-0.02			0.01
			(0.02)			(0.02)			(0.02)			(0.01)
School Type at Kindergarten - Private			-0.00			-0.07			-0.05[+]			-0.05
			(0.04)			(0.05)			(0.03)			(0.05)

Table 5. Weighted Least Squares Regressions on Child's Fifth Grade Socioemotional Outcomes on Moving Experiences by Grade Level Longitudinally

	Self-Control			Interpersonal			Internalizing			Externalizing		
	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)	Null Model *B* (SE B)	Null & Lagged Model *B* (SE B)	Full Model *B* (SE B)
School Type at 5th Grade - Private			-0.10^+			0.03			0.06			0.16^{**}
			(0.05)			(0.06)			(0.05)			(0.05)
5th Grade School Percent Free and Reduce Lunch: 50%-100%			-0.03			0.03			-0.02			0.02
			(0.02)			(0.02)			(0.02)			(0.02)
Urbanicity - Town			-0.00			-0.01			0.01			-0.03
			(0.04)			(0.05)			(0.03)			(0.05)
Urbanicity - Suburb			-0.03			-0.03			0.05^+			0.02
			(0.03)			(0.03)			(0.03)			(0.02)
Urbanicity - City			-0.04			-0.01			0.06^+			0.03
			(0.03)			(0.04)			(0.03)			(0.03)
R^2	0.01	0.10	0.17	0.01	0.08	0.14	0.01	0.04	0.05	0.01	0.16	0.22
BIC (null)	1	-512	-676	15	-371	-536	9	-156	-8	1	-894	-1043

Note. N = 5320. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Analytic sample only includes participants with a valid survey weight. Null models estimate the independent association of residential mobility at any year from kindergarten to fifth grade on socioemotional outcomes by controlling for all other residential experiences across the elementary school years; null and lagged models add lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten socioemotional variables; full model adds lagged variables and covariates.
$^{**}p < 0.01$; $^*p < 0.05$; $^+p < 0.1$

Table 6. Weighted Least Squares Regressions on Child's Fifth Grade Child Functioning on Moving Experiences by Grade Level

	Reading	Math	Self-Control	Interpersonal	Internalizing	Externalizing
	B	*B*	*B*	*B*	*B*	*B*
K – 1st	0.99	0.06	-0.05	-0.00	0.07	0.05
1st – 2nd	0.66	0.15	0.03	0.05	-0.01	0.01
2nd – 3rd	-0.49	-0.53	0.01	-0.00	-0.00	-0.02
3rd – 4th	0.72	-1.26[+]	0.06	-0.00	0.06[+]	0.03
4th – 5th	-0.74	-0.13	0.02	-0.03	-0.01	-0.01

Note. $N = 5320$. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Each regression coefficient estimates the association of residential mobility of a specific year from kindergarten to fifth grade for a specific academic or socioemotional outcome while controlling for the residential experience of the prior elementary school year. All models include covariates as well as lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten academic or socioemotional variables.
[**]$p < 0.01$; [*]$p < 0.05$; [+]$p < 0.1$

Table 7. Weighted Least Squares Regression Coefficients of Fifth Grade Child Functioning on Cumulative Number of Residential Moves Across Income Levels

	Always below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1194)	At least once below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1110)	Never below 200% Poverty Line from Kindergarten to Fifth Grade (N = 2649)
	B	*B*	*B*
Read	-0.01	-0.49	0.10
Math	-0.37	-0.14	-0.31
Self-control	0.05[+]	-0.04[+]	-0.02
Interpersonal	0.03	-0.01	-0.04[+]
Internalizing	-0.01	0.04	0.05[*]
Externalizing	-0.04	0.06[*]	0.02

Note. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Models present bivariate relationships between the cumulative number of years the child experienced residential mobility from kindergarten to fifth grade and the child's fifth grade child functioning across different low-income subsamples. All models include covariates as well as lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten child functioning variables.
[**]$p < 0.01$; [*]$p < 0.05$; [+]$p < 0.1$

Table 8. Weighted Least Squares Regression Coefficients of Fifth Grade Child Functioning on Moving Experiences by Grade Experienced a Move Longitudinally Across Income Levels

		Reading B	Math B	Self-Control B	Interpersonal B	Internalizing B	Externalizing B
Always below	K – 1st	3.00*	-0.79	-0.03	0.04	0.06	-0.02
200% Poverty Line	1st – 2nd	2.46	1.34	0.17*	0.15*	-0.07	-0.07
from Kindergarten	2nd – 3rd	-0.27	0.29	0.05	0.06	-0.04	-0.08
to Fifth Grade	3rd – 4th	-2.23	-1.82	0.08	-0.01	0.09	-0.00
(N = 1194)	4th – 5th	-2.83	-1.18	-0.05	-0.12	-0.10+	-0.02
At least once below	K – 1st	-1.40	-0.04	-0.06	-0.02	0.07	0.11
200% Poverty Line	1st – 2nd	-0.29	0.49	-0.12	0.03	0.01	0.07
from Kindergarten	2nd – 3rd	-1.81	-0.49	-0.06	-0.06	0.03	0.03
to Fifth Grade	3rd – 4th	-0.23	-1.60	0.05	0.02	0.09	0.08
(N = 1110)	4th – 5th	1.76	1.04	0.01	-0.01	0.01	0.02
Never below 200%	K – 1st	0.75	0.37	-0.15+	-0.14*	0.07	0.16**
Poverty Line from	1st – 2nd	-0.42	-0.84	0.05	-0.02	0.14*	0.04
Kindergarten to	2nd – 3rd	1.03	-0.65	-0.03	-0.04	-0.03	-0.05
Fifth Grade	3rd – 4th	-1.70+	-1.44	-0.05	-0.03	0.01	-0.00
(N = 2649)	4th – 5th	0.88	1.02	0.04	0.00	0.07	0.02

Note. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Regression coefficients present the independent association of residential mobility at any year from kindergarten to fifth grade on child functioning by controlling for all other residential experiences throughout the elementary school years, across different low-income subsamples. All models include covariates as well as lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten child functioning variables.
**$p < 0.01$; *$p < 0.05$; +$p < 0.1$

Table 9. Regressions on Child's Fifth Grade Child Functioning on Moving Experiences by Grade Level Across Income Levels

		Reading	Math	Self-Control	Interpersonal	Internalizing	Externalizing
		B	*B*	*B*	*B*	*B*	*B*
Always below 200%	K – 1st	3.58*	-0.46	0.03	0.09	0.04	-0.05
Poverty Line from	1st – 2nd	2.63*	1.70	0.16*	0.13*	-0.09*	-0.07
Kindergarten to Fifth	2nd – 3rd	-0.36	-1.11	0.07	0.07	-0.03	-0.07
Grade	3rd – 4th	1.01	-0.96	0.11+	0.01	0.05	-0.02
(N = 1194)	4th – 5th	-1.45+	-0.74	0.00	-0.07	-0.12+	0.00
At least once below	K – 1st	-1.50	0.02	-0.08	-0.02	0.07	0.11+
200% Poverty Line	1st – 2nd	-0.98	0.00	-0.13+	-0.01	0.01	0.06
from Kindergarten to	2nd – 3rd	-1.59*	0.22	-0.04	-0.07	0.05	0.05
Fifth Grade	3rd – 4th	0.77	-2.12+	0.06	0.04	0.08	0.07
(N = 1110)	4th – 5th	-0.47	0.08	-0.00	-0.02	0.00	-0.03
Never below 200%	K – 1st	0.65	0.15	-0.15+	-0.15*	0.08	0.16**
Poverty Line from	1st – 2nd	0.50	-1.09	0.03	-0.03	0.13+	0.06
Kindergarten to Fifth	2nd – 3rd	0.92	-0.54	-0.02	-0.04	-0.01	-0.02
Grade	3rd – 4th	0.17	-1.41*	-0.03	-0.03	0.03	0.03
(N = 2649)	4th – 5th	0.16	0.40	0.03	-0.02	0.09*	0.01

Note. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Regression coefficients present the association of residential mobility of a specific year from kindergarten to fifth grade for a specific academic or socioemotional outcome while controlling for the residential experience of the prior elementary school year, across different low-income subsamples. All models include covariates as well as lagged variables for both residential mobility (i.e., moves from birth to kindergarten) and kindergarten child functioning variables.
**p < 0.01; *p < 0.05; +p < 0.1

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Table 10. Fixed-Effect Regressions of Fifth Grade Child Functioning on Residential Moves

	Reading Scores	Math Scores	Self-control	Interpersonal Skills	Internalizing	Externalizing
	B	B	B	B	B	B
	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)	(SE B)
Experienced a Residential Move	0.02	-0.00	0.00	-0.01	0.00	-0.01
	(0.21)	(0.18)	(0.01)	(0.01)	(0.01)	(0.01)
Age	1.07**	1.21**	-0.00	0.00	0.01	0.01+
	(0.11)	(0.13)	(0.01)	(0.01)	(0.00)	(0.01)
Family Income at 0-50K	-0.19	-0.47	0.01	0.01	-0.00	0.02
	(0.27)	(0.29)	(0.02)	(0.02)	(0.02)	(0.01)
Receives Food Stamps	0.11	-0.03	0.02	0.02	0.00	-0.03*
	(0.32)	(0.29)	(0.02)	(0.02)	(0.02)	(0.01)
School Moves	-0.44	-0.08	-0.04+	-0.04	0.01	0.03
	(0.27)	(0.37)	(0.02)	(0.03)	(0.02)	(0.02)
Parent Marital Status	-0.58+	-0.73*	-0.01	0.01	-0.03+	0.04*
	(0.34)	(0.34)	(0.02)	(0.02)	(0.02)	(0.02)

Note. N = 5320. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Models represent the relationship between residential moves and child functioning in approximately 1-year chunks between kindergarten and fifth grade.
**$p < 0.01$; *$p < 0.05$; +$p < 0.1$

Table 11. Fixed Effects Regression Coefficients of Fifth Grade Child Functioning on Residential Moves Across Income Levels

	Always below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1194)	At least once below 200% Poverty Line from Kindergarten to Fifth Grade (N = 1110)	Never below 200% Poverty Line from Kindergarten to Fifth Grade (N = 2649)
	B	B	B
Reading	-0.30	-0.26	0.21
Math	0.21	-0.71*	0.08
Self-control	0.01	0.00	-0.00
Interpersonal	0.01	-0.03	-0.01
Internalizing	-0.01	0.00	0.02
Externalizing	-0.04	-0.00	0.02

Note. Data drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11. Study applied the "W9C19P_9T29B" Full Sample Weight, which adjusts for nonresponse associated with child assessment/child questionnaire data. Models represent the relationship between residential moves and child functioning in approximately 1-year chunks between kindergarten and fifth grade, across low-income subsamples.
**$p < 0.01$; *$p < 0.05$; +$p < 0.1$

Table 12. Study Comparison between Coley & Kull's (2016) Study and Current Study

Components	Coley & Kull (2016)	Our Study
Data Source	ECLS-K	ECLS-K:2011
Residential Mobility Measure	Continuous: Asked the parents how many times they moved every two years.	Binary: Asked whether parent and child moved since the last wave (i.e., every year).
Outcomes	8th Grade Academic & Socioemotional Outcomes	5th Grade Academic & Socioemotional Outcomes
Covariates	Our study includes similar covariates to Coley & Kull's (2016) Study.	
Analytical Plan	• Cumulative • Timing • Lagged variables • Fixed effects • Does not stratify by family income	• Cumulative • Timing • Lagged variables • Fixed effects • Does stratify by family income
Weights	More Inclusive	Less Inclusive

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