THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF HUMAN DEVELOPMENT AND FAMILY STUDIES

CHILDREN LIVING IN HIGH-RISK NEIGHBORHOODS AND AFTER-SCHOOL PROGRAMS

LAUREN ROBBINS

Spring 2010

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Human Development and Family Studies
with honors in Human Development and Family Studies

Reviewed and approved* by the following:

Kathryn Hynes
Assistant Professor
Thesis Supervisor/Honors Adviser

H. Harrington (Bo) Cleveland
Associate Professor
Second Reader

* Signatures are on file in the Schreyer Honors College

ABSTRACT:

This study examined the effect of after school programs on the academic and behavioral development of children living in high-risk neighborhoods. . Based on prior literature about the way neighborhoods and after-school programs may influence development, I hypothesized that children would benefit academically from attending after-school programs, but that we would see no effects on their behavioral development. The data for the study came from the Early Childhood Longitudinal Study Kindergarten class (ECLS-K), which was collected by the National Center for Educational Statistics (NCES). The ECLS-K provides a nationally representative sample comprised of approximately 17,000 children in the United States. This sample was then restricted to only include children who lived in high-risk neighborhoods (N=847). The ECLS-K includes child assessments as well as surveys from parents, teachers and school administrators. Results of the study indicate that compared to children who did not attend after school programs, children who did attend after-school programs, reading scores marginally decreased between kindergarten and first grade. Children's internal behaviors were positively affected by after school programs. Regression models were used to find these marginally significant results in the study.

Table of Contents

Acknowledgments:

I would like to thank my friends and family for supporting me throughout the writing of this thesis. Shauna, Erica, Melanie, Brittany, Jessica, Rebecca, Lindsay, Carly, Jenna, and Jaclyn-- thank you for your support and for allowing me to me vent to you when I was stressed out during the writing of my thesis. Mom, Dad, Jamie and Adam, thank you for your unconditional love and support, I could have never finished my thesis without you. Krista, I cannot thank you enough for your help and encouragement during this process, I am so happy to have had you there as we both embarked on our thesis journey.

I would also like to extend appreciation to Dr. Hynes and Professor Cleveland for their assistance and advisement during my research and writing of this thesis.

Lastly, I want to express my deepest gratitude to Dr. Hynes, my thesis and honors advisor. Your support, guidance, daily emails, weekly meetings, and of course positive reinforcement when I didn't believe I would ever finish were what got me through the thesis process. I am so pleased to have had the experience of working with you during my senior year. Thank you!

I. Introduction

When a person's health is at risk, it is common to visit a doctor who diagnoses the illness, prescribes medicine, and recommends ways to avoid getting sick again. It is in this same way that we look at what steps need to be taken when a child's development is at risk. The approach is to identify the problem, prescribe policies to neutralize the damages and recommend programs aimed at preventing the problem in the future. In this thesis, I examine whether attending an after-school programs may act as a remedy for the negative developmental effects caused by living in a high-risk neighborhood.

In America today, approximately 15 million children live in neighborhoods characterized by high concentrations of poor families. Research has documented that growing up in such neighborhoods greatly affects the developmental trajectory of children who live there (Leventhal & Brooks-Gunn, 2004). There are many reasons that play into the effects of growing up in a high-risk neighborhood. As described in detail below, fewer learning experiences, instability of residence, lower quality of schools, and exposure to violence all contribute to the detrimental effects of high-risk neighborhoods on development (Brooks- Gunn & Duncan, 1997). The well-known saying, "It takes a village to raise a child" illustrates how big of a role neighborhoods play on the developmental trajectory of a child.

After-school programs may offer a way to reduce the negative impacts that these children face. High-quality after-school programs can help foster and sustain children's academic and social development outside of the classroom. Prior studies about the effects of after-school programs on children's development have shown mixed results: Some studies find that after-school programs benefit children, either academically or behaviorally (Vandell et al., 2007, Posner et al., 1999, and Daud & Carruthers, 2008), while others show no effect, (Dynarski et al.,

2003, Vandell & Pierce, 1999 and NICHD 2004). Given the uncertainty in the literature, this thesis will answer the following question: Are children who grow up in high-risk neighborhoods benefiting from attending after-school programs, academically and behaviorally? In order to answer this question, children who live in high-risk neighborhoods and attend after-school programs will be compared to those children who also live in high-risk neighborhoods but who did not attend after-school programs. The data analyzed in the study are drawn from the Early Childhood Longitudinal Study, Kindergarten class (ECLS-K). This nationally representative data may help reduce the inconsistency found in the current literature.

It is important to understand the processes through which high-risk neighborhoods influence children's development in order to think about whether after-school programs might be a good intervention. In order to do this, I will first address the theories that show the relationship between neighborhood risk and child development, and then move on to a review of the past research. Next, I will discuss how after-school programs may be a potential solution to this problem, by acting as a buffer for the negative effects on a child's development caused from living in a high-risk neighborhood.

II. Background

Neighborhood Effects

With influential theories and research analyzing effects for children growing up in high-risk neighborhoods, it is important to understand what one exactly means by "neighborhood". In early definitions, neighborhoods were defined as " subsections of a larger community- a collection of both people and institutions occupying a spatially defined area influenced by ecological, cultural and sometimes political forces" (Park, 1916). Later definitions introduced the idea that neighborhoods are not only geographic locations, but include aspects of residential stability, home ownership and the ethnic composition of the inhabitants (Brooks-Gunn et al., 1997). These aspects lead us to believe that all neighborhoods are different with respect to location and social processes. For the purpose of this paper, I will be looking at what is referred to as high-risk neighborhoods. High-risk neighborhoods are neighborhoods where children are exposed to high amounts of violence, drugs, gangs, and crime. According to Sampson et al., (2002) there is evidence showing that certain locations known for crime, cause children to grow up with many disadvantages. This relationship between high-risk neighborhoods and children's development is further shown below through both theory and research.

Bronfenbrenner's well-known Ecological System Theory can be used to explain how the neighborhood one lives in can affect his/her development. In its simplest form, the theory states that our surrounding environment affects us and we in turn affect our surrounding environment. Bronfenbrenner splits up our environment into four distinct layers (the micro-system, meso-sytem, exo-system, and macro-system), each playing an important role in whom we become (Bronfenbrenner, 1979). An example of his theory is the neighborhood the child lives in, which is found in the exo-system layer of the model. The neighborhood, if high-risk, may expose the

child to violence, crime, gangs and illegal substances, which may influence the child's behavior, expectations, and motivation. Found within each neighborhood is the quality and quantity of community resources such as parks and libraries. The quality of the resources the child has access to affects his/her ability to develop. So in theory, if the parks are of poor quality and unsafe to play in, and the libraries do not provide high quality books and other resources, the children living in these neighborhoods will be far more disadvantaged. Bronfenbrenner's theory shows how all four layers of our environment influence us whether we interact with them directly or not (Bronfenbrenner, 1979).

Through research, we have also seen the relationship between living in high-risk neighborhoods and the effects on children's development. According to Leventhal and Brooks-Gunn (2000), children who live in disadvantaged neighborhoods rank lower on a variety of developmental outcomes compared to peers from more advantaged neighborhoods. Leventhal and Brooks-Gunn more recent study conducted in 2004 used the Moving to Opportunity for Fair Housing Demonstration (MTO) to illustrate how relocating children from high poverty to low poverty neighborhoods positively affected educational outcomes. The MTO enrolled 4,600 children from low-income families from 1994 to 1998, comparing outcomes for children who were selected to move with their families to better neighborhoods to those who were not selected to move. Although this study showed a clear association between neighborhood and development, why this association occurred is often at question. In other words, what are the pathways that link living in high-risk neighborhoods to effects on children's development?

Several pathways have been proposed linking neighborhood risk to child outcomes. The first pathway arises at the community level and illustrates the influence of institutional resources on children's development (Leventhal & Brooks-Gunn, 2000). Some resources at the

community-level include the quality of schools, the quality and quantity of medical facilities, the number of employment opportunities, and the availability of parks, libraries, children's programs and family support centers (Jencks & Mayer, 1990). Institutional resources are important for understanding how children are affected by their neighborhood, because they allow for measurable means of the resources children have access to (Leventhal & Brooks-Gunn, 2000). Here is where the level of risk in each neighborhood becomes an important factor. Parents must use the resources in the community in order for their children to benefit from them, which is not always the case in high-risk neighborhoods where safety is clearly an issue (Leventhal & Brooks-Gunn, 2000). In other words, these neighborhoods would not only have few high-quality institutional resources but also their inhabitants may not be making use of them. As stated in Vygotsky's Socio-cultural learning theory, children learn through socially rich environments, in which they are given opportunities to explore both individually and collectively with their peers and teachers (Vygotsky, 1987). Simply put, a high-risk neighborhood would not provide a child with these opportunities to learn, which would in turn influence their academic and behavioral development.

A second pathway is formed by the types of relationships, social ties and interactions available in different types of neighborhoods. Social ties can be seen as any interactions between neighbors, relationships with teachers, and other relationships within the social context of the child. Social interactions with neighbors for example, are looked at in both and positive and negative light. But for children living in high-risk neighborhoods these interactions are mostly negative. Not only are these children already at risk due to lack of quality institutional resources, but now, are more disadvantaged due to the fact that the social interactions they are exposed to

are confined to inhabitants in their neighborhood who may not encourage positive social behaviors (Wilson, 1987).

Social ties with peers and teachers are also important, and discussed when looking at the developmental tasks children should accomplish during the developmental stage called middle childhood. Age five is often the first time children are introduced to formal schooling, where they learn new roles and have new experiences (Eccles, 1999). The shift from their home environment to school and after-school programs present new challenges for these children. Children in this stage are torn between the desire for independence and the strong need for trusting relationships with adults. In the middle childhood years, children are exposed to influences from adults other than their parents such as teachers, after-school program directors, mentors and coaches. These new relationships may change their views of other adults as well as allow them to observe how authority figures judge them and their behaviors and personalities (Eccles, 1999). Previously, children's social roles were defined for them since birth (for example, as a sister, or a son) but now they must define these social roles themselves, through peer groups, adult relationships and their own personal academic and behavioral achievements. Because these relationships are often responsible for establishing children's social roles in middle childhood, it is important that adults provide nurturing and educational experiences to help children choose the right social behaviors (Eccles, 1999).

To conclude, if children are interacting with people in their high-risk neighborhoods who do not promote positive behaviors, and children do not have access to other social interactions, then it may be hard for children to form trusting relationships with adults later on in life causing potential negative effects to their development.

A third pathway linking neighborhoods to developmental outcomes consists of neighborhood norms and community level collective efficacy. Norms are the accepted practices of the community that illustrate what is expected of you as an inhabitant of that community (Sampson et al., 2002). For example, in high-risk neighborhoods it may be the norm to use illegal substances due to availability of them. Such norms of behavior send clear messages regarding the behaviors that are acceptable and thus approved.

The third pathway also includes collective efficacy. According to Sampson et al., (1997) collective efficacy is the combination of trust between neighbors and the degree to "which neighbors can count on each other to monitor and supervise youth and protect the public" (Sampson et al., 1997). In their 1997 article, "Neighborhoods and Violent Crime: a Multilevel Study of Collective Efficacy", they found that collective efficacy partially mediates relationships between neighborhoods, social composition and violence. Therefore, a community with strong collective efficacy would be better equipped to control for overpowering peer group influences, violence and crime in the community. William Wilson's Social Disorganization Theory also emphasizes the importance of social control, defined as the monitoring of children's deviant behaviors, as the key to ending detrimental effects on the development of children who grow up in high-risk neighborhoods. Wilson's theory argues that social isolation and disorganization experienced by inner city youth in their communities result in major social problems contributing to the high rates of educational failure (Ainsworth 2002). Wilson states that if adults are not around, children will do more delinquent activities causing effects to their overall development (Ainsworth, 2002).

These three pathways listed above; institutional resources, relationships and ties, and norms and collective efficacy, combined with the geographic location and physical

characteristics of a neighborhood, all influence children's development in high-risk neighborhoods. Because after-school programs are able to address these pathways, they offer an opportunity to reduce the links between neighborhood context and poor developmental outcomes.

After-school Programs

According to the Afterschool Alliance (2009), 8.4 million children attend after-school programs each day, and 15 million children are on their own after school. After-school hours, 3pm to 6pm, when many parents are still at work, are identified as a crucial time for all children. Opportunities to take part in enrichment activities are limitless, yet for children living in high-risk neighborhoods instead of participating in enrichment activities, these hours are notorious for high rates of crime and experimentation with illegal substances (Afterschool Alliance, 2009). The past decade has sparked interest in after-school programs with the perceived notion that presenting children with safe and constructive activities in the after-school hours may help children who live in high-risk neighborhoods.

After-school programs can be seen as a moderator for the pathways described above between high-risk neighborhoods and child development. First, they provide children with academically structured tasks such as homework help or tutoring, as well as enrichment activities including sports, games, dance, computers, art, and drama. Attending an after-school program that provides these activities to children helps neutralize the problem of low quality institutional resources found in their neighborhood. These programs, if high quality, would provide high quality resources to the children and give them access to equipment they do not have at home (sports equipment, computers) as well as adult supervision, which they would not be receiving if their parents or guardian are still at work when they return home from school.

The second way that after-school programs may help moderate the relationship between high-risk neighborhoods and child development, is providing children with positive social interactions and supportive environments, which is shown through Erickson's theory of human development. In stage four of Erickson's theory (industry verse inferiority) he argues that if children are encouraged by their environment and develop a sense of worth (industry) then they are more likely to succeed. If children are not encouraged by their environment, and develop a sense of worthlessness (inferiority) then they are less likely to succeed (Erickson, 1963). Attending an after-school program can provide children with trusting and encouraging social interactions and can be the supportive environment needed to develop this sense of worth. With this sense of worth, children can then positively look towards their future and accomplish anything they set their minds to.

Despite the potential for after-school programs to moderate the links between neighborhood risk and child development, previous research on the effects of after-school programs has shown mixed results. Some studies (Vandell et al, 2007, Posner et al., 1999, and Daud & Carruthers, 2008) show findings indicating positive effects of after-school programs on children academic and behavioral development. Other studies, (Dynarski et al., 2003, Vandell & Pierce, 1999 and NICHD, 2004), show findings indicating no effect when children attended after-school programs.

In the next section, I will review the literature on the effects of after-school programs on children's development. I will organize my review by using a developmental-ecological approach, which was used in Riggs and Greenberg's review article in 2004. This approach focuses on three main aspects of after-school programs: (1) the design of the after-school program, (2) duration and intensity of the after-school program, and (3) the types of children

attending the after-school program, their families and communities. "Taking this approach better answers the questions of for whom are after-school programs most effective and under which circumstances" (Riggs & Greenberg, 2004). The studies they reviewed suggest after-school programs may show significant influence to children's development. They also conclude that the most at-risk children may benefit most from attending after-school programs (Riggs & Greenberg, 2004). I am using different and more current studies in the literature review below, which is why there may be differences in our findings.

An important part of the design aspect of after-school programs is their physical setting. Programs are housed in a large range of places, each with different goals, and different activities. Examples of such programs are after-school programs housed in churches, drop-in programs such as the 21st Century Community Learning Center, and academic enrichment program such as the Boys and Girls club. The largest number of after-school programs offered to low income children are found in schools (Halpern, 1999).

A second part of the design aspect is the difference in the elements that structure after-school programs. Along this dimension, two main types of after-school programs exist. First, are after-school programs that allow children to take part in multiple activities such as sports, arts and crafts, dance, and homework help. Second, we see structured, content-based programs where one activity is most valued, such as homework-based after-school programs (Riggs and Greenberg, 2004). There are clearly strengths and weaknesses to taking part in both types of programs. Studies conducted on structured homework-based programs strengthen the idea that academic support after school can enhance children's self-perceptions, which is seen as a moderator of academic success (Ross et al., 1992). In other words, it is not exactly the homework itself, but the confidence they receive from completing their homework that ultimately boosts

their self-esteem (Cosden et al., 2004). Studies such as Tucker et al (1995) and Morrison et al (2000), show that homework-based programs can be protective, keeping at-risk children engaged in school activities ultimately leading to increased academic success. Adding to these benefits, homework programs also benefit children who cannot find time to do their homework at home or who do not have an adult to help them (Cosden et al., 2004).

Despite the generally positive assessments of the structured programs explained above, there are reasons to note that these programs may not be the most beneficial. The four main critiques to structured homework-based programs are as follows, they do not demonstrate that homework can occur at home; they do not foster independent learning, they may take away from a parents involvement in their child's education and lastly, they may take away from other extracurricular activities important to children's overall development (Cooper et al., 2001).

The more common type of after-school programs combines academic based programs with enrichment activities. These types of programs use a variety of activities to ensure a safe and productive environment. This includes academically structured tasks as well as enrichment activities such as sports, games, dance, computers, art, and drama (Daud et al, 2008). Well-known high-quality programs that combine both academics and enrichment activities include, but are not limited to The 21st Century Community Learning Center, LA Best, Communities Organizing Resources to Advance Learning (CORAL), and TASC (Halpern, 1999). Once again, we see inconsistency in results found for these studies.

In support of these programs comes evidence from Daud and Carruthers 2008 study "After-School Programs Youth in a High-Risk Environment", which showed children often learned positive values and behaviors in social situations, tried many new activities, developed a competent self-perception and experienced a nurturing and enjoyable environment. Other studies

in the field linked regular participation in these programs to higher standardized test scores and positive relationships between students and teachers (Vandell et al., 2007) as well as, children's increased pro-social behaviors, improved work habits, and adjusted emotional behaviors (Posner et al., 1999).

There are also studies whose findings contrast with the findings above. Vandell and Pierce's 1999 study "Can After-School Programs Benefit Children Who Live in High-Crime Neighborhoods" concluded that academically at-risk children who attended after-school programs had lower academic scores and were less likely to use positive conflict resolution strategies compared to similarly at-risk children who did not attend after-school programs. More recently came research from the 21st Century Community Learning Center programs. Congress established these programs in 1994 in order to provide students with academic, enrichment and recreational activities during after school hours (Dynarski et al., 2003). Mathematica Policy Research conducted a study involving 26 of these after-school programs that 2,308 elementary school students attended. Their findings indicated that the students felt safer in these after-school environments but there were no significant effects on their academic outcomes, and negative effects for behavioral outcomes (Dynarski et al., 2003). Lastly, The National Institute of Child Health and Human Development Early Child Care Research Networks, 2004 study showed no effects of participation in daily after-school programs on child outcomes in the first grade (NICHD, 2004).

The second aspect of assessing after-school programs through a developmental-ecological approach is the duration and intensity of after-school programs. Many kids do not attend after school programs very often, reducing the likelihood that the program will have positive effects. Riggs and Greenberg argue that not controlling for how often children attend

after-school programs and how many hours they attend each day may have led to some of the conflicting results on the effects of after-school programs.

Vandell and Pierce's (1999) research is a perfect example of how controlling for the amount of attendance in after-school programs may change the study results. After controlling for attendance, they found positive effects such as better work habits of children who attended more often. However, this is only one study. More research is needed to show the true effects of duration and intensity when attending after-school programs. In addition, children who attend regularly probably differ quite a bit from children who do not attend, making it unclear whether the characteristics of the children are really driving the differences, not the programs themselves.

The third and final aspect of the developmental-ecological approach is its focus on the characteristics of children who attend each program, their families and communities. It is extremely relevant to consider these characteristics in order to see what types of children are benefitting and not benefitting from attending after-school programs. Some researchers think that after-school programs will have the greatest benefit for at-risk children because they can provide them with enrichment activities otherwise not available to them, and an opportunity to build a supportive relationship with an adult (Posner & Vandell, 1999; Daud & Carruthers, 2008).

Children attending after-school programs can differ in age, gender, race, cognition, behavior, family structure, and socio-economic-status. Since these characteristics are also associated with children's developmental outcomes, our results may not be accurate if we do not control for selection into after-school programs.

To conclude, there are many different types of after-school programs available to children today. These programs vary in type, location, structure, duration, and intensity, which all play into the mixed literature on if children are benefitting from attending such programs. The

Developmental-Ecological approach used in Riggs and Greenberg's review article is only one way to assess the effectiveness of after-school programs, which may lead to more accurate results due to controlling for these variations in after-school programming.

Current Study

The current study intends to further the research by examining whether after-school programs have a positive effect on academic and behavioral outcomes for children living in high-risk neighborhoods. Using nationally representative data from the Early Childhood Longitudinal Study, Kindergarten class (ECLS-K), this study hopes to reduce the inconsistencies found in the current literature. The mixed results in the current literature can be due to many reasons. Mainly, we see mixed results due to different study designs. Some studies evaluate only one type of program, The 21st Century Community Center, being a good example, and other studies only use a cross sectional design, which may cause problems in their results such as problems caused by cohort effects. These studies cannot be generalized to a larger population. This study evaluates a mixture of programs and uses a longitudinal design to show true developmental changes. Based on my review of the past literature above, I have come up with the following two hypotheses.

Hypothesis 1: Children growing up in high-risk neighborhoods will benefit academically from attending after-school programs. This hypothesis will be tested by comparing the academic outcomes of children living in high-risk neighborhoods who attended after school programs to children living in high-risk neighborhoods who did not attend after-school programs. As shown in the above literature, there are mixed results on if after-school programs are benefiting children academically. While some studies show negative findings, reviews such as Riggs and Greenberg's (2004) conclude positive effects for academic development. If children are attending high-quality after-school programs, then the pathways listed in the above literature will

help moderate the effects of living in high-risk neighborhoods and have potential to improve children's academic development.

Hypothesis 2: Children growing up in high-risk neighborhoods will not benefit behaviorally from attending after-school programs. Once again, the previous literature has shown mixed results when assessing behavioral development and after-school programs. But most of the literature does not focus on children living in high-risk neighborhoods, therefore not controlling for neighborhood effects. The theories on neighborhood effects and studies show that children need quality institutional resources and positive relationships and social ties (Wilson, 1987; Sampson 1997; Jencks et al., 1990). Even as much as current after-school program have to offer, if they are not high-quality or designed to meet each child's needs, then they cannot make up the resources the children are missing out on while at home. More importantly, they cannot erase the norms children are learning from growing up in high-risk neighborhoods where they are exposed to such harmful environments including violence, drugs or abuse. Current research such as Vandell and Pierce's 1999 study "Can After-School Programs Benefit Children Who Live in High-Crime Neighborhoods" also supports this hypothesis by concluding that academically at-risk children who attended after-school programs were less likely to use positive conflict resolution strategies compared to similarly at-risk children who did not attend after-school programs.

III. Methods

Data

Data analyzed in the study are reports of academic and behavioral outcomes during kindergarten and first grade for children who live in high-risk neighborhoods. Analyzed data were draw from the Early Childhood Longitudinal Study, Kindergarten class (ECLS-K). These data were collected by the National Center for Educational Statistics (NCES). The ECLS-K provides a national representative sample comprised of approximately 17,000 children in the United States. ECLS-K concentrates on the children's early experiences of schooling. Descriptive characteristics include information on children's neighborhoods, families, schools and classrooms. To collect data children, school administration, parents and teachers were asked to complete questionnaires and interviews (ECLS-K Study Information). These data used were collected in the spring of 1999, when the children were in kindergarten, and the spring of 2000, when the children were in first grade.

The total ECLS-K population includes 17,565 children. Analyses were restricted to children who had data on both the neighborhood risk and after-school program variables. Neighborhood risk data was collected from the school administrator's questionnaire, describing the amount of risk found in the neighborhood. Of the 17,565 there were 3,663 children with missing data due to incomplete administrators surveys, leaving 13,901 cases.

Of the 13,901 children left in the sample, 12,886 children lived in low-risk neighborhoods leaving 7.3% (n=1015) of the sample who lived in high-risk neighborhoods (High-risk neighborhoods defined in measures section), Of these 1015, 168 children had missing data collected from the parent interviews on whether or not they attended an after school

program, leaving 83.4% (n=847) of children who had data from the after-school program variable.

Compared to children in the sample population, the 168 children with missing data, had mothers who were less educated, and were more likely to come from poor families. They also came from step or cohabiting families (39.3%) as compared to our sample population where children were more likely to live in homes with their two biological parents (46.5%). 40.5 % of the children with missing data were Hispanic and 31% were black. Due to the non-random nature of these missing data, my sample slightly under-represents the experiences of the more disadvantage children in these high-risk neighborhoods.

Missing data was handled in two different ways. Except for neighborhood risk and after-school use, the independent variables used in the study had little missing data. Table 1 in the results section shows the percent of the sample with missing data on each control variable. Missing data was imputed at the means or the modal category. The dependent variables used in the study came from different data sources (independent assessments, teacher reports). I did not impute missing data on the dependent variables therefore the N changes across models.

Measures

Child characteristics

The ECLS-K collected and assessed data on children's academic and behavioral outcomes in both the spring of 1999 and the spring of 2000. Trained independent evaluators assessed each child individually, with each session lasting approximately 50 to 70 minutes. The assessments were derived from the National Center for Educational Statistics (NCES).

Reading and math scores were collected from each child in the study to assess cognitive abilities. The reading assessment was composed of five components; (1) identifying upper- and

lower-case letters of the alphabet by name; (2) associating letters with sounds at the beginning of words; (3) associating letters with sounds at the end of words; (4) recognizing common words by sight; and (5) reading word in context. An example of a question asked to the children is to recite all letters of the alphabet. The mathematical assessment was composed of three sections; (1) conceptual knowledge, (2) procedural knowledge and (3) problem solving. An example of a mathematical question is asking the children to count beyond ten (ECLS-K Users Manual).

For this analysis, I used T scores created by the NCES, a measure that NCES recommends to users interested in conducting longitudinal analyses. A change score was later created by subtracting kindergarten scores from first grade scores to assess improvement or declines in cognition. A positive value indicated that the child improved in reading or math from kindergarten to first grade, while a negative value indicated the child's ability declined during that year relative to other children in the same grade.

The Social Rating Scale (SRS) was used to assess a child's behavior. The SRS asked teachers to describe how often a child exhibited each behavior. This scale is comprised of five subscales: (1) approaches to learning, (2) self-control, (3) social interaction, (4) externalizing problem behaviors and (5) internalizing problem behaviors. For the purpose of this study, I am looking at the 4^{th} and 5^{th} subscales of the scale. Examples of internalizing behaviors include a child's appearance of anxiety, loneliness and self-esteem. Examples of externalizing behaviors include the frequency in which a child acts out, argues, gets angry or disturbs classroom activities. Answers ranged from one (never) to four (very often) with a mean of 1.6 (SD .5-.6) for both internalizing and externalizing behaviors. A higher score indicated a child displayed more behavioral problems inside the classroom. Additional information on the direct child assessments can be found in the ECLS-K users manual.

After-school Program

During the spring parent interviews, data was collected on whether or not a child attended an after-school program. A dummy variable was then created to be used in the analyses, coded 0 if the child did not attend an after-school program, 1 if the child attended an after-school program.

Neighborhood Risk

The amount of risk found in the neighborhood of each school is located in the school administration questionnaire. This is referred to in the data as the neighborhood risk scale. The school administration was asked "How much of a problem are the following in the neighborhood where the school is located?' Each of the following items were assessed; Tension (racial, ethnic, religious) Litter, Drugs, Gangs, Traffic, Violence (drive by shootings), Vacancy and Crime. The Alpha of the scale was .89. All responses ranged from 1 to 3, 1 indicating a big problem in the community and 3 not a problem in the community. The mean of all eight categories was then computed for each child, which became their overall neighborhood risk score.

High-risk Neighborhood

I created a high-risk neighborhood variable in order to limit my population to only those children who lived in neighborhoods where they were at risk due to exposure to tension, litter, drug, gangs, traffic, violence, vacancy and crime. To create this variable, I looked at the data collected on neighborhood risk for each of the children in the sample. Most children in the study lived in low-risk neighborhoods meaning they had a score greater than 2. A score between 1 and 2 on the neighborhood risk scale meant that on many of the components in this scale, the administrator said it was a big problem, indicating they lived in a high-risk neighborhood. Therefore, I am looking at the extreme tail of this variable but a very policy relevant group. A

dummy variable was created for if the child lived in a high-risk neighborhood, coded 0 if the child did not live in a high-risk neighborhood and 1, if the child lived in a high-risk neighborhood.

Control Variables

Control variables are used in the study to account for differences in child care needs and family resources that can influence program use and child outcomes. These variables include maternal and family characteristics.

Maternal Characteristics

Maternal age, education and employment were used in the study to show differences in the type of children who were placed in after-school programs compared to those who were not. Maternal age is a linear variable found at the start of the fall parent questionnaire. Maternal education is a categorical variable with answers ranging from one to four (1= less than a high school degree, 2=high school degree, 3= some college education, 4=Bachelors degree or higher). Maternal employment is also a categorical variable, answers ranging from one to three (1= Mother works full time, 2= Mother works part time, 3= Mother does not work)

Family Characteristics

All families differ, whether in structure, finances, race, and employment, which ultimately tie together and influence the need for an after-school program in some cases. To show this, the study uses the family structure variable, a categorical variable with answers ranging from one to five (1=two married biological parents, 2= two not married biological parents, 3= step/cohabitation 4= single parent, 5=no parent household).

The variable called poor was used in the study to show a family's financial situation. The variable is based on a family income-to-needs ratio calculated by the NCES. This is a dummy variable shown in the data, coded 0 if the family is not poor, and 1 if the family is poor.

Additional characteristics

Additional characteristics found in the data are also important regarding the comparison of the two groups, those who attended after-school programs and those who did not. Race/ethnicity of each child is found in the data. This variable is categorical, ranging from one to four (1= White, 2=Black, 3=Hispanic, 4=missing/other). Additionally, the percentage of the student body that is Black, and the percentage that is Hispanic were also important to our comparison. These are both found in the school administrator's survey. The racial composition of the school might influence the availability of after-school programs and the child's learning, which lead me to control for the composition of the school in my analyses.

Analysis

To assess the study's hypotheses, it was first important to run descriptive statistics comparing children who attended after-school programs to children who did not. This was important because it allowed me to observe what type of children were attending after-school programs, which may influence the results.

Next, I ran two sets of analyses. The first set measured cognitive outcomes and the second behavioral. Independent Sample T-Tests were used (using T scores for cognitive outcomes) to determine if children who attended after-school programs had improved their math and reading scores, as well as their external and internal behaviors compared to children's scores who did not attend an after-school program.

Lastly, regression models were used, with change scores of math, reading, and external and internal behaviors as the dependent variables. Running regression models allowed me to control for any differences found in the data between the two groups.

IV. Results

The descriptive statistics are important to the study's results because they showed the difference in who attended after-school programs and who did not. The statistics gave me insight into why I may have found certain outcomes in the models. Overall, the statistics showed that out of the 847 children in the sample population, 15 % attended after-school programs. On average, the children who attended after-school programs were more advantaged than those who did not. Independent Sample T-Tests were used to show significant differences for linear variables. Chi-square tests were used to show differences between the groups for categorical variables. Listed below are some examples of differences between the sample populations. Statistics are shown in detail in Table 1 below.

Table 1: Means Table:

	Attends After-School Program (n=125)	Does Not Attend After-School Program (n=722)	N	% of missing data
Variable	Mean (%) / SD	Mean (%) SD		%
Maternal age	32.4 (6.7)	32.4 (7.8)	836	1.2%
Maternal education			838*	1.1%
Less than high school	16.8%	32.3%		
High school degree	34.4%	35.3%		
Some college	32.8%	25.0%		
BA +	16%	7.4%		
Maternal Employment			826 *	2.5%
Full Time	77.4%	42.5%		
Part Time	15.3%	15.4%		
Does not work	7.3%	42.2%		
Poor	28.8%	49.4%	847 *	0%
Family Structure			847	0%
2 married biological	40.0%	47.5%		
2 not married biological	7.2%	7.6%		
Step/Cohabitation	10.4%	8.6%		

Single parent household	36.8%	32.3%		
No parent household	5.6%	4.0%		
Race				
White	28.8%	14.0%		
Black	30.4%	25.6%		
Hispanic	25.6%	40.0%		
Other	15.2%	20.5%		
Racial composition of student body			812	4.1%
<25% Black	60.9%	62.0%		
>=25% Black	39.2%	38.0%		
Racial composition of student body			812	4.1%
<25% Hispanic	58.3%	56.6%		
>=25% Hispanic	41.7%	43.4%		

: * significant at <.05 level. T-Test when linear, significant difference indicator when categorical

Maternal education displayed a significant difference between the two groups (sig=.000). Children who did not attend after-school programs had mothers who were far less educated. Maternal employment also showed a significant difference between the two groups (sig=.000). Children who attended after-school programs were far more likely to have working mothers than children who did not attend the programs. When looking at the financial situation between the two groups, of the children attending after-school programs, 28.8 % are poor. This is compared to children who did not attend after school programs, where we see 49.4 % are poor. These comparisons clearly indicated more economically advantaged children attended after-school programs.

Table 2: Baseline differences in children's academic and behavioral scores by after school program use

T- Tests	Attends an After-school Program		Does not Attend an after-school program		*p*
Variable	Mean	SD	Mean	SD	
Reading- Kindergarten score	51.16	(9.58)	47.94	(10.08)	.001 *
Math- Kindergarten score	50.31	(9.99)	46.81	(9.99)	.000 *
Externalizing behavior problems-Kindergarten Score	1.98	(0.71)	1.76	(0.63)	.004 *
Internalizing behavior problems- Kindergarten Score	1.77	(0.59)	1.67	. (0.58)	.169

Note: T-test compares means for those who attend an after-school program to those who do not attend an after-school program * Significant at <.05 level

As shown in Table 2 above, reading and math kindergarten scores are significantly different between children who attended after-school programs and children who did not attend at the end of the first year assessment. Children who attended after-school programs had a slightly higher average on reading and math scores.

Behaviorally, children who attended after-school programs had slightly higher externalizing behavior scores ($p<.05$), thus indicating more problem behaviors at the start of our study. Internalizing behaviors were not significantly different when assessing kindergarten scores

Table 3: Changes in academic and behavioral scores across the study period, by after-school program use

T- Tests	Attends an After-school Program		Does not Attend an after-school program		*p*
Variable	Mean	SD	Mean	SD	
Change in Reading scores	-1.02	(6.90)	-0.01	(6.36)	.127
Change in Math scores	-0.91	(7.34)	0.18	(6.45)	.090 +
Change in Externalizing behavior scores	0.10	(0.90)	0.03	(0.69)	.505
Change in Internalizing behavior scores	-0.14	(0.78)	-0.02	(0.74)	.195

Note: T-test compares means for those who attend an after-school program to those who do not attend an after-school program * Significant at <.05 level

Table 3 above displays the results of independent sample T-tests assessing the children's change scores for all dependent variables. This table indicates that math scores for children who attended after-school programs slightly decreased ($p<.05$), significantly more then did the same scores for children who did not attend an after-school program between the kindergarten and first grade assessments. There were no other significant results.

Table 4: Reading and Math Regressions

	Change in Reading	N=705		Change in Math	N=809	
Independent Variable	B	Std. Error	Sig	B	Std Error	Sig
Child attended an After-school program	-1.19	0.69	.085 +	-0.83	0.67	.218
Maternal age	-0.00	0.03	.832	-0.05	0.03	.074+
Mother Works Full Time	0.45	0.59	.449	-0.12	0.55	.827
Mother works part time	-0.59	0.77	.439	-1.69	0.72	.019
Family is poor	-0.22	0.56	.686	0.21	0.52	.683
Child lives with 2 biological parents	0.52	0.56	.351	0.17	0.53	.739
Childs race is Black	-1.61	0.83	.053*	-0.48	0.83	.563
Childs race is Hispanic	-0.51	0.85	.542	-0.52	0.83	.530
Childs race is Other	-0.93	0.81	.251	0.07	0.81	.926
Percent of school that is Hispanic	0.83	0.65	.206	1.66	0.63	.009*
Percent of school that is black	1.09	0.70	.121	0.26	0.68	.695
Mother has less than a high school education	-0.55	0.69	.423	-0.12	0.61	.845
Mother has some college education	-1.08	0.60	.073+	-0.16	0.59	.778
Mother has a Bachelors degree or higher	-1.17	0.92	.203	-2.07	0.92	.025*
Constant	0.62	1.470	.669	1.77	1.38	.201

* Significant at <.05 level

Table 4 above uses a regression model to show study results for academic outcomes. The change scores for reading and math are the dependent variables, while all other independent variables are placed in the model to control for any differences between the two groups. For

children who attended after-school programs, their reading scores marginally decreased ($p<.05$), from kindergarten to first grade. Table 4 above shows this marginally significant result (.085) in change in reading. There were no significant results for children's change in math scores.

Table 5: External and Internal Behavior Regressions

	Change in External	N=680		Change in Internal	N=669	
Independent Variable	B	Std. Error	Sig	B	Std Error	Sig
Child attended an after-school program	-0.06	0.07	.419	-0.13	0.07	.077+
Maternal age	-0.00	0.00	.773	-0.02	0.00	.573
Mother works full time	0.01	0.06	.989	0.08	0.06	.183
Mother works part time	0.03	0.07	.686	0.05	0.08	.528
Family is poor	-0.02	0.05	.622	-0.00	0.05	.902
Child lives with 2 biological parents	0.02	0.05	.714	0.02	0.06	.645
Childs race is Black	0.01	0.09	.867	-0.32	0.09	.001*
Childs race is Hispanic	0.10	0.09	.290	-0.15	0.09	.119
Childs race is Other	0.02	0.09	.827	-0.21	0.09	.021*
Percent of school that is Hispanic	0.04	0.07	.547	0.08	0.07	.252
Percent of school that is black	0.16	0.07	.036*	0.19	0.08	.015*
Mother has less than a high school education	0.05	0.06	.436	0.07	0.06	.314
Mother has some college education	0.05	0.06	.424	0.02	0.06	.705
Mother has a Bachelors degree or higher	0.07	0.10	.469	0.01	0.10	.916
Constant	-0.10	0.15	.504	0.04	0.16	.787

* Significant at <.05 level

Table 5 above uses a regression model to show study results of behavioral outcomes. The change in a child's externalizing behavior problems and internalizing behaviors problems are

used as the dependent variables. The independent variables are used to control for any differences between the two groups. This table shows that there are no significant results found for the change in externalizing behavior problems for children who attended after-school programs. As for the change in internalizing behavior problems, children who attended after-school programs had a slight decrease ($p<.05$), in internal behavior. This is a marginally significant, result (.077) shown in table 5 above. This is a positive result indicating that children who attended after-school programs lowered their internalizing behavior score, which meant they displayed fewer signs of anxiety and loneliness.

V. Discussion

Results from this study do not support the study's two hypotheses. The first hypothesis, academic outcomes, anticipated that children's math and reading scores would increase due to attending after-school programs. Instead, I found that on average the reading scores for the children who attended after school programs slightly decreased. No significant findings were found for children's overall math scores. These results may be due to many different reasons. One reason may be due to the characteristics of the children in the study. Children who attended after-school programs were more advantaged than the children who did not attend. A second reason may be that the children who are attending after-school programs are overwhelmed and overworked throughout the day. These children attend formal schooling all day and then attend after-school programs for another two to three hours. They may just be exhausted and not want to sit down and complete homework assignments or simply need time to relax or play outside. This would mean that they are not receiving the benefits from attending the after-school program because their minds and bodies have simply shut down for the day.

The second hypothesis, behavioral outcomes, anticipated that children's externalizing behavior problems and internalizing behavior problems would not benefit from attending after-school programs. The results found that on average, children's internalizing behaviors were affected by attending after-school programs. Children were seen to display fewer internalizing behaviors meaning they were less anxious inside the classroom and were more social with peers. No significant results were found for children's externalizing behavior problems. The difference I found in internalizing behavior problems may have been a result of other influences such as children forming relationships with teachers and/or classmates, and the overall classroom environment.

Although this study had prominent strengths, (nationally representative sample size, longitudinal design) it also had some limitations. First, because the data was observational, we have not controlled for every difference between our participants. Experimental data might be better for this type of assessment. Next, is the fact that I had insufficient information on the after-school programs the children in our study attended. All I knew from that data was if the child attended an after-school program or not, and where it was located. However, I did not have information involving the design of the program, intensity and duration of participation, or the program quality. As described in the literature review in the background section, these are all important factors that may influence the effectiveness of after-school programs. Another limitation to the study is that I used un-weighted data. I could not weight the data properly which reflected in not using weights at all, which once again may have changed the results I found. Lastly, children who had missing data in our study were left out of our sample. Because of this, the participants in the study may not have perfectly reflected the actual population of children living in high-risk neighborhoods and attending after-school programs. This leads me to believe that it is possible for the results to change if future research controlled for such limitations.

In sum, this thesis provides relevant information on the effects of after-school programs for children growing up in high-risk neighborhoods. I hope these findings will help design future studies assessing effects of after-school programs and help to end the uncertainly found in the literature on after-school programs effectiveness.

Bibliography

Afterschool Alliance. (2009, August) Afterschool Issue Overview: Fact Sheet. Retrieved October 27, 2009 from http://www.afterschoolalliance.org/researchFactSheets.cfm

Ainsworth, J. (2002). Why Does It Take a Village? The mediation of Neighborhood Effects on Educational Achievement. *Social Forces,* 81(1), 117-152.

Bronfenbrenner, U. (1979). The ecology of human development. Cambridge, MA: Harvard University Press

Brooks-Gunn J, Duncan GJ. (1997). The effects of Poverty on Children. *The Future of Children Children and Poverty*, 7(2), 55-71.

Cooper, H., Valentine, J.C., Nye, B., & Lindsay, J.J. (1999). Relationships Between Five After-School Activities and Academic Achievement. *Journal of Educational Psychology,* 91, 369-378.

Cosden, M., Morrison, G..,Gutierrez, L., & Brown, M. (2004). The Effects of Homework Programs and After-School Activities on School Success. *Theory into Practice,* 43(3), 220-226.

Daud, R., & Carruthers, C. (2008). Outcome Study of an After School Program for Youth in a High Risk Environment. *Journal of Park and Recreation Administration* 26 (2) 95-114.

Dynarski, M., Burdumy, J., & Deke, J. (2003). When Schools Stay Open Late: The National Evaluation of the 21st-Century Community Learning Centers Program. Washington, DC: Mathematica Policy Research.

Eccles, J. 1999. The Development of Children Ages 6 to 14. *The Future of Children When School is Out,* 9 (2), 30-44.

ECLS-K, Base Year Public-Use Data File, Kindergarten Class of 1998-99: Data Files and Electronic Code Book (Child, Teacher, School Files), and User's Manual

Erikson, E.H. (1963). *Childhood and society (2nd ed.*). New York: Norton.

Halpern, R. (1999). After-school programs for low-income children: Promise and challenges. *The future of children: When school is out, 9,* 81–95.

Jencks, C., & Mayer, S. (1990). The Social Consequences of Growing Up in a Poor Neighborhood. *Inner-City Poverty in the United States* (pp. 111-186). Washington D.C: National Academy Press.

Leventhal, T., & Brooks-Gunn, J. (2000). The Neighborhoods They Live in: The Effects of Neighborhood Residence on Child and Adolescent Outcomes. *Psychological Bulletin, 126(2),* 309-337.

Leventhal, T., & Brooks-Gunn J. (2004). A randomized study of neighborhood effecs on Low-Income Childrens Educational Outcomes. *Developmental Pyschology,* 40(4), 488-507.

Morrison, G.M., Storino, M.H., Robertson, L.M., Weissglass, T., & Dondero, A. (2000). The protective function of after-school programming and parent education and support for students at risk for substance abuse. *Evaluation and Program Planning, 23,* 365-371.

National Institute of Child Health and Human Development Early Child Care Research Network. (2004). Are Child Developmental Outcomes Related to Before- and After-School Care Arrangements? *Child Development,* 75, 280–295.

Park, R. (1916). Suggestions for the investigations of human behavior in the urban environment. *American Journal of Sociology, 20(5),* 577-612.

Posner, J. K., & Vandell, D. L. (1999). After-school activities and the development of low-income urban children: A longitudinal Study. *Developmental Psychology,* 35, 868–879.

Posner, J. K., &Vandell, D. L. (1994). Low-income children's afterschool care: Are there beneficial effects of after-school programs? *Child Development*, 65, 440–456

Ross, J.G., Saavedra, P.J., Schur, G.H., Winters, F., & Felner, R.D. (1992). The effectiveness of an after-school program for primary grade latchkey students on precursors of substance abuse. *Journal of Community Psychology*, 22-38.

Riggs, N. R., & Greenberg, M. T. (2004).After-School Youth Development Programs: A Developmental-Ecological Model of Current Research. *Clinical Child and Family Psychology Review*, 7(3), 177-190.

Sampson, R. J., & Morenoff, J. (1997). Ecological perspectives on the neighborhood context of urban poverty: past and present. In Neighborhood Poverty*: Policy Implications in Studying Neighborhoods*, ed. J Brooks-Gunn, GJ Duncan, JL Aber. Vol 2, 1–22.

Sampson,R.J., Morenoff, J., & Gannon-Rowley, R. (2002) Assessing "Neighborhood Effects": Social Processes and New Directions in Research. *Annual Review of Sociology*, 28, 443-478.

Samspon, R., Raudenbush, S.W., & Earls, F. (1997). Neighborhoods and Violent Crime: A multilevel study of collective efficacy, *Science, 277*, 918-924.

Tucker, C.M., Chennault, S.A., Brady, B.A., Fraser, K.P., Gaskin, V.T., & Dunn, C. (1995). A parent, community, public schools and university involved partnership educational program to examine and boost academic achievement and adaptive functioning skills of African-American students. *Journal of Research and Development in Education*, 28, 174-185.

Vandell, D. L., & Pierce, K. (1999). Can after-school programs benefit children who live in high-crime neighborhoods? In Marshall, N.L., (1999). Children's out-of-school-times. The next generation of research. Society for Research in Child Development. Albuquerque, NM.

Vandell, D.L., Reisner, E., & Pierce, K. (2007). Outcomes Linked to High-Quality Afterschool

Programs: Longitudinal Findings from the Study of Promising Afterschool Programs. Washington D. C.: Policy Studies Associates

Vygotsky, L., (1987). Mind in Society. Cambridge, MA: Harvard University Press.

Wilson, W.J. (1987). *The Truly Disadvantaged.* University of Chicago Press, Chicago, IL

ACADEMIC VITA of Lauren Ruth Robbins

Lauren Robbins
156 Lefferts Road
Woodmere NY, 11598
Lrr5030@psu.edu

Education: Bachelor of Science Degree in Human Development Family Studies, Penn State University, Spring 2010
Honors in Human Development Family Studies
Thesis Title: Children Living in High-Risk Neighborhoods and After-School Programs
Thesis Supervisor: Kathryn B. Hynes

Related Experience:

Summer 2008, 2009
New Town Day Camp
14th St Y of the Educational Alliance, New York City
Camp Counselor

- Effectively enforced learning style and standards provided by administration
- Designed and implemented daily schedule and activities
- Maintained a safe and warm atmosphere for the 5 year old division

Summer 2007
Hebrew Academy for Special Children Inc.
(HASC), Brooklyn, New York
Summer Teacher's Assistant

- Supervised the daily activities of children with special needs
- Organized and planned a schedule to encourage a sense of routine among the students
- Developed a sense of professional responsibility and patience

Awards:

Dean's List
National Society of Collegiate Scholars

Presentations/Activities:

Active member of Sigma Delta Tau Sorority at The Pennsylvania State University, Penn State Dance Marathon