

STABILITY IN THE TRANSITION FROM PRE-KINDERGARTEN TO
KINDERGARTEN: IMPLICATIONS FOR CHILDREN'S SCHOOL READINESS
AND EARLY SCHOOL PERFORMANCE

by

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DEDICATION

This is dedicated to my husband Keegan. Thank you for your unwavering love and support.

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ABSTRACT

STABILITY IN THE TRANSITION FROM PRE-KINDERGARTEN TO KINDERGARTEN: IMPLICATIONS FOR CHILDREN'S SCHOOL READINESS AND EARLY SCHOOL PERFORMANCE

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George Mason University, 2016

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School mobility is inversely associated with income and has negative effects on school achievement, however previous research has not investigated the impact of mobility between public school pre-kindergarten (pre-K) and kindergarten on later academic outcomes. Using data from the Miami School Readiness Project (MSRP), I examined a large ($N = 18,775$) and ethnically diverse (34.7% Black, 54.9% Latino, 10.4% White/other) sample of children who attended public school pre-K and kindergarten in Miami between the school years of 2002 to 2007. I addressed the following research questions: (1) What proportion of children attending public school pre-kindergarten programs in Miami switch to a different public school for kindergarten? (2) How do the children that switch schools differ from those children who do not switch schools regarding gender, race, poverty status, ELL status, and developmental assessments administered at age three or four? (3) After controlling for the differences in

demographics and pre-K assessment scores between those that do and do not move, how do the outcomes between children who switch and children who do not switch from pre-kindergarten to kindergarten differ at the end of kindergarten and at the end of first grade? (4) Does pre-K school quality predict switching schools between public school pre-K and kindergarten? (5) Does the direction and magnitude of school quality change moderate the effects of switching schools between pre-K and kindergarten and later school performance? Multivariate logistic regression analyses revealed that even after accounting for demographic variables (e.g. free/reduced lunch, gender, ethnicity, and ELL status), those receiving free/reduced lunch and Blacks (compared to Latinos and Whites) had increased odds of switching schools, and ELLs had decreased odds of switching schools between public pre-K and kindergarten. Further analyses revealed that switching schools between public pre-K and kindergarten negatively predicted academic outcomes in first grade, but not in Kindergarten. Results also indicate that lower school quality in pre-K increased the odds of switching schools, and that initial school quality in pre-K and the school quality change between pre-K and kindergarten positively predicted first grade academic outcomes. Implications of school mobility between public pre-K and kindergarten and early school quality are discussed.

INTRODUCTION

When The No Child Left Behind Act was signed in 2002, one of George W. Bush's goals was that "all children in America will start school ready to learn" (Roberts, 2011, p. 4). There was a shift in policy to focus on school readiness that can be seen by things like No Child Left Behind, the reauthorization of Head Start, and the School Readiness Indicators Initiative (Snow, 2006). As policy-makers became more interested in early childhood education, research in the areas of school readiness increased as well. Policy and research interest in early childhood education programs has increased, and so has participation in such programs. In 2013, 61% of U.S. children between the ages of 3 and 6 not yet in kindergarten attended some sort of early childhood care or education program (Child Trends Databank, 2014). With the majority of children in the United States attending some kind of early childhood education program, it is important that we understand the strengths and benefits of the different programs and how well they prepare our children for kindergarten.

School Readiness

In most of the United States, children are permitted to enter kindergarten if they turn 5 years old on or before October 16 of the year in question (Ackerman & Barnett, 2005). Although children are considered ready for formal schooling from an administrative perspective at age 5, each child's actual preparedness level can vary

greatly due to their development and previous experiences. A child's readiness level can also vary based on who is assessing it; parents can have different perspectives on kindergarten readiness than teachers (Ackerman & Barnett, 2005). Historically, parents have been more concerned with pre-academic and cognitive skills, while teachers have placed more value in socio-emotional skills (Ackerman, & Barnet, 2005). These concerns shared by parents and teachers are at the core of the study of school readiness.

Generally, school readiness is "a child's ability to successfully carry out kindergarten work" (Maryland State Department of Education, 2011, p. 2), but more specifically, school readiness is considered a combination of skills that are associated with enhanced performance at school entry. This combination can vary from researcher to researcher, but across the literature, it often includes fine motor skills, language skills, cognitive skills, behavioral skills, and social-emotional skills (Snow, 2006). These skills are important because they are predictive of later achievement.

One of the first large-scale studies to address the implications of school readiness was Duncan et al. (2007). The study assessed school readiness and outcomes across six different large-scale longitudinal studies, including two nationally representative U.S. samples, two multisite U.S. samples, and one sample from each Great Britain and Canada. Using achievement tests scores and parent and teacher reports, they found that math and reading skills at the beginning of kindergarten are correlated with higher levels of academic performance in subsequent grades. Due to their design of investigating six different longitudinal studies, they had multiple measures used by different studies at different times. They used parent and teacher reports, Achenbach's Child Behavior

Checklist (CBCL) and Child Behavior Profile Maternal Report (Achenbach, 1991), and the Rutter Scale (Rutter, 1967) to assess socioemotional behaviors and attention skills. Duncan et al. found that math and reading skills present at school entry are associated with higher academic performance later on and that attention skills consistently predict later academic achievement. Using a separate Canadian sample, Romano, Babchishin, Pagani, and Kohen (2010) were able to successfully replicate the results of the Duncan et al. (2007) study. In addition to confirming the results of the original study, Romano et al. (2010) found that parent-reported socioemotional skills, such as prosocial behavior, are also predictors of later school success.

Additional support for the idea that school entry skills are related to later outcomes is found in the literature. Recent data from the Maryland School Readiness Report (Maryland State Department of Education, 2011) indicates that as school readiness levels increase, reading and math scores in the third grade increase as well. The Maryland Model for School Readiness is a Kindergarten assessment that measures school readiness, and higher scores on that assessment are correlated with increased reading and math scores on the Maryland School Assessment, a standardized test administered in grade three. These data fail to control for socioeconomic status, however, but they do support the idea that children's skills at school entry are associated with their success and achievement in later grades. According to Snow (2006), children's skill level at school entry is highly correlated with their later skills. Therefore, school readiness is an important area to understand as it affects later child education outcomes.

It is important to note that school readiness has traditionally been seen as a child-level trait, where children are either ready for school or they are not. However, Carlton and Winsler (1999) argue that a more bidirectional approach is necessary, where schools need to be ready to help children of all levels learn. Instead of focusing on children with problems, focus needs to shift to helping all children within each kindergarten class. They argue that school readiness needs to be measured bidirectionally on a continuum from both child to school and vice versa. Unfortunately, the literature has mostly continued to focus on school readiness as a child-level trait.

Low-income Children

Since increased school readiness is associated with increased achievement, all children could benefit from increased school readiness at school entry. However, recent research has focused on increasing the school readiness of children from low-income families (Winsler et al., 2008). According to The U.S. Census Bureau (2013), 19.9% of children are living in poverty. This at-risk group of children is more likely to experience things like early academic failure, lower literacy levels, behavior problems in school, and high school dropout (Brooks-Gunn & Duncan, 1997; Rhode Island Kids Count, 2005). Increased school readiness may help prevent these negative outcomes (Anderson et al., 2003).

Not only are children from low-income families more likely to have trouble later in school, but research has indicated that it is possible that half of the education gap between children living in poverty and children not living in poverty already exists at kindergarten entry (Rhode Island Kids Count, 2005). When compared to children not

living in poverty, children from low-income families are more likely to start school with limited language skills, health problems, and social and emotional problems that interfere with learning (Brooks-Gunn & Duncan, 1997). Current research is focusing on this at-risk population in hopes of closing the achievement gap between poor and non-poor children that exists at school entry.

The literature indicates that high-quality childcare enhances the cognitive and linguistic functioning of all children (National Institute of Child Health and Human Development Early Child Care Research Network, 2000). High-quality childcare, however, is especially beneficial for children from low-income families. Loeb, Bridges, Bassol, Fuller, and Rumberger (2007) found that low-income children who spend 30 or more hours a week in an educational care setting a week experience significant gains in pre-reading skills. Similarly, Votruba-Drzal, Coley, and Chase-Lansdale (2004) determined that, for low-income children, increased hours in high-quality child care are associated with increased quantitative skills and decreased behavior problems. Research by McCartney, Dearing, Taylor, and Bub (2007) indicates that high-quality child care can buffer for the negative impacts of low family income in the areas of receptive and expressive language and school readiness. However, findings are mixed regarding the effects early childhood education programs on children not living in poverty. Some research has indicated that for children that are not living in poverty, the cognitive gains from pre-kindergarten dissipate, but that problematic behaviors potentially learned in pre-kindergarten remain (Loeb et al., 2007; Magnuson, Ruhm, & Waldfogel, 2007; Fram, Kim, & Sinha, 2011; Votruba-Drzal et al., 2004). Although some research suggests that

children from middle- to high- income families may not experience as many positive gains from pre-kindergarten, research indicates that these programs are in fact beneficial for children from low-income families.

Early Childhood Education Programs

Early childhood education programs have a positive effect on children from low-income families, but there are many kinds of programs in which this group could participate. In order to help eliminate the achievement gap between poor and non-poor children at kindergarten entry, it is necessary to understand the effects of the various programs on low-income children's school readiness skills.

According to Winsler et al. (2008), there are four different kinds of programs or interventions in which low-income children participate. They include small-scale research projects, Head Start, state-funded public pre-kindergarten programs, and community-based care. Research projects, like the Abercledarian Project, typically consist of high-quality social and educational interventions. These projects effectively increase school readiness, but they are not available to the general population. Head Start is a federally funded program that provides comprehensive services, including early childhood education programs, to low-income families. Research has indicated that Head Start has positive effects on school readiness (Anderson et al., 2003; Garces, Thomas, & Curry, 2002), but it is also not readily available to the whole low-income population. In 2012, only 32.5% of the low-income children eligible for Head Start services were enrolled (Child Trends, 2014). The majority of low-income children participating in early

childhood education programs are in either state funded public school pre-kindergarten or community based child care (Winsler et al., 2008).

Using data from The Miami School Readiness Project, Winsler et al. (2008) investigated whether center based care or state funded public prekindergarten had the greatest school readiness gains for ethnically diverse children in poverty. Their sample included 1,478 children using childcare subsidies to attend community childcare, and 1,611 children attending state-funded public school pre-kindergarten programs. Previous research indicates that high-quality childcare is effective in boosting school readiness, but this study assessed community-based care that may not be considered high quality. In an urban, ethnically diverse, low-income area like Miami –Dade County, it is probable center-based care is, on average, of poor to average quality (Peisner-Feinberg & Burchinal, 1997).

By assessing cognitive, language, fine motor, socio-emotional skills, and behavior problems at the start and the end of the pre-kindergarten school year, Winsler et al. was able to identify which program(s) yielded the highest school readiness gains over time for its students. Their results indicated that participation in both community center-based care and state-funded public school pre-kindergarten programs results in positive gains across all the domains. While there was a considerable increase in school readiness in both programs, children participating in state-funded, public school pre-kindergarten programs began the school year with higher scores and had more significant gains than their peers in subsidized center-based care. These results indicate that both programs are

beneficial for this ethnically diverse, low-income sample, but that state-funded public school pre-kindergarten programs appear to be more beneficial.

Additional research using the Miami School Readiness Project (Ansari & Winsler, 2013) supports the findings that public pre-kindergarten programs are more beneficial than center-based care. They compared the social, cognitive, fine motor, language, and behavioral development of children at ages three and four in different child care situations. The children were in either center-based childcare or family childcare at age three, and were eligible to enter public school pre-kindergarten programs at age four. Their results indicate that children who transitioned from center-based care at age three to public school pre-kindergarten programs at age four experienced more growth and have the best final outcome. Early childhood education programs are helpful in preparing children from low-income families for kindergarten, but state-funded public school pre-kindergarten programs appear more beneficial than others.

In recent years, the prevalence of state-funded pre-kindergarten programs in the United States has increased. In 2010, 40 states had some kind of pre-kindergarten program, enrolling around 27% of the country's four year olds (Barnett et al., 2010). Most state-funded pre-kindergarten programs are targeted toward disadvantaged children, but universal programs are increasing as well. A "universal" program means that it is universally available to all children, despite family income, but not required (Gormley, Gayer, Phillips, & Dawson, 2005). Recent evaluations of large urban universal prekindergarten programs in Boston and Tulsa have indicated that children enrolled in

these programs experience substantial gains in language, literacy, and math (Gormley et al., 2005).

School mobility

Another factor that impacts achievement in school is school mobility. School mobility is considered a change in school at any time that is not required by the school system (Gruman, Harachi, Abbot, Catalano, & Fleming, 2008). When school mobility is addressed in the context of ecological systems theory (Bronfenbrenner, 1979), switching schools qualifies as an ecological transition. According to Bronfenbrenner, stability, consistency, and predictability over time are critical for the effective operation of the system, which in this case, is the child's learning environment. From this perspective, school mobility would presumably have a negative impact on the learning environment, and therefore academic outcomes.

In the 1980s, between 16% and 20% of the U.S. population moved residences annually, and residence changes often result in school changes (Alexander, Entwisle, & Daubner, 1996). A study by the US General Accounting Office (1994) found that one in six children in the U.S. have attended three or more schools since the third grade, and that mobility is inversely associated with family income: as family income decreases, likelihood of moving increases. Mehana and Reynolds (2004) completed a meta-analysis that investigated mobility and academic outcomes. Their results supported a previous meta-analysis (Jones, 1990) finding that school mobility is associated with decreased reading and math achievement. They equate this to a 3-4 month disadvantage in school achievement. They also found that the math scores of frequently mobile children from

low-income families enrolled in earlier grades were impacted more than were children not living in poverty and older children. This suggests that for low-income children, mobility in earlier grades is particularly detrimental.

Temple and Reynolds (1999) assessed school mobility using an urban cohort in Chicago and found that 73% of elementary students changed schools at least once, and 21% of students moved schools three or more times. Using data from The Chicago Longitudinal Study, consisting of primarily minority children from high-poverty neighborhoods, they found that school moves are negatively associated with math and reading achievement at the end of grade seven, and that the adverse effects of mobility exist after only two moves, while controlling for school poverty in kindergarten.

School mobility is associated with decreased academic outcomes, but it is also associated with social behavior. Gruman et al. (2008) found that mobility also predicted decreased classroom participation. Alexander et al. (1996) argued that school mobility is associated with social stresses, such as establishing new peer groups. School mobility has negative socio-emotional effects in addition to negative academic outcomes.

Factors that put students at risk for mobility, like ethnicity and poverty status, also put them at risk for lower academic achievement. Temple and Reynolds (1999) found that mobile students often had lower levels of achievement before they actually moved schools (Temple & Reynolds, 1999). Their findings indicate that school quality can impact the effects of school mobility. Within their urban Chicago cohort, they found that students who experienced mobility, but moved to charter schools or academic academies by grade seven, were more likely to have higher levels of achievement than their peers

similar in SES who experienced mobility and moved to more traditional schools. The charter schools and academies were considered the best quality schools in Chicago at the time, so there is some evidence to believe high school quality can mitigate negative effects of mobility.

The majority of the school mobility literature focuses on elementary school and beyond, but there is some research investigating mobility and stability prior to kindergarten entry. Using data from the Miami School Readiness Project, Tran and Winsler (2011) investigated the effects of mobility in childcare prior to kindergarten. They found that all children enrolled in center- based care experienced generally positive school readiness gains over time, which supports the previous research using this sample (Winsler et al., 2008). However, they found that students who experienced changes in centers did not fare as well in cognitive and language scores, or teacher reported attachment and initiative scores. Therefore, school mobility appears detrimental not just in elementary school, but in childcare prior to kindergarten.

Kindergarten Transition

Although school mobility is considered a change in schools not required by the school system, changes in school that are required by the school system can prove problematic as well (Gruman et al., 2008). Entering kindergarten does not qualify as school mobility, but it can be a stressful time in the lives of five year olds and their families. Wildenger and McIntyre (2011) found one of parents' greatest concerns regarding the transition to kindergarten is the stress of adjusting to a new school. Similarly, Howard (2008) indicates that even when children are excited about starting

kindergarten, there can be anxiety around leaving their comfortable surroundings and friends with whom they have made meaningful attachments.

Different ways to ease the kindergarten transition have been researched. Schulting, Malone, and Dodge (2005) examined different transition policies and found that things like communication between preschool and kindergarten teachers and parent and child visits to the kindergarten classroom to meet the teacher prior to the start of the school year had positive effects on students' achievement. It has also been found that those types of transition practices are very effective for children from low-income families, but at-risk communities are least likely to receive such services (Berlin, Dunning, & Dodge, 2011).

Pre-Kindergarten to Kindergarten Stability

Given the literature review just provided, an obvious gap in the research emerges. Research has indicated that state-funded public school prekindergarten programs promote school readiness for low-income children better than other programs. Research has also indicated that school mobility is common among low-income populations and has adverse educational and achievement effects. These two concepts suggest that research is necessary to investigate the effects of stability between state-funded public school pre-kindergarten programs and kindergarten. School mobility causes educational set-backs and the transition to kindergarten is a source of stress, so eliminating the change between pre-kindergarten and kindergarten might be beneficial.

A study conducted by Berlin, Dunning, and Dodge (2010) assessed the impact of an intervention designed to enhance low-income children's transition to kindergarten. The intervention took place the summer before kindergarten entry and was designed to promote social competence, pre-literacy and pre-numeracy skills, and school routines. The intervention was carried out by kindergarten teachers and took place in 20 kindergarten classrooms among four schools. Children were assigned to kindergarten classroom teachers independently of their participation in the "Stars" program. Forty eight percent of the participants had the same teacher for the summer intervention as they eventually had for kindergarten, 43% remained in the same school for kindergarten but had a different teacher, and 9% of the participants moved to a different school with a different teacher for kindergarten. The results indicate that the intervention is beneficial in preparing children for kindergarten, and those children who had the same teacher for the summer program and kindergarten experienced increased benefits compared to their peers that had different teachers for the summer intervention and their kindergarten class. Maintaining the same teacher for the intervention and kindergarten increases stability across the transition to kindergarten. Although the study was not directly investigating stability between pre-kindergarten and kindergarten school locations, its results have implications that suggest the benefits of stability.

Little research has been done that directly addresses the effects of stability between public school pre-kindergarten and kindergarten. Using data from the Early Childhood Longitudinal Study, Magnuson et al. (2007) investigated the effects of pre-kindergarten on school readiness. Overall, they found that pre-kindergarten is positively

associated with academic outcomes, but negatively correlated with good classroom behavior. Additionally, they found that the cognitive gains made in pre-kindergarten fade during kindergarten, but the behavior problems picked up in pre-kindergarten do not fade. However, this pattern of effects was not true for the small percentage of their sample attending pre-kindergarten in the same public school as kindergarten. This subsample was primarily from disadvantaged backgrounds, which the authors defined as having an income-to-needs ratio less than one, a parent who did not complete high school, or who received welfare. Those from disadvantaged backgrounds that did not change schools experienced increases in reading and math skills that did not fade and no increases in behavior problems were seen. The authors speculated that this pattern could be due to the fact that public school pre-kindergarten programs are often of higher quality and that classroom expectations in the kindergarten classroom closely align with expectations present in pre-kindergarten classrooms in the same school. They also hypothesize that the transition to a new school might create the behavior problems, and that transition is eliminated when children remain in the same school from public school pre-kindergarten to kindergarten

While the findings of Magnuson et al. (2007) are compelling, the majority of their sample had a fairly high income-to-needs ratio, so the discovered pattern of effects for disadvantaged children is from a small subsample. Further research using a larger sample of children from low-income families is necessary.

While it has not been directly investigated, current literature supports the hypothesis that for children from low-income families, remaining in the same public

school for kindergarten as public pre-kindergarten may be beneficial in boosting school readiness and easing the transition into kindergarten. Remaining in the same school likely increases stability in school practices, peer groups, location, and perhaps even teacher. However, much of the existing school mobility research does not control for problems with selection effects. Children experiencing mobility are often already at-risk, and it is necessary to control for preexisting risk factors (such as ethnicity, poverty, and initial school readiness) to determine if negative effects are actually due to mobility. Further research is needed to directly assess outcomes of staying in the same school for public school pre-kindergarten and kindergarten, while controlling for demographics and school readiness.

The Present Study

This Masters thesis uses data from The Miami School Readiness Project (MSRP), a large-scale, university-community collaborative, multi-agency, applied school readiness project conducted in Miami-Dade County, Florida. The population of Miami-Dade County is very diverse, and the MSRP sample reflects that with 58% of the participants being Hispanic/Latino, 33% Black/African American, and 9% White/other (Winsler et al., 2008).

This project has five years of 4-year-old children ($n = 46,204$) who attended public school pre-kindergarten or community-based childcare by using childcare subsidies, and follows the children over many years. In Miami-Dade County, children can enter kindergarten if they turn five on or before September 1. For the first five years of the project, 2002-2007, demographics and developmental assessments were taken at age

four for five years/cohorts. The Miami School Readiness Project has continued to follow the participants throughout elementary school, collecting public school outcome data such as grades and high stakes test scores.

The aims of the current study are to first, examine how many children are switching schools between public school pre-K and Kindergarten, and to then identify predictors for switching schools. Second, we will examine how early academic outcomes differ between those children that switch schools between public pre-K and Kindergarten and those who do not. Finally, we will investigate how school quality impacts these patterns. The following research questions were addressed:

Research Questions

1. What proportion of children attending public school pre-kindergarten programs in Miami switch to a different public school in Miami for kindergarten?
2. How do the children that switch schools differ from those children who do not switch schools regarding gender, race, poverty status, ELL status and developmental assessments scores administered at age three or four?

I expected Latino and Black children and children living in poverty to be more likely to switch schools between public school pre-K and kindergarten than White children and those with more resources.

Additionally, I expected children with lower developmental assessment scores at age four to be more likely to move than those with higher developmental assessment scores at age four.

3. After controlling for initial differences in demographics and pre-K assessment

scores, how do the outcomes between children who switch and children who do not switch schools from public school pre-k to kindergarten differ in kindergarten readiness, end-of-year grades in kindergarten and first grade, and standardized tests in first grade?

We expected children who switch schools between pre-K and kindergarten to have lower end-of-year grades in kindergarten and first grade and standardized tests in first grade than students who do not switch schools between pre-K and kindergarten.

4. Does school quality in pre-K predict switching schools between public school pre-K and kindergarten?

We predicted that children attending pre-K in lower quality schools would be more likely to switch schools for kindergarten than their counterparts in schools of higher quality.

5. For children that switch schools between pre-K and kindergarten, does the direction and magnitude of the change in school quality moderate the effects of switching schools between pre-k and kindergarten and later school performance?

We expected that different kinds of changes in school quality may have differing effects on later outcomes. For example, switching to a higher-quality school may protect against negative effects of mobility while switching to a lower-quality school may exacerbate those negative effects.

METHOD

Participants

This study explored a subsample of the MSRP who attended public school pre-K at age four and then attended kindergarten in the same county the following year ($n = 18,775$). Children were excluded from our study if they did not enter kindergarten the year after they attended pre-kindergarten, if they switched schools during their pre-kindergarten year, or if they were receiving special education services. The MSRP has information about 23,761 four-year-olds who attended public school pre-K in Miami Dade County between the 2002 and 2007 school years. Out of those children who attended public school pre-K, 2,232 children were excluded from our sample because they did not attend kindergarten in Miami-Dade County the following year. To determine if children switched schools during pre-kindergarten, I looked at their assessments in prekindergarten. Assessments were administered at the beginning (Time 1 [T1]—September/October) and end (Time 2 [T2]—April/May) of the children's four-year-old academic year. Using these time points, we identified the small number of children who changed public school pre-K programs mid year or children who switched from public pre-K to community childcare mid year ($n = 41$). These children are not included in our sample because they were already experiencing instability before starting Kindergarten. We also excluded children who received special education services in public school pre-K, and children who were identified as “role models” ($n = 2,689$). Role models are

typically developing children who attend special education classrooms to demonstrate appropriate social, behavioral, and communication skills. Children receiving special education services and role models may have attended a particular school for its special education pre-K program and not because of typical geographic reasons. This could result in mobility between pre-K and kindergarten due to special education services, which is outside the focus of this study. These exclusions resulted in a final sample of 18,775 ethnically diverse (34.7% Black, 54.9% Latino, 10.4 White/Asian/Other) low-income children (73.2% received free/reduced lunch in K, 49.7% male). About 55% of the students in this sample were considered English language learners (ELL) by the school district, based on whether the parent indicated another language was spoken at home in kindergarten.

Measures

English Language Learner (ELL) Status. ELL status was determined by parent report of language spoken at home at school entry. A student who received a 0 on this variable was not considered ELL by the county, and a student who received a 1 was considered ELL.

Free/Reduced lunch status. We use information regarding free and reduced lunch as a poverty indicator. Children from families who are 130% of the federal poverty line receive free lunch, and those who are 185% of the poverty line receive reduced-price lunch. In our sample, students who did not get free or reduced lunch received a 0 on this variable, and students who did receive free or reduced lunch got a 1.

Gender. Gender is based off of parent-report/school records. Females were given a 0, and males a 1.

Ethnicity. Parent-reported child ethnicity is provided by the school district. For this sample, a number of ethnic categories were collapsed in order to obtain a three-level ethnicity variable. “Hispanics” included anyone who reported Hispanic/Latino or Hispanic and some other racial group, which closely aligns with the U.S. Census Bureau definition of Hispanic (U.S. Census, 2013). “Black” included anyone who reported African-American/Black/Caribbean, or Black and some other racial group, which also closely aligns with the U.S. Census definition of Black. “White/other” included anyone who reported White, Asian/Pacific, or a combination of other racial categories.

Cognitive and language skills. Children’s cognitive and language skills at age three or four were assessed with the Learning Accomplishment Profile Diagnostic (LAP-D; Nehring, Nehring, Bruni, & Randolph, 1992), which is a norm-referenced standardized instrument. We used the cognitive (matching and counting), language (comprehension and naming), fine motor (writing and manipulation) subscales. The LAP-D was selected due to high construct validity, with strong internal consistency in general (Nehring et al., 1992) and within this community ($\alpha = .93-.95$; Winsler et al., 2008). The LAP-D was typically administered to children individually at the beginning of their pre-K year (T1 September–October) and at the end of their pre-K year (T2: May–June) by pre-K teachers. The LAP-D is available in both Spanish and English and both versions have strong test-retest reliability (.93–.97; Hardin, Peisner-Feinberg, & Weeks, 2005). Teachers typically administered the test in English, but administered it in Spanish by

bilingual teachers if the child's English was not strong enough to complete the test. In our sample, 93% of the children completed the LAP-D in English at T2. For the purposes of this study, we are using data from T2, as it more accurately represents the children's pre-academic skills before entering kindergarten. Since the three subscales of the LAP-D are highly correlated with one another (Pearson's correlation range from .28 - .63), we created a mean score by averaging the scores across the cognitive, language, and fine motor subscales.

Socio-emotional skills and behavior problems. Children's social-emotional skills and behavior problems at age three or four were measured with teacher-reports on the Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999). Teachers reported on children's behavior by completing surveys at T1 and T2. The DECA was available in both English and Spanish, and teachers chose the language they were most comfortable with. At T2, 99% of teachers completed it in English. Teachers answered items on the four sub-scales of the DECA: initiative, self-control, attachment, and behavioral concerns. The initiative, self control, and attachment subscales combine to form a total protective factors score (TPF), where larger numbers indicate greater socio-emotional strengths. For the behavior problems subscale, larger numbers indicate more behavior problems. Teachers rated children's social skills and behaviors from the past four weeks on a 5- point Likert-type scale (0 never, 1 rarely, 2 occasionally, 3 frequently, and 4 very frequently). Example questions for the subscales include: "starts or organizes play with other children" for initiative, "listens to/respects others" for self-control, "responds positively to adult comfort when upset" for attachment, and "fights with other

children” for behavioral concerns. The DECA has strong internal consistency with this community sample - teacher TPF 0.94, teacher behavior concerns 0.81 (Winsler et al., 2008). For the purposes of this study, we are using data from T2, as it more accurately represents the children’s socio-emotional skills and behavior problems before entering kindergarten.

Kindergarten Readiness Assessments. The state of Florida carried out the School Readiness Uniform Screening System (SRUSS) between the school years of 2002-2006 to measure the school readiness of all kindergarten students within the first 30 days of the school year. The SRUSS is made up of two screening tools including the Early Screening Inventory- Kindergarten (ESI-K; Meisels, Marsden, Wiske, & Henderson, 1993) and two subscales from the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Kaminski & Good, 1996).

Unfortunately, one of the limitations of using school district data is that the state of Florida changed its kindergarten assessments over time. Between the 2005-2007 school years, the Florida Kindergarten Readiness Screener (FLKRS) was implemented instead of the SRUSS. The SRUSS and FLKRS both use the same subscales from the DIBELS, but the FLKRS uses the Early Childhood Observation System (ECHOS; Harcourt Assessment, 2006) instead of the ESI-K. Additionally, during the 2003-2004 school year The Work Sampling System (WSS) (Meisels, Liaw, Dorfman, & Nelson, 1995) was also administered.

The ESI-K (Cohorts A-C, $n = 10,635$) assesses children’s visual-motor, language, cognition, and gross motor skills and was chosen because of its high-reliability

identifying at-risk children ($\alpha = .89$; Meisels et al., 1993). For this investigation I used the total ESI-K score, on a scale of 0 to 75.

The DIBELS assesses children's developing literacy. The subscales used here measure alphabet recognition (Letter Naming Fluency, Cohorts B-E, $n = 14,265$) and sound recognition (Initial Sound Fluency, Cohorts B-E, $n = 10,041$). The DIBELS has demonstrated reliability among minority and non-English speaking children (Goffreda & DiPerna, 2010). For the purposes of this study, I used children's overall scores.

The ECHOS (Cohorts D-E, $n = 6,609$) is a teacher observational assessment tool used to measure literacy, mathematics, social skills, science/social studies, physical development and fitness, and creative arts. I used the children's overall scores in each category.

The WSS (Cohort A, $n = 2,951$) is a social-behavioral screener ($\alpha = .84-.95$; Meisels, Liaw, Dorfman, & Nelson, 1995), where teachers rate children across five domains of school readiness: social skills, language/literacy, mathematics, arts/fine motor, and physical development/health. For this study, I used the children's total scores in each domain.

School Grades. In addition to the various school readiness measures administered in the first 30 days of kindergarten, we have the children's teacher-given end-of-year grades from kindergarten and first grade. The end-of-year grades were created by averaging the children's scores across 11 different domains. Kindergarten grades were measured on a three-point scale (1 = unsatisfactory, 2 = satisfactory, or 3 =

excellent). First-grade grades were measured on a five-point scale (1 = F, 2 = D, 3 = C, 4 = B, 5 = A).

Standardized Test Scores. The Stanford Achievement Test, Tenth Edition (SAT-10; Harcourt Brace, 2003) was administered to first graders in Miami Dade county during the 2007-2008 school year. Since the county only administered it during one school year, only one cohort of our sample has SAT-10 scores in first grade. The test yields scores in math and reading. Using a nationally representative sample of students, the reliability for the SAT-10 was .88. Additionally, validity was established with other standardized assessments of math and reading. (Harcourt Brace, 2003).

School Mobility. This is a dichotomous variable that distinguishes students who switched schools between public school pre-K and kindergarten and those who remained in the same school for public school pre-K and kindergarten. Each elementary school in Miami Dade County has a unique school code, so mobility can be determined by comparing a child's school code for pre-K with their school code for kindergarten. A "switch school" (1) on this variable indicates that the student attended a different school in kindergarten than they did in public school pre-K. A "same school" (0) on this variable indicates that the student attended the same school for both public school pre-K and kindergarten.

School Quality/Grade. This variable is a measure of school quality determined by Florida Department of Education. Each school gets a quality grade every year on a five-point scale (A, B, C, D, F) with "A" being the highest quality and "F" being the lowest quality school. The school quality grade is determined by achievement on the

Florida Comprehensive Achievement Test (FCAT). The FCAT is a high-stakes standardized test that students in grades three and above take every year. Fifty percent of the school quality grade is determined by the percent of enrolled students scoring at a satisfactory level. The remaining 50% of the school quality grade is determined by the percent of enrolled students who made learning gains in each domain, and the percent of enrolled students in the lowest performing 25% who made learning gains in each domain. This variable is on a five-point scale from 0-4 (0 = F, 1 = D, 2 = C, 3 = B, 4 = A).

The school quality grades were in a separate school-level SPSS file and were merged into the primary file at the child level. Due to the cohort sequential design of the MSRP, school quality scores for pre-K and kindergarten were merged into the file based on cohort. For example, all children in cohort A have a school quality score that corresponds with their pre-K school code in 2002 and a school quality score that corresponds with their kindergarten school code in 2003. These scores were matched by child and school for each cohort and year, for both pre-K and kindergarten.

School Quality Change This variable distinguishes changes in school quality. Using the school quality variables determined by the Florida Department of Education and discussed above, I created a variable to capture the school quality change a student experiences between pre-K and kindergarten. This variable ranges from -4 to +4, where a negative score indicates a downward move in school quality and a positive score indicates an upward move in school quality. For example, -4 indicates the most extreme downward shift in quality (from a “4” school to a “0” school) and +4 indicates the most extreme upward shift in quality (from a “0” school to a “4” school). Since each school

gets a new school quality grade every year, students can experience changes in school quality without actually changing schools. Using this variable, I also created a 3-level school quality change variable: decreased school quality (school quality change of -4 to -1), no change (school quality change of 0), or increased school quality (school quality change of 1 to 4).

Missing Data. Unfortunately, the MSRP does not have complete data on every child. The demographic information (gender, ethnicity, free/reduced lunch status, ELL status) is complete for the entire ($N = 18,775$) sample used for this study. However, the amount of missing data for the various achievement measures varies. There are pre-academic skills data (mean LAPD score) for 66% of the sample ($n = 12,389$) and social emotional skills at age 4 (DECA behavior concerns and total protective factors) for 69% of the sample ($n = 12,881$). There is not clear information as to why some children do not have LAPD and DECA scores, however one possible explanation for missing scores is that children were not present in school on the days the assessments were taking place. There is no administrative reason for missing data, since the LAPD and DECA were both administered to all five cohorts. There were no systematic differences in missingness based on free/reduced lunch, but children with missing data on the LAPD and DECA were slightly more likely to be male, ELLs, or black (compared to White/other or Latino/Hispanic).

The county administered the kindergarten readiness assessments, and they changed the assessments used during the course of data collection, therefore; many children have missing data because a given assessment was not administered the year

they were in kindergarten. The DIBELS was administered to four cohorts ($n = 14,486$; 77%), the ESI-K was administered to three cohorts ($n = 10,840$; 58%), and the ECHOS was administered to two cohorts ($n = 6,609$; 35%). The WSS was only administered to one cohort ($n = 3,002$; 20%).

Regarding outcome variables, the majority of children have kindergarten (97%, $n = 12,881$) and first grade (87%, $n = 16,425$) GPA data. Standardized tests, however, were only administered to first graders in the 2007-2008 school year, and so only one cohort of the sample ($n = 3,407$, 18%) has SAT-10 math and reading scores.

Analytic Plan

First, I investigated pre-existing differences between children who switched schools and those who did not. Next, I examined differences in their early academic outcomes in Kindergarten and first grade. I first approached each question bivariately, and then completed regression analyses to discover unique predictors of switching schools and later academic performance. Finally, I added school quality into the regressions to learn how it impacts predicting switching schools and outcomes.

Considering that the children were nested within schools (intra-class coefficients for kindergarten and first grade outcomes range from 0.14 to 0.20), we estimated regression models (nesting children within their schools) with adjusted standard errors using the TYPE= COMPLEX function in Mplus (Muthén & Muthén, 1998-2013), to account for shared variance based on school. To account for the missing data discussed above, we utilized Full Information Maximum Likelihood (FIML) in Mplus to use all the available information in the model to estimate regression weights.

RESULTS

RQ1. What proportion of children attending public school pre-kindergarten programs in Miami switch to a different public school in

Miami for kindergarten? Out of the 18,775 children included in our sample who attended public pre-K and kindergarten in Miami Dade County, 21.6% (4,054) switched schools between pre-K and kindergarten.

RQ 2. How do the children that switch schools differ from those children who do not switch schools regarding gender, race, poverty status, ELL status and developmental assessments scores administered at age three

or four? First, I completed bivariate tests to determine relationships between demographics (and pre-K assessment scores) and switching schools. Then I completed multiple regression analysis including all variables to determine unique predictors of switching schools.

In order to determine the demographic profile of children who did and did not move between public school pre-K and kindergarten, I conducted a series of two-way chi-squared tests between the students who switched and those who did not (0 = same school, 1 = switched schools) with various categorical variables. In order to investigate initial differences in developmental assessment scores, I conducted a series of T-tests to

determine the differences in pre-K LAPD and DECA scores between children who switch schools between public school pre-K and kindergarten and those who do not (0 = same school, 1 = switched schools).

Demographics. Bivariate analyses indicated that there were significant differences between the prevalence of switching schools based on ethnicity, free/reduced lunch, and English language learner status (Table 1). Chi-squared tests indicate that 10.5% of Hispanics and 9.6% of Blacks switched schools, but only 1.5% of Whites switched schools ($\chi^2(2) = 238.11, p < 0.001$). Concerning poverty, 23.6% of students receiving free or reduced lunch switched schools, while only 16% of students who did not receive free or reduced lunch switched schools ($\chi^2(1) = 124.94, p < 0.001$). Fewer ELLs (19.1%) switched schools than students who were not ELLs (24.7%) ($\chi^2(1) = 84.87, p < 0.001$). No gender differences were found between students that switched schools and those who did not.

School Readiness. T-tests revealed that there were significant mean differences on the school readiness assessments at age 4 between students who later switched schools and those who did not (Table 2). Students who did not switch schools between pre-K and kindergarten had slightly higher scores initially in pre-academic skills ($M = 62.04$ (24.69) vs. $M = 59.6$ (25.86)) than students who ended up switching schools between pre-K and kindergarten ($t(8770) = 3.63, p < 0.001$, Cohen's $d = .15$). Similarly, students who did not switch schools had significantly slightly higher social-emotional protective factors ($M = 64.53$ (26.80) vs. $M = 60.53$ (27.63)) compared to those who switched schools ($t(12879) = 6.57, p < 0.001$, Cohen's $d = .15$). Finally, students who did not switch schools had

significantly fewer behavior concerns ($M = 38.99$ (28.39) vs. $M = 43.80$ (29.23), Cohen's $d = .17$) a year earlier compared to students who switched schools between pre-K and kindergarten ($t(12879) = -7.59, p < 0.001$).

After completing the bivariate analyses to explore differences between children who switch school and those who did not, I completed multivariate analyses. I performed logistic regression to identify unique predictors of switching schools and discovered that ethnicity, free/reduced lunch, and ELL status uniquely predict switching schools between pre-K and kindergarten (Table 3). I completed a hierarchical regression to assess the impact of pre-k school quality on moving (Table 4 step 2), but will just be discussing the first model here. The first model (step 1, $R^2 = 0.03$) includes all of the demographic and child school readiness variables. The odds of switching schools were still 73% higher for Blacks compared to Whites, 39% higher for Latinos compared to Whites, and 20% lower for Latinos compared to Blacks after controlling for other variables included poverty stats. (To capture the Latino-Black comparison, I ran the regression again using Blacks as the reference group instead of Whites). Even after controlling for poverty status and other factors including initial child competence, students living in poverty and receiving free or reduced lunch had 33% increased odds of switching schools compared to their peers not living in poverty. Interestingly, even after controlling for ethnicity, ELLs had 20% decreased odds of switching schools compared to their non-ELL peers. This suggests that there is an ELL effect, in addition to ethnicity effects. After controlling for demographics, pre-academic and social-emotional skills at age 4 did not uniquely contribute to the prediction of switching schools between pre-K and kindergarten. This suggests that the

bivariate association, discussed previously, between switching schools and pre-academic and social-emotional skills at age 4, was due to the link between poverty/ethnicity and children's school readiness.

RQ 3. After controlling for initial differences in demographics and pre-K assessment scores, how do the outcomes between children who switch and children who do not switch schools from public school pre-k to kindergarten differ in kindergarten readiness, end-of-year grades in kindergarten and first grade, and standardized tests in first grade?

First, I completed bivariate tests to determine relationships between switching schools, school readiness during Kindergarten, GPA, and standardized test scores. Then, I completed multiple regressions to control for initial differences between students who move and students who do not move to assess if moving is associated with poor performances in kindergarten and first grade. I conducted a series of T-tests between the students who switched and those who did not (0 = same school, 1 = switched schools) with various school readiness assessments administered by the school system in kindergarten, end-of-year GPAs in kindergarten and first grade, and standardized test scores in first grade (Table 4).

Kindergarten Readiness. Students who remained in the same school for pre-K and kindergarten performed significantly better (Cohen's d ranging from .09 to .21) than their peers who switched schools on all of the different readiness assessments that were administered by the school system (ECHOS, ESI-K, DIBELS letter naming and initial sound fluency, WSS social, language, math, arts, and health scores).

GPA and Standardized Tests. Students who stayed in the same school for pre-K and kindergarten had higher later GPAs in Kindergarten ($M = 2.44$ (0.44) vs. $M = 2.38$

(0.47)) and first grade ($M = 4.38(0.58)$ vs. $M = 4.27(0.62)$) compared to students who switched schools between pre-K and kindergarten ($t(18,170) = 6.92, p < 0.001$, Cohen's $d = .13$; $t(16,423) = 9.10, p < 0.001$, Cohen's $d = .18$). Similarly, students who stayed in the same school for pre-K and kindergarten had slightly higher standardized test scores in Reading ($M = 61.49(25.29)$ vs. $M = 57.28(26.00)$) and Math ($M = 56.28(28.13)$ vs. $M = 50.19(28.67)$) compared to students who switched schools between pre-K and kindergarten ($t(3,405) = 3.86, p < 0.001$, Cohen's $d = 0.17$; $t(3,402) = 5.01, p < 0.001$, Cohen's $d = .21$).

Next, I completed multiple regression analyses to determine if switching schools uniquely predicted academic outcomes while holding initial differences in demographics and pre-academic and socio-emotional skills at age 4 constant. Kindergarten and 1st grade outcomes can be found in Step 1 of Table 5. I completed hierarchical multiple regression to investigate school quality effects (Step 2), but here I will only discuss the first model. Once again, in order to capture the Latino-Black comparison, I ran the regressions again using Blacks as the reference group instead of Whites.

Kindergarten GPA. I entered all of the demographic variables and pre-academic and socio-emotional skills at age 4 in a multiple regression in Mplus, along with the switching schools variable (Table 5, Step 1, $R^2 = 0.20$). The switching schools variable was included in the same model because it did not change the original significance of the other predictors. The demographic variables of gender, ethnicity, and free/reduced lunch significantly predicted kindergarten GPA, while ELL status did not. Males had lower kindergarten grades than females ($B = -.05, p < .001$). Blacks had lower grades than

whites ($B = -.08, p < .01$), and Latinos had higher grades ($B = .09, p < .001$) than Blacks. After controlling for other demographic variables and initial child competence, children receiving free/reduced lunch had lower grades than those who were not receiving free/reduced lunch ($B = -.11, p < .001$). Increased pre-academic skills ($B = .33, p < .001$) and social-emotional total protective factors ($B = .07, p < .01$) predicted increased kindergarten grades, and increased behavior concerns at age four predicted lower Kindergarten GPA ($B = -.11, p < .001$). However, switching schools between pre-K and kindergarten did not uniquely contribute to prediction of kindergarten GPA after including all the demographic variables that differentiated children who switch schools from those who did not.

First Grade GPA. I completed the same analyses predicting first grade GPA (Table 5, step 1. $R^2 = 0.29$) and found similar demographic results. Males still had lower grades than females ($B = -.01, p < .001$), Blacks had lower grades than Whites ($B = -.14, p < .001$), and Latinos had higher grades than Blacks ($B = .12, p < .001$). After controlling for other demographic variables, receiving free/reduced lunch predicted lower first grade GPA ($B = -.14, p < .001$) while ELL status did not ($B = -.02, p > .05$). Similarly, increased pre-academic skills ($B = .37, p < .001$) and social-emotional total protective factors ($B = .08, p < .001$) at age four predicted increased first grade GPA, while increased behavior concerns predicted lower first grade GPA ($B = -.14, p < .001$). Unlike in kindergarten, however, switching schools between pre-k and kindergarten did significantly contribute to the prediction of first grade GPA beyond the demographic variables. Switching schools between public school pre-K and kindergarten predicted

lower grades in first grade ($B = -.03, p < .05$) compared to staying in the same school both years.

Standardized Test Scores in First Grade. I completed the same analyses predicting standardized test scores in first grade (Table 6, Step 1). Gender predicted both reading ($R^2 = 0.26$) and math test scores ($R^2 = 0.28$), where males had lower scores than females in reading ($B = -.05, p < .05$), but higher scores in math ($B = .03, p < .05$). Blacks had lower grades than Whites ($B = -.1, p < .01, B = -.17, p < .001$), and Latinos had higher grades than Blacks ($B = .12, p < .001, B = .17, p < .001$), on both reading and math test scores, respectively. Controlling for the other variables, receiving free/reduced lunch predicted lower scores in reading and math ($B = -.12, p < .001, B = -.09, p < .001$). Once again, after controlling for other demographic variables, ELL status did not significantly predict test scores. However, when controlling for demographic differences, switching schools between pre-K and kindergarten predicted significantly lower first grade math standardized test scores, but not reading standardized test scores. The SAT-10 was only administered to one cohort, so I also tested the model using listwise deletion, limiting the sample to only those who had data for each test (reading $n = 2,732$; math $n = 2,730$). The regression weights remained the same when using the reduced sample size.

Additionally, I tested for interaction effects between switching schools and demographic variables. I completed the same regressions explained in Tables 7 and 8 predicting kindergarten and first grade GPA and first grade test scores, but added interaction terms in an additional step. I created and tested interaction terms for switching schools and gender, switching schools and ethnicity, switching schools and free/reduced

lunch, and switching schools and ELL status. None of these interactions yielded significant findings so they are not reported. The effect of switching schools on kindergarten and first grade outcomes is the same for all children regardless of gender, ethnicity, and poverty and ELL status.

RQ 4. Does school quality in pre-K predict switching schools between public school pre-K and kindergarten?

First, I examined the pre-K school quality of all students and students who switched schools (Table 7). School quality was measured on a 0-4 scale (0 being the lowest quality, 4 being the highest quality), and the majority of children (50%) attended public pre-k in schools with a school quality grade of 4. However, only 36% of the children that switched schools between public pre-k and kindergarten attended public pre-K in schools with a school quality grade of 4. When looking at only the students who switched schools between pre-k and kindergarten, the majority of White/other (66%) and Latino/Hispanic (51%) children were in schools for pre-k with a school quality score of 4, but the majority of Black children (44%) were in schools with a school quality score of 2. Further, for students who switched schools, less than one percent of White/other and Latino/Hispanic children attended public pre-k in schools with a school quality score of 0.

To determine if school quality in pre-K predicted switching schools, I expanded the logistic regression analyses predicting switching schools, explained above, by adding school quality in pre-K as a predictor in Step 2 (Table 3, $R^2 = 0.04$). The results indicate that after controlling for demographics and pre-academic and socio-emotional skills, school quality in pre-K significantly contributes to the likelihood of switching schools

between pre-K and kindergarten. School quality is on a scale from 0-4, and for every single point increase in school quality in pre-K, the odds of switching schools between pre-K and kindergarten decreases by 20%.

When school quality was entered in step 2, some demographic effects remained, while others were no longer significant. Notably, the Black/white effect remained significant, although the increase odds of switching schools for Blacks compared to Whites dropped from 73% to 37%. After accounting for school quality, Latinos were still at greater odds of switching schools than Whites, but were no longer at decreased odds of switching schools compared to Blacks. This suggests that half of the Black/White and all of the Latino/Black effects on switching schools is attributable to pre-K school quality. Interestingly, after controlling for school quality, ELLs were still at decreased odds of moving when compared to non-ELLs, suggesting that the ELLs effect was not due to the quality of schools they attend.

RQ 5. For children that switch schools between pre-K and kindergarten, does the direction and magnitude of school quality change moderate the effects of switching schools between pre-K and kindergarten and later school performance?

First, I examined what kind of changes in school quality the sample was experiencing overall (Table 8). Without looking at who switched schools, the majority of children (60%) experienced no change in school quality. This means that a child remained in the same school, and the school received the same quality grade for both their pre-K and kindergarten years, or that the child switched schools between pre-K and kindergarten, but moved to a school of the same quality. About a quarter of children experienced an increase in school quality (24%) between the pre-K and K years Only

16% experienced a decrease in school quality from pre-K to K. Since each school gets a new quality grade every year, children could experience increased or decreased school quality by remaining in the same school, or by switching schools.

Out of the children who switched schools between pre-K and kindergarten, 43% experienced no change in school quality. Thus, the majority of children who switched schools (57%) had changes in school quality. So students who switch schools are more likely than those who do not to experience a change (for better or for worse) in school quality upon entering kindergarten. More students moved to schools of greater quality (38%) than to schools of lower quality (16%). I also examined differences in school quality changes for children who changed schools, based on ethnicity (Table 8). By completing a 3x3 chi squared analyses of change in school quality (decreased, no change, or increased) with ethnicity, I discovered that the change in school quality due to switching schools significantly varied by ethnicity ($\chi^2(4) = 187.29, p < 0.001$). Black children were more likely to experience a change in school quality (both for the better and for the worse) from pre-K to K. Out of the children who switched schools between public pre-K and K, only 15.3% of White/other children and 15.7% of Latino/Hispanic children experienced decreased school quality, while 22% of Black children experienced decreased school quality. Black children were also more likely to experience and increase in school quality (47.5%) than White/other (25.4%) or Latino/Hispanic (32.1%) children.

To investigate how school quality and changes in school quality might impact student performance in K and first grade, I expanded the multiple regression analyses predicting GPA and test scores reported above by adding school quality in pre-K and the

school quality change score in Step 2 (Tables 5 and 6). School quality in pre-K is on a scale from 0 to 4 and the school quality change score ranges from -4 to +4, representing the difference between school quality in kindergarten and school quality in pre-K. By including both of these variables in the model, it captures the pre-K school quality, and the kindergarten school quality. Students who switch school can experience different changes in school quality. Switching schools might result in attending a school of similar quality, less quality, or higher quality. For example, two students who switched schools between pre-K and kindergarten who both had starting pre-K school quality scores of a 2, could experience different school quality shifts. A change score of +2 would result in a kindergarten school quality of 4, while a change score of -2 would result in a kindergarten school quality of 0. By including both variables in the model, I am able to factor in both initial pre-K quality and change in quality as predictors of later outcomes.

GPA. School quality in pre-K and the school quality change score did not contribute to the prediction of kindergarten GPA, and they also did not change the beta weights or significance of the predictors in step 1 ($R^2 = 0.20$). However, school quality in pre-K and the school quality change score did significantly predict first grade GPA beyond the predictors entered in step 1 ($R^2 = 0.29$). School quality in pre-K positively (controlling for the school quality change score) predicted 1st grade GPA ($B = .13, p < .001$), indicating that students attending schools of higher quality in pre-K had higher GPAs in kindergarten than children who attended schools of lower-quality for pre-K. Additionally, the school quality change score positively predicted 1st grade GPA ($B = .04, p < .05$). Positive shifts in school quality predicted higher 1st grade GPA and negative

shifts in school quality predicted lower grades. This effect is seen even after controlling for initial school quality in pre-K, indicating that the amount of school quality change is important no matter what the starting quality. Additionally, when school quality in pre-K and the school quality change score were included in step 2, switching schools no longer significantly predicted 1st grade GPA. This implies that the effects of switching schools observed in the previous model were attributable to differences in school quality. I also ran this regression model by putting in the pre-K school quality score and school quality change score in different steps, and the results remained the same.

Standardized Test Scores. School quality in pre-K and the school quality change score significantly predicted both reading and math scores in first grade, beyond the predictors entered in step 1 ($R^2 = 0.27, 0.28$). Higher school quality in pre-K predicted higher standardized test scores in both reading and math ($B = .15, p < .001, B = .12, p < .001$). Higher school quality change scores predicted higher standardized test scores in both reading and math ($B = .07, p < .01, B = .06, p < .01$).

After adding in the school quality variables, it is important to note that some of the relationships between the demographic variables changed. Being Black (compared to white) was significantly related to lower reading scores in the previous model without school quality information included. However, after including the school quality variables, the significance of this relationship disappears. Similarly, being Latino (compared to Black) was significantly related to higher reading and math test scores, but after including the school quality variables, this relationship is still significant, but weaker. Both of these findings indicate that ethnicity differences seen in the previous

model are actually mostly attributable to the quality of the schools they are attending. After including the school quality variables, there were no changes to the prediction of switching schools between pre-k and kindergarten. Switching schools still did not predict reading scores and predicted slightly more negative math scores.

Finally, I tested for an interaction effect between switching schools and the change in school quality. I created an interaction term multiplying the bivariate pre-K to kindergarten switch variable by the school quality change (-4 to +4) variable. I also created an interaction term using the bivariate pre-K to kindergarten switch variable and a three-level school quality change variable (decreased, no change, increased). I dummy coded the three-level school quality change variable and multiplied the dummy variables by the pre-K to kindergarten switch variable. Neither of these models yielded significant interaction effects, implying that changes in school quality do not moderate the negative effects of switching schools.

DISCUSSION

As the number public pre-kindergarten programs are increasing, it is imperative to take a closer look at how they impact early academic performance. This project investigated the relationship between school mobility between public school pre-K and kindergarten and student academic outcomes in kindergarten and first grade. Previous mobility studies typically focus on later elementary school years (Gruman et al., 2008; Temple & Reynolds, 1999, 2004), but with the increasing number of children enrolled in public pre-K, this issue needed to be explored. The specific goals of this thesis were to (a) determine how many public school pre-K students in Miami, Florida were switching schools between public pre-K and kindergarten, (b) identify predictors of switching schools, (c) compare academic outcomes in kindergarten and first grade of those who switched schools and those who did not, and (d) investigate the role of school quality in predicting switching and outcomes. This thesis allows us to answer all of these questions while controlling for demographics and initial skills at age 4, which many other studies fail to do.

In this data set in Miami, 21.6% (4,054) of the students attending public pre-K switched schools for kindergarten. This percentage is similar to previous studies investigating school mobility from kindergarten through fifth grade with low-income, ethnically diverse populations (Gruman et al., 2008; Temple & Reynolds, 1999). Our

results indicate that ethnicity, poverty, and ELL status are significantly associated with switching schools, and that they each uniquely contribute to the prediction of switching schools. Even after controlling for poverty and school quality, Black and Latino students were more likely to switch schools than Whites, and Latinos are less likely to switch schools than Blacks. Students living in poverty were more likely to switch schools than those not in poverty, and English language learners were less likely to switch schools than their peers whose parents' report English as being the primary language spoken at home. These findings are all present even after controlling for child-level poverty status and school quality.

The finding that ELLs are less likely to move than their non-ELL peers was surprising. It is especially interesting since the effect is seen even after controlling for ethnicity and school quality. Many studies fail to control for language status separately from ethnicity, which I was able to do here. While I do not have access to information regarding immigrant status, it may be that ELLs are more likely to be in first-generation immigrant families than non-ELLs of the same ethnicity. Controlling for school quality can be seen as a proxy for neighborhood and resources, since poorly performing schools typically have fewer resources. Even after controlling for ethnicity and school quality, ELLs were still less likely to switch schools. Previous research has found evidence of an immigrant advantage, or the idea that recently immigrated come from families of higher motivation for achievement, upward mobility, and capitalization of opportunity (Perreira, Chapman, & Stein, 2006). First-generation immigrant children often have many factors that put them at risk for poor academic performance (poverty, ELL status), but they also

have protective factors that their non-immigrant peers may not have. Immigrant children often have increased within- and between- family social capital and live in very tight knit communities with increased social and cultural supports (Berry, Phinney, Sam, & Vedder, 2006). Previous research with the MSRP has found evidence of an immigrant advantage within this sample, where first-generation immigrants have more advanced development than their peers of the same ethnicity and similar economic status (De Feyter & Winsler, 2009). The effect found here, that ELL students are less likely to switch schools compared to their non-ELL peers, after controlling for gender, poverty status, and ethnicity, might be a partial explanation for the immigrant advantage. This group of children may be living in families that have increased support and stability, making them less likely to switch schools. Future research, with data on immigrant status, should investigate this effect.

I hypothesized that students who switched schools would have lower pre-academic and socio-emotional skills initially than their counterparts who did not end up switching schools. The bivariate analyses supported this hypothesis, with higher pre-academic skills and total protective factors and lower behavior concerns being significantly related to switching schools. However, once I controlled for demographics in the logistic regression, LAPD and DECA scores did not significantly contribute to the odds of switching schools. This suggests that the association between initial pre-academic and social-emotional skills and switching schools found bivariately is explained by demographic risk factors than rather than child competence. The same things that put

children at risk for decreased pre-academic and social-emotional skills also puts them at risk for mobility.

Previous literature has found that children living in poverty are more likely to start school with lower levels of school readiness, and have more adverse outcomes later in life, than those not living in poverty (Anderson et al., 2003; Brooks-Gunn & Duncan, 1997; Winsler et al., 2008). Our results indicate that children living in poverty are also 33% more likely to switch schools between public pre-K and kindergarten, which aligns with previous research looking at mobility between kindergarten and fifth grade (Mehana & Reynolds, 2004; US General Accounting Office, 1994). Children living in poverty are already at risk for decreased school readiness and academic outcomes, and we found that they are additionally at risk for mobility. Does switching schools between public pre-K and kindergarten exacerbate those effects?

I hypothesized that children who switched schools between pre-K and kindergarten would demonstrate lower levels of kindergarten readiness. Our bivariate analyses confirmed this hypothesis. Miami Dade County administered kindergarten readiness assessments at the beginning of every year, and our results indicate that students who switched schools between public pre-K and kindergarten had significantly lower scores than students who did not switch schools. Like previously mentioned, the county administered these tests and we had no control over them. Therefore, they changed every few years and children in different cohorts of our study were administered different assessments. While this is a limitation of this study, it also strengthens the argument that children who switch schools have lesser skills at kindergarten entry. Even

though kindergarten readiness was broadly measured, the same pattern emerged. Switching schools was significantly related to lower academic scores across all four different assessments used, and in each domain.

I also hypothesized that switching schools would be related with lower grades in kindergarten and first grade and lower standardized test scores in first grade. The bivariate analyses confirmed this hypothesis, but the regression analyses had some unexpected results.

When controlling for demographics and initial skills at age four, switching schools did not significantly predict grades in kindergarten, but it did significantly predict GPA and test scores in first grade. I hypothesized that switching schools would be associated with lower grades in kindergarten and first grade, but the results only support that hypothesis for first grade outcomes. There are a few possible explanations for this interesting outcome. This lack of difference could be because the limited variable of kindergarten GPA does not adequately capture differences in student ability. In kindergarten, GPA is only measured on a three- point scale from 1.0-3.0. Kindergarteners are not given traditional letter grades, but instead, grades of “unsatisfactory,” “satisfactory,” or “excellent.” In first grade, however, the scale increases to the traditional, five-point (A, B, C, D, F) grading system. The system used in kindergarten may be more subjective and the teachers may be more lenient with their grading than first grade teachers.

Another possible explanation for the lack of kindergarten grade differences between children who move between public pre-k and kindergarten and those who remain in the same school could be due to a developmental “sleeping effect.” Previous

research has demonstrated that when young children experience environmental instability early in childhood, they may not experience any adverse effects until later in childhood (Cavanagh & Huston, 2008). It could be that kindergarten grades are accurately capturing child competence, but that academic differences between children who switch schools between public pre-k and those who do not, do not appear until first grade. Future research needs to examine the trajectory of this difference throughout elementary school. While initial pre-academic and social-emotional skills did not significantly predict switching schools, they do significantly predict GPA in kindergarten and first grade and first grade standardized test scores, even while controlling for demographic differences. This supports previous research that increased skills at school entry are associated with increased academic performance in later years (Duncan et al., 2007; Romano et al., 2010).

In general, our findings indicate that even after controlling for demographic factors, children who switch schools between public school pre-K and kindergarten have lower mean grades, overall, and standardized math scores in first grade than children who do not switch schools. However, the effect is fairly small, and no difference is seen between children who switch and those who do not concerning standardized reading grades in first grade. These results do not suggest that switching schools between public pre-K and kindergarten drastically increases the risk for poor academic performance later on, but it does suggest that stability of school between public pre-K and kindergarten may be beneficial. More importantly, the remaining results suggest that school quality and changes in school quality may be of more importance than switching schools.

Another goal of this study was to explore the impact school quality has on the likelihood of moving, and on student grades in kindergarten and first grade. As predicted, higher school quality in pre-K significantly decreased the odds of switching schools between pre-K and kindergarten, after controlling for poverty, ethnicity, language status, and initial child competence. For every single-point increase in school quality, the odds of moving schools between pre-K and kindergarten decreased by 20%. There could be multiple explanations for this finding. It could be that parents of children in lower-performing schools are actively seeking out schools of higher quality and moving their children there. It could also be that children who are more likely to switch schools (Blacks and Latinos receiving free/reduced lunch) are more likely to experience lower academic performance (compared to white students not receiving free/reduced lunch). While I do not know why children switched schools, the majority of children who switched schools (43%) moved to a school of the same quality. This suggests that parents were not commonly moving their children on purpose in search of a higher quality school, but moving for other reasons. Regardless of the reason for moving, school quality in pre-K significantly predicted switching schools even while controlling for demographic risk factors. This suggests that school quality influences the likelihood of mobility beyond the other demographic risk factors.

The results of the impact of school quality and school quality change on performance in kindergarten and first grade are similar to the findings discussed above regarding the impact of switching schools on performance in kindergarten and first grade. School quality in pre-K and the school quality change score did not significantly predict

kindergarten GPA, but they did significantly predict first grade GPA and test scores. Once again, this could be due to the limited range on kindergarten GPA, or a sleeper effect of the positive impact of stability between pre-K and kindergarten. The significance of the school quality change score indicates that if a student experienced an increase in school quality (due to switching schools or because the score of their school changed) they were more likely to receive higher grades in first grade GPA and standardized tests. Similarly, if a student experienced a decrease in school quality, they were more likely to receive lower grades in first grade and on standardized tests. Interestingly, when school quality and the school quality change score were added to the regression predicting first grade GPA, the significance of switching schools on performance disappeared. Another argument explaining this finding is that higher quality schools may be giving higher grades (more As), which would explain the importance and significance of school quality. However, using the TYPE=COMPLEX function in Mplus and grouping by school in kindergarten, controlled for variance attributable to school. It is also important to remember that children could experience changes in school quality even if they stayed in the same school both years, since each school received a new quality score every year. Once school quality was accounted for, the impact of switching schools on first grade GPA was no longer significant. This suggests that it is changes in school quality, not switching schools, per say, that is more strongly related to first grade GPA.

Limitations

There are a number of limitations in this study that need to be considered. First of all, since we are using secondary data, I do not have information regarding parents' and families' individual circumstances. Specifically, why the children who switched schools between public pre-K and kindergarten is unknown. For example, parents may decide to change schools if a different school is "better" or if their child is not performing well at their current school. A child also might switch schools due to a residential change, which could be a positive or negative change for the family.

Regarding the data we do have, we do not have complete data on every child. For example, if children were not in their pre-K classroom the days they LAPD were administered, then they did not have complete LAPD data. Also, as mentioned previously, I only have access to the kindergarten readiness assessments conducted by Miami-Dade County and these changed throughout data collection. Also, the school quality data are limited. We are using Miami Dade County's measure of school quality, which is based solely on FCAT scores. More research should be completed that explores other aspects of school quality, such as faculty and staff education and salary and school resources.

For this study, I explored the impact of switching schools between public pre-K and kindergarten on academic performance. However, research indicates that school mobility also adversely impacts socio-emotional development (Alexander et al., 1996; Gruman et al., 2008), and that the transition to kindergarten can be extremely stressful for children and their parents (Howard, 2008; Wildenger & McIntyre, 2011). It is possible that switching schools between public pre-K and kindergarten has more impact on social-

emotional skills, which should be studied in the future. While I had access to initial social-emotional skills at age four prior to kindergarten (DECA), I did not have access to similar measures during kindergarten.

Finally, while our sample is very ethnically and linguistically diverse, it is from Miami-Dade County. While Miami-Dade is one of the largest counties in the country, experiences of children who change schools between pre-K and kindergarten in Miami might not be generalizable to other areas of the country. For example, Latinos are the majority in Miami. A Latino child who changes schools in that context might experience an easier transition than a Latino child who changes schools in a city where there are few Latinos.

CONCLUSIONS

While this study has its limitations, it also makes valuable contributions to the field of applied developmental psychology. This is the first study, to my knowledge, that directly investigates the impact of switching schools between public school pre-K and kindergarten on later academic performance. We have found evidence to suggest that switching schools between public pre-K and kindergarten negatively impacts academic outcomes in first grade, even if this is not apparent immediately in kindergarten. Future research should examine the effects of this move on later years, such as second and third grade, to see if the negative effects increase or dissipate over time.

Previous research has found that public school pre-K is successful at boosting school readiness and academic outcomes throughout elementary school (Ansari & Winsler, 2013; Gormley et al., 2005; Winsler et al., 2008). Future research, with this sample and others, should investigate if the benefits of public pre-K are stronger for children who stayed in the same school for pre-K and kindergarten, compared to children who switched schools.

This study also includes interesting findings about the importance of school quality. Our research suggests that school quality is associated with student academic outcomes, even in early elementary school. Perhaps more importantly, our first grade GPA and standardized reading test scores suggest that school quality may actually more

influential that switching schools. More research needs to be done investigating these kinds of effects. If increased school quality could buffer the negative effects of different life circumstances, that is something that deserves further attention.

Finally, this research is important because it supports the PreK- 3rd movement (Copple & Bredekamp, 2009). The goal of PreK-3rd is to integrate the learning experiences of children between the ages of 3 to 8 in hopes of making the greatest difference in educational and long-term outcomes (Guernsey & Mead, 2010). Further, this continuity has been found to be especially important for dual-language learners, which is relevant to the ELL portion of this sample (Passe, 2013). By researching the impact of the stability between public pre-K and kindergarten on later academic outcomes, this thesis is contributing to the PreK-3rd movement by integrating research regarding public pre-K with later grades. If more researchers use this perspective, there will be more results to share with policymakers and administrators to help make pre-K a continuation of elementary education, not a separate entity.

Table 1. Bivariate Correlates of Switching Schools between Pre-K and Kindergarten

Variable (N)	Switched Schools (%)
Students in Public Pre-K and K (18,775)	21.6 (<i>n</i> = 4054)
Gender	
Female (9,451)	21.1 (<i>n</i> = 2005)
Male (9,324)	22.0 (<i>n</i> = 2049)
Ethnicity***	
White/other (1,942)	1.5 (<i>n</i> = 129)
Latino/Hispanic (10,313)	10.5 (<i>n</i> = 1,974)
Black (6,520)	9.6 (<i>n</i> = 1,802)
Free/reduced lunch ***	
No (5,035)	16.0 (<i>n</i> = 808)
Free/Reduced (13,740)	23.6 (<i>n</i> = 3,246)
English Language Learner ***	
No (8,377)	24.7 (<i>n</i> = 2,067)
Yes (10,389)	19.1 (<i>n</i> = 1,987)

Note. These are row percentages (i.e. percent of males who switched schools between Public Pre-K and Kindergarten)

****p*<.001

Table 2. Mean Differences between School Readiness and Switching Schools between Public Pre-K and Kindergarten

	Same School		Switched Schools		<i>df</i>	<i>t</i>	<i>Cohen's D</i>
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M(SD)</i>			
LAPD Pre-academic Skills	7,062.00	62.04 (24.69)	1,710.00	59.6 (25.86)	8,770.00	3.63***	0.10
DECA Total Protective Factors	10,356.00	64.53 (26.8)	2,525.00	60.53 (27.63)	12,879.00	6.57***	0.15
DECA Behavior Concerns	2,525.00	38.99 (28.38)	2,525.00	43.8 (29.23)	12,879.00	7.59***	-0.17

Note. LAPD Pre-academic Skills= Learning Accomplishment Profile–Diagnostic, mean of fine motor, cognitive, and language subscales; DECA Devereux Early Childhood Assessment, teacher report.

****p* < .001

Table 3. Logistic Regression Predicting Switching Schools between Public Pre-K and Kindergarten

Variable	Odds Ratio	<i>SE(B)</i>	Odds Ratio	<i>SE(B)</i>
Male	0.98	0.01	0.98	
Black/White	1.73***	0.03	1.37*	0.04
Latino/White	1.39**	0.03	1.35**	0.03
Latino/Black	.80**	0.03	0.98	0.03
Free/Reduced Lunch	1.33**	0.03	1.17	0.03
ELL	0.8**	0.02	0.82*	0.02
LAPD Pre-academic Skills	0.99	0.02	0.99	0.02
DECA Total Protective Factors	0.99	0.04	0.99	0.04
DECA Behavior Concerns	1.003	0.03	1.003	0.03
School Quality in Pre-K			.80***	0.04

Note. LAPD Pre-academic Skills= Learning Accomplishment Profile–Diagnostic, mean of fine motor, cognitive, and language subscales; DECA Devereux Early Childhood Assessment, teacher report; School quality in Pre-K 0-4 scale

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4. Mean Differences Between Switching Schools between Public Pre-K and K and Outcomes in 1st Grade

	Same School		Switch Schools		<i>df</i>	<i>t</i>	<i>Cohen's D</i>
	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>			
ECHOS total points	5,325	27.49 (7.40)	1,284	26.34 (7.52)	6607	4.97***	0.15
ESI-K total points	8,462	23.33 (4.10)	2,378	22.58 (5.27)	10,838	6.43***	0.16
DIBELS LNF	11,426	1.00 (0.15)	3,050	1.02 (0.27)	14,474	-2.29**	-0.09
DIBELS ISF	7,671	12.44 (11.00)	1,898	11.44 (9.72)	9,567	3.92***	0.10
WSS social	2,377	29.6 (7.24)	625	28.21 (8.05)	3,000	4.19***	0.18
WSS language	2,377	19.32 (4.80)	625	18.45 (5.29)	3,000	3.94***	0.17
WSS math	2,377	6.35 (1.63)	625	6.07 (1.70)	3,000	3.75***	0.17
WSS arts	2,377	7.02 (1.75)	625	6.74 (1.91)	3,000	3.51***	0.15
WSS health	2,377	4.82 (1.20)	625	4.66 (1.37)	3,000	2.66**	0.12
K GPA	14,289	2.44 (0.44)	3,883	2.38 (0.47)	18,170	6.92***	0.13
1st grade GPA	13,010	4.38 (0.58)	3,415	4.27 (0.62)	16,423	9.10***	0.18
1st grade SAT-10 Reading %	2,732	61.49 (25.29)	675	57.28 (26.00)	3,405	3.86***	0.16
1st grade SAT-10 Math %	2,730	56.28 (28.13)	674	50.19 (28.67)	3,402	5.01***	0.21

Note. ECHOS= Early Childhood Observation System, ESI-K = Early Screening Inventory- Kindergarten, DIBELS= Dynamic Indicators of Basic Early Literacy Skills , LNF= Letter Naming Fluency, ISF = Initial Sound Fluency, WSS= The Work Sampling System, K GPA scale 1-3; 1stGrade GPA scale 1-5; SAT-10=Stanford Achievement Test, 10th Edition

** $p < .01$, *** $p < .001$

Table 5. Multiple Regression Predicting Mean Grades in K and First Grade

Variable	Kindergarten		1st Grade	
	Step 1	Step 2	Step 1	Step 2
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Male	.05 (.01)***	-.05 (.01)***	-.07 (.01)***	-.07 (.01)***
Black/White	-.08 (.03)**	-.07 (.03)*	-.14 (.02)***	-.09 (.02)***
Latino/White	.00 (.02)	.00 (.02)	-.024 (.02)	-.02 (.02)
Latino/Black	.09 (.02)***	.07 (.02)**	.12 (.02)***	.07 (.02)***
Free/Reduced Lunch	-.11 (.02)***	-.10 (.02)***	-.14 (.01)***	-.11 (.01)***
ELL	-.01 (.02)	-.01 (.02)	-.02 (.01)	-.02 (.01)
LAPD Pre-academic Skills	.33 (.02)***	.33 (.02)***	.37 (.01)***	.36 (.01)***
DECA Total Protective Factors	.07 (.02)**	.07 (.02)**	.08 (.02)***	.08 (.02)***
DECA Behavior Concerns	-.11 (.02)***	-.11 (.02)***	-.14 (.01)***	-.14 (.01)***
Switching Schools	-.01 (.01)	-.01 (.01)	-.03 (.01)*	-.02 (.01)
School Quality in Pre-K		.04 (.04)		.13 (.03)***
School Quality Change Score		.04 (.03)		.04 (.02)*

Note. LAPD Pre-academic Skills= Learning Accomplishment Profile–Diagnostic, mean of fine motor, cognitive, and language subscales; DECA =Devereux Early Childhood Assessment, teacher report; School quality in Pre-K 0-4 scale, School Quality Change Score -4 - +4

Table 6. Multiple Regression Predicting Standardized Test Scores in First Grade

Variable	SAT-10 Reading %		SAT-10 Math %	
	Step 1	Step 2	Step 1	Step 2
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Male	-.05 (.01)***	-.048 (.013)***	.03 (.02)*	.03 (.02)*
Black/White	-.10 (.03)**	-.03 (.03)	-.17 (.02)***	-.12 (.03)***
Latino/White	.01 (.02)	.02 (.02)	-.01 (.02)	-.00 (.02)
Latino/Black	.12 (.03)***	.05 (.03)*	.17 (.03)***	.12 (.03)***
Free/Reduced Lunch	-.12 (.02)***	-.09 (.02)***	-.09 (.02)***	-.06 (.02)***
ELL	-.01 (.02)	-.01 (.02)	.01 (.02)	.00 (.02)
LAPD Pre-academic Skills	.39 (.02)***	.39 (.02)***	.40 (.02)***	.39 (.02)***
DECA Total				
Protective Factors	.06 (.02)**	.06 (.02)**	.08 (.02)***	.08 (.02)***
DECA Behavior				
Concerns	-.02 (.02)	-.11 (.02)***	-.10 (.02)***	-.10 (.02)***
Switching Schools	-.02 (.02)	-.01 (.02)	-.03 (.02)*	-.03 (.02)*
School Quality in				
Pre-K		.15 (.03)***		.12 (.03)***
School Quality				
Change Score		.07 (.02)**		.06 (.02)**

Note. LAPD Pre-academic Skills= Learning Accomplishment Profile–Diagnostic, mean of fine motor, cognitive, and language subscales; DECA Devereux Early Childhood Assessment, teacher report; School quality in Pre-K 0-4 scale, School Quality Change Score - 4 - +4

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7. Descriptive Statistics of Pre-K School Quality

	Pre-K School Quality Score				
	0	1	2	3	4
	%	%	%	%	%
All children (<i>n</i> = 18,124)	1.5 (<i>n</i> = 274)	7.6 (<i>n</i> =1,380)	25 (<i>n</i> =4,559)	16 (<i>n</i> =2,912)	50 (<i>n</i> =8,999)
Switched schools (<i>n</i> = 3,819)	2.3 (<i>n</i> =89)	11 (<i>n</i> =418)	33 (<i>n</i> =1,244)	18 (<i>n</i> =684)	36 (<i>n</i> =1,385)
White/other (<i>n</i> = 364)	0.4 (<i>n</i> =1)	2.6 (<i>n</i> =7)	16 (<i>n</i> =44)	15 (<i>n</i> =41)	66 (<i>n</i> =271)
Latino/Hispanic (<i>n</i> = 1,860)	0.5 (<i>n</i> =9)	4.3 (<i>n</i> =80)	23 (<i>n</i> =452)	16 (<i>n</i> =315)	51 (<i>n</i> =1,004)
Black (<i>n</i> = 1,668)	4.7 (<i>n</i> =79)	20 (<i>n</i> =331)	44 (<i>n</i> =748)	19 (<i>n</i> =328)	12 (<i>n</i> =202)

Note. School Quality in Pre-K 0-4 scale

Table 8. Descriptive Statistics and Bivariate Correlates of Changes in School Quality between Pre-K and K

	Change in School Quality		
	Decreased Quality %	No Change in Quality %	Increased Quality %
All children (<i>n</i> = 18,124)	15.7 (<i>n</i> = 2,798)	60.1 (<i>n</i> = 10,701)	24.1 (<i>n</i> = 4,295)
Switched Schools (<i>n</i> = 3,819)	18.4 (<i>n</i> = 652)	43.2 (<i>n</i> = 1,528)	38.4 (<i>n</i> = 1,357)
Ethnicity***			
White/other (248)	15.3 (<i>n</i> = 38)	59.3 (<i>n</i> = 147)	25.4 (<i>n</i> = 63)
Latino/Hispanic (1,743)	15.7 (<i>n</i> = 1274)	52.2 (<i>n</i> = 910)	32.1 (<i>n</i> = 559)
Black (1,546)	22.0 (<i>n</i> = 340)	30.5 (<i>n</i> = 471)	47.5 (<i>n</i> = 735)

****p* < .001

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