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CHIDLREN OF IMMIGRANTS AND AFTER-SCHOOL PROGRAMS

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In the United States, children of immigrants are a rapidly growing population who face unique risk factors hindering their ability to succeed. Advocates are citing after-school programs as a possible support system to help children of immigrants overcome risks and succeed academically. The current study aimed to examine the effects of after-school programs for Hispanic children of immigrants. Data was collected from the Early Child Longitudinal Study (Kindergarten cohort). Of this nationally representative sample, the current study used data from a subsample of Hispanic children of immigrants (N=1364). Regression analysis was used to determine whether after-school program attendance and after-school program location are associated with cognitive outcomes. Results indicated that after-school attendance is associated with a decrease in reading scores and attending a school-based after-school program was associated with a decrease in reading and math scores. This study demonstrated the need to further examine after-school programs as a potential aid for children of immigrants in their struggle to succeed in the United States.

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Introduction

Children of immigrants, defined here as children with one or more foreign born parents regardless of where the child was born, are the fastest growing population under the age of 18. In the United States, one in five children are children of immigrants and one in four low-income children are children of immigrants (Reardon-Anderson, Capps, & Fix, 2002). Furthermore, 78% of children in immigrant families are U.S. citizens, which guarantees them certain rights (Capps, 2001). Given that children of immigrants are a substantial portion of the United States population, policy makers have a vested interest in promoting policies that address specific risk and protective factors that children of immigrants face in order to promote positive outcomes. The purpose of this paper is to explore the effects of after-school programs on the development of children of immigrants, specifically Hispanic children. This study hypothesized that after-school programs can help to address specific protective and risk factors unique to children of immigrants, and thus foster positive cognitive development.

Children of immigrants are typically born with advantages over the majority of native United States children. On average, they are born at healthier birth weights and are less likely to die as an infant than their native peers (Hernandez, 1999). In the familial context, they are more likely to live in intact two parent families than the rest of the native population (Hernandez, 1999; Reardon-Anderson, Capps, & Fix, 2002; Shields & Behrman, 2004). Their parents generally have a strong work ethic and a desire to succeed, and pass these traits onto their children. Within immigrant communities, there is strong cohesion

and support (Shields & Behrman, 2004). These protective factors are important, and are likely to contribute to positive development of children of immigrants.

Although children of immigrants do possess qualities and are often in environments that can help them succeed, they also face many risk factors. Even though their parents generally have a strong work ethic, they tend to work low wage jobs with no benefits. Their parents are also less educated than the majority of the population (Hernandez, 1999; Shields & Behrman, 2004). As such, children of immigrants are also more likely to live in poverty (Hernandez, 1999; Reardon-Anderson, Capps, & Fix, 2002; Shields & Behrman, 2004). Further, differences in culture and language barriers make it hard for children of immigrants to integrate with and obtain support from their diverse peers (Garcia-Coll & Szalacha, 2004). Given that poverty and lack of integration and support are risk factors for negative developmental outcomes, policy makers have a vested interest in fostering programs to assist children of immigrants by potentially alleviating these risks.

I focus on Hispanic children of immigrants because they typically face more risk factors than children of immigrants from other origins, such as Europe or Asia (Shields & Behrman, 2004). One of the most important factors to consider about Hispanic children of immigrants is their pure numbers. Sixty-two percent of children of immigrants are Hispanic (Hernandez, 1999). This huge group of Hispanic immigrants is different from their immigrant peers of different origins in levels of poverty and parental education (Hernandez, 1999). Hispanic children of immigrants are the least likely out of all immigrant groups to have a parent that has graduated from either high school or college (Shields & Behrman, 2004). Their parents are likely to be employed, but only working part time.

Because of this heightened risk for Hispanic children of immigrants, research should focus on effective ways to help them.

One potential strategy to aid children of immigrants who are at greatest risk is after-school programs. Advocates suggest that after-school programs can provide a beneficial support system for children of immigrants (Garcia-Coll & Szalacha, 2004; Shields & Behrman, 2004; Takinishi, 2004). After-school programs may help children of immigrants by providing them with skill development opportunities, possibilities for integration, and additional support not found at the school or at home. In order to do so, after-school programs need to acknowledge risk and protective factors associated with children of immigrants. If after-school programs can take advantage of protective factors, such as strong work ethic, then they may be able to negate the effects of risk factors, such as low parental education attainment.

Research on the effects of after-school programs on children of immigrants is scarce, however the few available resources indicate that after school programs can provide support for children of immigrants in culturally appropriate ways (Riggs, 2006; Takanishi, 2004). The current study tested whether after-school programs are having the beneficial effects that prior theory proposed they might have on children of immigrants. Specifically, using data from the Kindergarten cohort of the Early Childhood Longitudinal Survey (ECLS-K), I examined differences in reading and math development among Hispanic children of immigrants who did and did not attend after school programs.

Background

At the broad conceptual level, I make use of theoretical frameworks that consider the interplay between individual, familial, and societal factors on development. In particular, Bronfenbrenner (1979) outlines how several systems influence children's development. These systems include the Microsystem, or individual setting, the Mesosystem, which is the connections between Microsystems, the Exosystem, which is the outside links between the social settings of children and the Macrosystem, which is the culture that children live in (Bronfenbrenner, 1979). This model suits the purposes of my study because it incorporates aspects outside of children, which include the influence of after-school programs. Bronfenbrenner's model can be applied across the lifespan but for the purpose of this study, it will be applied to the Kindergarten age group.

I apply this general framework to children's development during middle childhood. Middle childhood, commonly defined as 6 to 12 years of age, marks the integration of children into greater social and societal institutions than they have previously experienced (Bronfenbrenner, 1998). Until this age, children's Microsystem only includes the family. Once they reach middle childhood, they must integrate the context of formal schooling into their Microsystem. This integration period can be a time of stress for children, especially if the institution they are integrating into, for example, school, is different than their previous settings. Such integration may be even more challenging for children of immigrants. Aspects of their home life, such as their roles, responsibilities, and rules, may be much different in their new environment, and they may lack the supports needed for successfully integrating.

Developmentally, it is important for children to not only integrate to their new environment but to also benefit from experiences in the environment. These experiences, called proximal processes, can include social interactions, models of appropriate behavior, and provisions of care from others (Bronfenbrenner, 1998). Through proximal processes children learns about their surroundings and consequently learn what is expected out of them in the setting. For instance, children may learn what behaviors are appropriate, how to interact with other children, and how teachers or other supportive adults will provide for them in their school setting. These lessons are the basis of trust and understanding of their new environment-the foundations for successful development.

As part of the Microsystem, after-school programs may play an important role in promoting proximal processes. They could help children of immigrants by providing culturally relevant support in the transition into formal schooling. After-school programs can provide an additional context to learn about the culture of the United States and an extra opportunity to experience proximal processes. For instance, while learning about the culture of the United States, children of immigrants can learn about appropriate behaviors, appropriate ways to interact with others, and how teachers will provide for them. Offering extra chances for proximal processes may also lead to a better understanding of children of immigrants' responsibilities and their potential in the school setting. This better understanding may help children of immigrants succeed because they may learn how their actions will produce positive results.

During middle childhood, children face the challenge of incorporating a new setting into their Microsystem, but they also face the challenge of relating each experience within

their Microsystem. Known as the Mesosystem, the link between different settings within the Microsystem is very important for development. Bronfenbrenner (1979) argues that the stronger the link between each system, the more powerful these systems will be on development. The Mesosystem is particularly significant when considering the transition to formal schooling because it includes children's relation of family experiences to school experiences. As discussed earlier, children of immigrants may have a much different experience in their family than they do in school. While children of immigrants need to integrate formal schooling into their Microsystem, they also need to relate the schooling experience to their home experience. Again, after-school programs can help relate these systems by providing a context for children to learn what is expected of them in the school setting and to relate these expectations to their home environment.

There are many broader contexts that do not directly involve children but can influence their development. The Exosystem has implications for development, but it does not have to involve direct contact with children. For instance, parents' work schedules can have implications for children's development even though children are not directly involved with them. Children can be left unsupervised if both of their parents work, which typically has negative effects for development. The time spent unsupervised after school is when most children engage in antisocial activities (Kahne, Nagaoka, Brown, et al., 2001). After-school programs can help prevent the negative effects of unsupervised time by providing a supervised environment to do homework or to simply stay off the streets.

The broadest system that has implications for children's development is the Macrosystem, which includes cultural values, economic patterns, legal patterns, and the

social conditions of the current time period that the child lives in (Bronfenbrenner, 1979). This broad system influences the proximal processes that the child has the potential to experience. For instance, many people in the United States are opposed to the influx of immigration into the United States, especially the illegal immigration of many Hispanic immigrants. This stigmatizes immigrants as a whole, which marks immigrants as outsiders and diminishes society's willingness to provide extra support for children of immigrants. While after-school programs can do little to offset widespread cultural beliefs, if they succeed in promoting positive development they may help change the stigma that many immigrants carry with them.

Bronfenbrenner's (1979) ecological model of human development can be widely applied to all children's development. However, the unique contexts in which children of immigrants reside necessitate a more focused perspective on the specific systems that influence minority children. Adapting Bronfenrenner's model, Garcia-Coll and Szalacha (2004) identified some specific factors relevant for minority children and children of immigrants that Bronfenbrenner does not explicitly discuss. Garcia-Coll and Szalacha's model (2004) identifies different paths to successful development for children of immigrants by incorporating contextual, racial, and cultural factors that can affect children of immigrants. The model integrates social position, racism, and segregation to create the unique developmental experience of children of immigrants. The model relies on the notion that although minority children and children of immigrants may have cognitive, behavioral, and linguistic deficiencies, these deficiencies need to be seen in light of their environment and culture. That is, their deficiencies are not a manifestation of lower intelligence levels or

social tact. Instead, they are the result of an environment that lacks the resources and does not necessarily emphasize the goals and beliefs of the dominant culture.

Both Bronfenbrenner and Garcia-Coll's models emphasize the interplay of individual, family, and school level factors and their implications for ultimate development. After-school programs may be able to influence these individual, family, and school factors. In the following section, I discuss each of these factors in terms of their potential as a "risk" or "protective" factor for children of immigrants, outline the potential for after-school programs as an effective intervention program for promoting positive development, and explore previous research relating to the effects of after-school programs on various populations.

Individual Level Factors

Risk factors. Children of immigrants face unique linguistic challenges. Seventy two percent speak a language besides English at home and 26% live in households where no other family member speaks English well (Shields & Behrman, 2004). This means that most children of immigrants are speaking a different language at school than they are at home. Although the ability to speak multiple languages is beneficial, children of immigrants may have trouble mastering English if no one in their household speaks the language. Without a solid understanding and mastery of English, it is not likely that children of immigrants will succeed academically because they will not be able to understand teachers' instructions, homework assignments, and tests and quizzes.

Protective factors. Numerous studies highlighted the strong work ethic of children of immigrants (Hernandez, 1999; National Center for Children in Poverty, 2002; Shields &

Behrman, 2004; Takanishi, 2004) and several stated that children of immigrants spend more time doing homework than their native peers (Reardon-Anderson, Capps, & Fix, 2002; Shields & Behrman, 2004). Previous research into the academic capacities of children of immigrants indicated that many are able to overcome linguistic barriers and succeed academically. This research yielded promising results for their academic success. Previous research into the academic trajectories of children of immigrants revealed that although children of immigrants typically start Kindergarten with lower scores in reading and math than their native born peers, they tend to close this gap by third grade. Specifically, children from Central American families scored just as well as their native white peers and children from Cuban families scored better than their native white peers in reading and math (Han, 2008). Children of Mexican origin improved their reading and math scores at a faster pace, but initial significantly lower scores in Kindergarten made it hard to them to do anything but narrow the gap between them and their native peers (Han, 2008).

Potential for after-school programs. As evidenced above, children of immigrants face unique risks in terms of their individual characteristics. After-school programs have the potential to address these risks. Linguistically, after-school programs could offer English language classes to help children of immigrants master English. These English classes could supplement ESL classes during school by simply providing more time and opportunities to practice English. Improving English skills will ultimately promote both academic and social success.

If after-school programs utilize the strong work ethic that most children of immigrants possess, then they can aid in the narrowing of the academic gap between

children of immigrants and natives. On a more intricate level, after-school programs can incorporate reading and math lessons into their curriculum to ensure that children of immigrants are academically caught up to their peers by 1st grade. Even simpler, after-school programs can provide basic homework help, which can serve to be extremely helpful for children of immigrants whose parents do not speak English. If after-school programs integrate educational lessons and support into their programs, children of immigrants should academically benefit.

Children of immigrants are more likely to attend low-quality schools (Han, 2008), thus it is likely that the current after-school programs researched in this study were not as ideal as the potential program options discussed above. Low-quality after-school programs probably lack the structure and the qualified personnel to promote positive cognitive outcomes. Therefore, these after-school programs might not help children of immigrants cognitively.

Previous research. Research has shown that Mexican children of immigrants were severely disadvantaged by living in language isolated households (Crosnoe, 2007). This disadvantaged sample did appear to have some benefit from early childcare programs. The results were indecisive, but the author stated that any program would probably have at least a small side effect on the academic readiness of Mexican immigrant children. Although the study focused on Mexican immigrant children benefitting from childcare programs that prepared them for Kindergarten, I believe that an after-school program is related and will continue fostering these positive results throughout Kindergarten and beyond. If after-school programs can incorporate the academic activities present in the early child care

program, then they will be likely to exhibit similar positive effects on children of immigrants.

While some previous research demonstrated positive effects of supplemental programs on Mexican children of immigrants, a high-quality longitudinal study, which examined after-school programs nationwide, did not find positive effects. Overall, there was no effect of after-school programs on grades or cognitive test scores (James-Burdumy, Dynarski, & Deke, 2007). Although this study did not focus on children of immigrants, the programs they examined were often in low-income areas and it is likely that children of immigrants would attend similar programs. As such, it appears that solely attending after-school programs may not be enough to influence cognitive outcomes; there should be a focus on the quality of the program.

Family Factors

Risk factors. Children of immigrants have less educated parents than the majority of the population (Garcia-Coll & Szalacha, 2004; Hernandez, 1999; National Center for Children in Poverty, 2002; Reardon-Anderson, Capps, & Fix, 2002; Shields & Behrman, 2004; Takanishi, 2004). Twenty-three percent have mothers and 40% have fathers who are not high school graduates (Shields & Behrman, 2004). Parental educational achievement is correlated with how much children are behind in school, i.e. higher parental educational achievement predicts lower rates of children being behind in school (Hernandez, 1999). Due to the fact that immigrant parents have limited English skills, a majority of children of immigrants speak a language besides English at home and a quarter of them live in linguistically isolated households (Shields & Behrman, 2004). Low parental education

levels and English skills limit the amount of educational support a parent can give to their child (Hernandez, 1999; Shields & Behrman, 2004). Furthermore, a parents' lack of education and English skills may hinder their ability to understand and negotiate with institutions, such as the school, that could help their child succeed (Hernandez, 1999; Shields & Behrman, 2004).

Children of immigrants are more likely to live in poor families than children of natives (Capps, 2001; Hernandez, 1999; National Center for Children in Poverty, 2002; Reardon-Anderson, Capps, & Fix, 2002; Shields & Behrman, 2004). About 25% of children of immigrants live in poor families, compared to 16% of children in native families (Capps, 2001). Almost half of children of immigrants live in families below 200 percent of the federal poverty line, while only 32 percent of children of native families do (Capps, 2001; Hernandez, 1999). The impacts of living in poverty can severely affect the educational achievement of children of immigrants. Impoverished households are likely to be food insecure households. Thirty seven percent of children of immigrants live in households that worry about or have trouble affording food (Capps, 2001). In addition, households in poverty are more likely to be overcrowded due to the high cost of rents (Capps, 2001; Hernandez, 1999; Reardon-Anderson, Capps, & Fix, 2002). Children of immigrants are four times more likely to live in crowded housing than children of natives (Capps, 2001). Crowded housing affects children academically because it decreases their chances of finding a place to do homework undisturbed (Hernandez, 1999).

Protective factors. Children of immigrants are more likely to live in intact two parent families than the rest of the U.S. population (Hernandez, 1999; Reardon-Anderson, Capps,

& Fix, 2002; Shields & Behrman, 2004). Their parents generally have strong work ethics and a desire to succeed, and they pass these traits down to their children (Shields & Behrman, 2004). While these protective factors are important, their strength is thwarted by an array of risk factors that need to be addressed by after-school programs.

Potential for after-school programs. There are many aspects of the family factors that cannot be controlled by after-school programs. However, after-school programs do have the ability to provide supplemental aid that may diminish the effects of these uncontrollable constructs. Parental education levels, parental linguistic skills, and family income are areas that after-school programs cannot change. Yet, after-school programs may be able to help children of immigrants manage the consequences that typically arise from these factors. For instance, low parental education and English language skills are associated with lower levels of homework help. If after-school programs recognize these factors and provide homework help, then children of immigrants can benefit from this extra support. This support can help children of immigrants achieve academically and hopefully will decrease the chance of the child being behind in school. Along the same lines, after-school programs have the ability to deter some of the negative effects of overcrowded housing if they provide the child with an environment to do homework undisturbed. If after-school programs provide snacks or meals, then they will be able to offset the effects of food insecurity and poverty that many children of immigrants face. Providing food can help children of immigrants maintain focus and complete their work.

Previous Research. Poverty is a known correlate of many problems, yet it appears after-school programs may have a positive effect on low-income children. Studies of after-

school programs and low-income children can be cautiously applied to children of immigrants because many live in low-income families. Low-income children who attended formal after-school programs had higher reading, math, and conduct scores than children in other types of after-school care (Posner & Vandell, 1994). Studies also show that low-income children who attend after-school programs engage in richer social experiences with adults and engage in activities more similar to middle class children (i.e. music and art lessons), (Posner & Vandell, 1994; Posner & Vandell, 1999).

As stated above, children of immigrants may have trouble completing homework at home due to overcrowded housing and their parents' lack of ability to help. After-school programs were proposed as an environment to help complete homework for children of immigrants, yet studies demonstrated that after-school programs have no effect on homework completion (James-Burdumy, Dynarski, & Deke, 2007). Again, this study did not focus on children of immigrants, but many programs in the sample were in low-income areas. The effects of after-school programs in low-income families remain mixed, but again these results could be demonstrating the need for high quality after-school programs.

Schools

Risk factors. The school setting is strongly associated with the academic trajectory of children of immigrants. Unfortunately, schools that service primarily children of color and/or children of immigrants tend to be disadvantaged by having low funding, low graduation rates, large classrooms, underpaid teachers (Han, 2008), lower teacher expectations, patronizing attitudes, biased curricula, and a lack of bilingual programs or classrooms (Garcia-Coll & Szalacha, 2004). The reading and math scores of children of

immigrants attending disadvantaged schools worsened compared to children of immigrants attending advantaged schools (Han, 2008). Children of immigrants who go to such schools will be unlikely to attain any academic or social success without some sort of supplemental program.

Protective factors. Although children of immigrants are more likely to attend disadvantaged schools, they typically have higher rates of improvement in cognitive scores. Hispanic children of immigrants in particular respond well to school level factors, such as ESL programs or remedial education (Han, 2008). Children of immigrants from South America and Mexico in particular have high rates of improvement in reading scores, and by the third grade they were generally caught up to their white peers. Unfortunately, children of immigrants typically attend lower quality schools where academic trajectories tend to worsen due to lack of resources.

Potential for after-school programs. Similar to the previous section, after-school programs can offset the disadvantageous characteristics of schools that many children of immigrants attend by providing a supplemental learning environment. Previous research indicates that high quality after-school programs are staffed by enthusiastic and appropriately compensated individuals (Sabo-Flores, 2004). This type of staff is essential for after-school programs aimed at children of immigrants, because children of immigrants are often taught by apathetic teachers during the day. With the proper support from a variety of sources, children of immigrants can be presented with opportunities for success in after-school programs. Unfortunately, it is likely that children who attend schools with apathetic teachers will attend after-school programs with similar teachers, especially if the

program is school based. In this case, after-school programs run by indifferent personnel might have negative effects on children of immigrants.

Previous research. One previous study found that children of immigrants, specifically most Hispanic children, respond more to school level factors, such as ESL classes, than their family background characteristics (Han, 2008). Because they attend low quality schools, there is a need for supplemental high quality after-school programs. Only one previous study focused on the quality of the after-school program and their benefits on low birth weight children. These children were chosen to participate because of their potential to develop cognitive or behavioral problems. This sample is unrelated to children of immigrants, but it is still relevant because children in the sample faced similar barriers as children of immigrants. For instance, both were likely to start school less ready than their average peers. The study found that high quality after-school programs yielded better cognitive outcomes than mother based or other home based care. This study is very important because not only does it establish the need for after-school programs, it shows the need for high quality after-school programs.

Although the previous research is lacking and indecisive, it does demonstrate the potential positive effects that after-school programs may have on children of immigrants. This research, however, has its limitations. Besides that fact that much of the research does not even focus on children of immigrants, many of the samples that were studied were consisted of a small number of participants. Furthermore, all but one study focused on the amount of time spent in after-school programs, and not the quality of the program. Lastly, none of the studies focused on outside variables that could have influenced the outcomes.

Current Study

In the sections above I outlined the potential for after school programs to promote development and reviewed the empirical evidence on the effectiveness of such programs. Advocates are calling for more funds for after-school programs for children of immigrants. Still, though, little is known about how effective after school programs are among this population. The current study, using data from the Early Child Longitudinal Study, Kindergarten cohort, examined if and how after-school programs are associated with development among Hispanic children of immigrants-a particularly at risk population.

This study focuses on the reading and math improvements of Hispanic children of immigrants from Kindergarten to 1st grade. I was interested in testing for differences in reading and math development from Kindergarten to 1st grade among children who did and did not attend after-school programs. I was guided by two main hypotheses.

Hypothesis 1: After-school programs will have beneficial effects on cognitive development of children of immigrants. This hypothesis is supported by research that found low income children improved their reading and math scores after attending an after-school program (Posner & Vandell, 1994).

Following my theoretical framework, I included a number of individual and family level factors as control variables in the analysis to adjust for the different selection characteristics of children who attend after-school programs. Maternal education and poverty status were included in analysis because of the possible effects they may have on cognitive outcomes. It is hypothesized that after-school programs will improve cognitive outcomes because they can negate the effects of lower parental education and poverty, as

stated above. Moreover, family structure and maternal employment were also used as descriptive variables to assess differences between children who do and do not attend after-school programs. It is likely that children of immigrants who live in single parent families and/or have an employed mother will be likely to attend after-school programs out of necessity. Therefore, these factors were included to assess whether these differences are present among children who do/do not attend after-school programs.

Further, school level factors were examined to see how they may promote or inhibit children of immigrants' cognitive development. My working hypothesis was:

Hypothesis 2: School based after-school programs will have detrimental effects on cognitive scores. This hypothesis is supported by literature that states children of immigrants are likely to attend lower quality schools (Hernandez, 1999; Garcia-Coll & Szalacha, 2004; Shields & Behrman, 2004). It is assumed that after-school programs at these low quality schools will therefore be low quality, and will consequently have detrimental effects on cognitive scores.

Following my theoretical framework, two school level variables were included to control for the selection variables of children who attend after-school programs. The percentage of Hispanic students in the school was included with the assumption that the higher percentage of Hispanic students, the lower quality the school is. This assumption is based on the finding that schools with higher percentages of minority students tend to have fewer resources (Garcia-Coll & Szalacha, 2004; Han, 2008). Furthermore, whether or not schools received Title 1 funds was included to assess the quality of the school. It is assumed that if the school received Title 1 funds, then the school is lower quality due to the need to

acquire extra funding. After-school programs are hypothesized to offset negative characteristics of lower quality schools by providing an additional context for children of immigrants to improve their cognitive skills.

Similar to assessing the quality of the school, a variable assessing the location of the after-school program was included to differentiate cognitive outcomes by types of programs. After-school programs were broken down into two groups: school based and center based. Due to the fact that children of immigrants typically attend lower quality schools, it is assumed that school based programs were lower quality (Garcia-Coll & Szalacha, 2004; Han, 2008). It is hypothesized that school based after-school programs will not improve cognitive scores for children of immigrants.

Methods

Data. The Early Child Longitudinal Study (Kindergarten Cohort) is a nationally representative sample of schoolchildren, with data collected in the fall and spring of Kindergarten (1998-1999) and the fall and spring of first grade (1999-2000). Data was collected from samples of public and private schools and included children of various socioeconomic classes and racial backgrounds (National Center for Education Statistics, 2001). Steps were taken in order to include as diverse of a sample as possible. Parent interviews were always offered in English or Spanish, and translators were utilized when possible for parents who spoke any other language.

Parents, children, teachers, and schools provided information pertaining to the child's cognitive, social, emotional, and physical development as well as information on the school, home, and neighborhood environment over telephone interviews and surveys.

Trained assessors spent one-on-one time with each child to assess their cognitive skills. Trained interviewers phoned parents at their home to conduct a 45 to 50 minute interview utilizing computer assisted interview methods. Teachers and school administrators were asked to fill out surveys pertaining to specific children and about the school as a whole.

For the purpose of the present study, I made of data collected from Hispanic immigrants or children of Hispanic immigrants (N=1392). Children with missing data for after-school program attendance were dropped from the sample (final N=1364). The number of participants in each model varies based on the available data for Kindergarten and 1st grade assessment scores. Missing data for categorical independent variables was imputed to the mode. Missing data for linear independent variables was imputed to the mean.

Each variable used in this study was chosen because it was hypothesized to relate to the cognitive achievement of children of immigrants. Previous literature indicated that English skills, parental education, parental work status, and poverty status could influence the cognitive outcomes of children of immigrants (Reardon, Capps, & Fix, 2002; Hernandez, 1999; Takanishi, 2004; Shields & Behrman, 2004). From this research, measures were selected for representation of the individual, family, and school factors outlined above. In particular, individual factors included the home language of the child. Family factors included poverty status, maternal education, and family structure. School factors included percentage of Hispanic students in the school and whether the school received Title 1 funds. Additionally, measures of maternal work habits and family structure were included as

descriptive measures to determine if after-school programs use was driven by family necessity.

Dependent Variables

Reading Scores. The reading assessment was given in Kindergarten and 1st grade and assessed basic skills, vocabulary, and comprehension. Standardized T-scores created by the National Center for Educational Statistics (NCES) are used in the assessments, with a mean score of 50. Change in reading scores, which represent the 1st grade score subtracted from the Kindergarten score, were utilized in regression analysis. A positive change score indicates the child improved their reading score in 1st grade. A negative change scores indicates the child performed worse on the 1st grade assessment. Data were only used if the participant has scores for Kindergarten and 1st grade. Children were required to pass an English language screening in order to be assessed for reading. The final sample included N=803 due to the fact that many participants did not pass the language screening and therefore could not be assessed.

Math Scores. The math assessment was given in Kindergarten and 1st grade and assessed conceptual knowledge, procedural knowledge, and problem solving. The math assessments also used standardized T-scores created by the NCES, with a mean score of 50. As with the reading score, children were assessed in the spring of Kindergarten and 1st grade. The change scores represent the 1st grade score subtracted from the Kindergarten score. Again, positive change scores indicate improvement in 1st grade and negative change scores indicate worse performance in 1st grade. Only participants with data for Kindergarten and 1st grade were used providing for a final sample of N=1272.

Independent Variables

After-School Program. Children were coded 1 if their parents indicated they did attend an after-school program during first grade, and coded 0 if they did not attend an after-school program. Furthermore, location of the program was coded as 1 if it was located at the school, and 2 if the program was not at school and 0 if they did not attend an after-school program.

Individual Characteristics. Gender was coded as 1 if the child was male and 0 if the child was female. Immigrant status was coded 1 if the child was a first generation immigrant and 2 if the child was a second generation immigrant (i.e. their parent was an immigrant). If the child spoke English at home, then they were coded as 1. Children who did not speak English at home were coded as 0.

Family Characteristics. Each family was coded as 0 if they were not poor and 1 if they were poor, as determined by an income to needs ratio created by the NCES. Family structure was coded as 1 if the child lived in a two married biological parents household and 0 if the child lived in a two biological but not married parents household, step- or cohabiting parent household, single parent household, or non-parental household. Maternal data was used in the current study because data pertaining to fathers was inconsistent or unavailable for many participants. Maternal employment was divided into full time, part time, and not working.

School Characteristics. Participants' schools were coded as 0 if they did not receive Title 1 funds and 1 if they did receive Title 1 funds. Schools with a percentage of Hispanic

students greater than 25 were coded as 1 and schools with a percentage less than 25 were coded as 0.

Analysis. Data analysis was conducted in four stages. First, t-tests were employed to examine any differences between children of immigrants who did or did not attend after-school programs. Kindergarten math and reading scores, as well as each of the child, family, and school variables mentioned above, were included in the descriptive analysis. These differences are important to consider because they could have implications for differences in final math and reading scores. If children of immigrants who attend after-school programs are initially much different than those who do not attend, then the implications of after-school programs will be impossible to establish.

Second, T-tests examining the change in reading and math scores were performed. This step was necessary to reveal differences in the change scores of children who did/did not attend after-school programs. These differences are important to consider because they may reveal the role of after-school programs on children's cognitive scores.

Two regression models were included to establish any differences between simply attending after-school programs and the location of the program. The first regression analysis was used to determine the association between after-school program attendance and children of immigrants' change in reading and math scores. The child, family, and school variables discussed above were used as control variables in the regression model. The purpose of this regression was to determine if and how after-school programs were associated with change in reading and math scores. Furthermore, control variables were included to ensure that the differences between children who did/did not attend after-

school programs were not affecting after-school program attendance and changes in cognitive scores.

The second regression model used the same control variables as the first, but included school based and center based after-school programs. This model was used to determine the association between the location of the after-school program and children of immigrants' change in reading and math scores. The purpose of this model was to determine if school based and center based after-school programs differed in their association with change in math and reading scores. Again, control variables were used to ensure differences between children who did/did not attend after-school programs were not affecting the location of after-school programs and changes in cognitive scores.

Results

Mean Differences: T-test and Chi-square tests

Table 1 shows analysis that yielded many significant differences between children of immigrants who do and do not attend after-school programs. Children who do not attend after-school programs were significantly more likely to be poor (47% vs. 33.3%), more likely to attend schools whose student population is more than 25% Hispanic (73.1% vs. 60.8%), more likely to attend a school that receives Title 1 funds (40.2% vs. 30.4%), and were more likely to live in two parent households (77.2% vs. 57.8%). Children who did attend after-school programs were significantly more likely to have a mother who attended college (43.1% vs. 24.1%), more likely to have a mother worded full time (69.6% vs. 34.9%), and had higher mean scores on Kindergarten math assessments (47.8 vs. 44.8).

Table 1:

Characteristics of children who did/did not attend after-school programs (N=1364)

Variable	Does Not Attends After-School Program		Attends After-School Program			
	Mean / %	SD	Mean / %	SD	T /X^2 (df)	Sig.
Poor	47.0%		33.3%		7.084 (1)	<.01*
Speaks English at home	17.3%		33.3%		16.168 (1)	<.01*
Two Biological Parent Household	77.2%		57.8%		18.937 (1)	.00*
Maternal age	32.2	(6.2)	33.8	(6.9)	-2.385 (1390)	.02*
Mother attended college	24.1%		43.1%		18.051 (1)	.00*
Mother works full time	36.4%		69.6%		44.016 (1)	.00*
Mother works part time	15.2%		16.6%		0.235 (1)	.63
School is greater than 25% Hispanic	73.1%		60.8%		2.757 (1)	.10
School Receives Title 1 Funds	40.2%		30.4%		3.545 (1)	.06
Kindergarten Reading Scores	46.9	(0.4)	48.7	(1.0)	-1.780 (839)	.12
Kindergarten Math Scores	44.8	(9.6)	47.8	(9.5)	-3.237 (1332)	<.01*

**p<.05 for significant results*

Mean Differences: T-tests

Children of immigrants who attended after-school programs were shown to have significantly different change scores. Children who attended after-school programs decreased their change in reading scores by .61, while children who did not attend after-school programs increased their scores by 1.2. Children who attended after-school programs improved their math score by .36, but children who did not attend after-school programs increased their math score by 1.78. These were significant between group differences. Without further analysis, these results suggest that after-school programs do not have beneficial effects on the cognitive scores of children of immigrants.

Table 2:

Differences in mean change scores for children who did/did not attend after-school programs

	Does Not Attends After-School Program		Attends After-School Program				
	Mean	SD	Mean	SD	N	t	Sig.
Change in Reading Score	1.2	(6.8)	-.61	(6.52)	803	2.307 (813)	.02*
Change in Math Score	1.8	(6.9)	.36	(6.54)	1272	1.944 (1294)	.04*

**p<.05 for significant results*

Regression analysis:

Table 3 shows the regression models, with change in reading and change in math as the dependent variables and after-school program attendance as the independent variable. After-school programs are significantly associated with a drop of 2.35 points on the change in reading scores. There was no significant association between after-school programs and change in math scores.

Table 3:

Analysis of association between after-school program attendance and cognitive outcomes

	B	Std. Error	Beta	B	Std. Error	Beta
	Change in Reading(N=803)			*Change in Math (N=1272)*		
Child attended an After-School Program	-2.345*	0.814	-0.105	-0.995	0.753	-0.038
Mother's Age	-0.063+	0.038	-0.059	-0.016	0.031	-0.014
Mother works full time	1.049+	0.554	0.076	0.608	0.450	0.042
Mother works part time	1.363+	0.741	0.075	-0.882	0.586	-0.045
Poor	-0.358	0.538	-0.025	0.272	0.427	0.019
Two Parent Family	-1.460*	0.583	-0.093	0.171	0.481	0.010
School greater than 25% Hispanic	-0.374	0.520	-0.027	-0.529	0.444	-0.036
Child speaks English at home	-1.044+	0.561	-0.067	-0.596	0.526	-0.033
School receives Title 1 funds	-0.860+	0.537	-0.060	0.007	0.424	0.001
Mother attended college	-0.634	0.542	-0.044	-0.965	0.491	-0.060
(Constant)	4.917	1.472	-	3.414	1.205	-

**p<.05 for significant results*
+p<.10 for marginally significant

Regression analysis:

Table 4 shows regression analysis, again with change in reading and math scores as the dependent variable but with after-school program location as the independent variable. School based after-school programs are significantly associated with a decrease in 3.12 in the change in reading scores. School based after-school programs are also marginally

associated with a 1.50 decrease in the change in math scores. Center based after-school programs were not significantly associated with any change in cognitive scores.

Table 4:

Analysis of association of after-school program location and cognitive outcomes

	B	Std. Error	Beta	B	Std. Error	Beta
	Change in Reading (N=803)			*Change in Math (N=1272)*		
Center Based Care	0.345	1.627	0.008	-0.072	1.445	-0.001
School based asp	-3.116*	0.908	-0.125	-1.493+	0.859	-0.050
Mother's age	-0.061	0.038	-0.057	-0.021	0.031	-0.018
Mother works full time	1.013+	0.553	0.074	0.529	0.451	0.037
Mother works part time	1.405*	0.731	0.077	-0.967+	0.587	-0.050
Poor	-0.398	0.538	-0.028	0.418	0.425	0.030
Two Parent Family	-1.502*	0.583	-0.095	0.212	0.482	0.013
School is greater than 25% His	-0.416	0.519	-0.030	-0.421	0.443	-0.028
Child speaks English at home	-0.982+	0.561	-0.063	-0.819	0.522	-0.046
School receives Title 1 funds	-0.903+	0.536	-0.063	0.063	0.425	0.004
Mother attended college	-0.598	0.542	-0.042	-1.176*	0.486	-0.073
(Constant)	4.905	1.470	-	2.732	1.186	-

**p<.05 for significant results*
+p<.10 for marginally significant

Discussion

The results suggest that overall, after-school programs are negatively associated with reading outcomes. However, this result must be interpreted in the light of descriptive analysis that indicated that children who attended after-school programs were different than children who did not attend after-school programs. According to descriptive results, it is likely that children of immigrants who attended after-school programs did so out of necessity. Specifically, they were more likely to live in a single parent family and/or were more likely to have a mother who worked full time. They were less likely to be poor, which

suggests that affordability was a factor in after-school program attendance. Regardless of these differences, after-school programs are still associated with negative reading scores. This result refutes the hypothesis of this paper, which indicated that after-school programs would have a beneficial effect.

Furthermore, the results showed that school based after-school programs are negatively associated with change in math and reading scores. These results support the hypothesis that school based after-school programs are detrimental for cognitive scores. This hypothesis was based on the finding that many children of immigrants attend lower quality schools, which therefore are assumed to have lower quality after-school programs. Future studies should focus on assessing high quality programs to determine whether after-school programs are an effective means of promoting positive cognitive outcomes for children of immigrants.

The precise meaning of the role of after-school programs on cognitive outcomes is hard to determine. While regression analysis shows a decrease in reading scores in association with after-school programs, this result could be attributed to initial differences in scores or to the quality of the after-school program. Children who did not attend after-school programs had lower reading and math scores in Kindergarten, thus they had more room to improve. Perhaps the regression results that showed a decrease in reading scores in association with after-school programs were just an indication of the leveling out of reading scores between children who did and did not attend after-school programs.

Limitations:

This study is not without its limitations. As with any observational data, this

research can only demonstrate an association between after-school programs and cognitive outcomes. There are also several limitations in the data and data analysis. First, the limited capabilities of the data analysis software made it impossible to properly weight the data. Due to the complex sampling design used in the ECLS-K, adding proper weights could change the results.

There were several limitations within the dependent variables. First, participants that did not have data for both the Kindergarten and 1st grade math or reading assessments were dropped from the data. Additionally, each participant was required to pass and English language screening test before given the reading assessment. Thus, it is possible that children with the lowest English skills (and conceivably the highest need for an after-school program) were dropped from the data set.

Lastly, there is no information about the after-school programs. Although this study showed after-school programs in general are associated with lower reading scores, it is unknown what kind of programs these were. It is quite possible that all of the programs were low quality, therefore the negative outcomes might be associated with low quality after-school programs and not after-school programs in general. Future studies should analyze the quality of after-school programs in association with cognitive outcomes. Furthermore, there was no distinction between attendance and frequency of attendance. Therefore, children of immigrants who attended after-school programs once a week were not distinguished from children who attended five days a week. Future studies should focus on frequency of attendance and after-school programs.

Children of immigrants are a rapidly growing population in need for educational support. This study proposed after-school programs as a potential support system. Although this study's conclusions determined after-school programs overall to be detrimental, there could be factors about the quality of the programs that produced these results. Future studies should focus on assessing the quality of after-school programs and their potential to help children of immigrants succeed. Children of immigrants have many challenges to overcome, but after-school programs may provide the resources they need to succeed.

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