

**INEQUALITIES IN SCHOOL READINESS:
HOW SOCIAL CLASS, PARENTAL INVOLVEMENT AND EARLY CHILDHOOD
PROGRAMS INTERSECT**

A THESIS

Presented to

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On my honor
I have never given nor received
unauthorized aid on this thesis.
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ABSTRACT

This study addresses the negative effects of low socioeconomic status (SES) on early childhood cognitive development, moderating variables, and variables that mitigate disparities. In a sample of 3,960 parents/guardians answering for their child, I use OLS regression models to examine SES measures that negatively impact early childhood cognitive development as well as models to examine potential mitigating variables. Being black or Hispanic, coming from a low income household, and having a parent/guardian with low education levels are associated with lower levels of early childhood development. Parental involvement and program participation positively impact school readiness levels. I conclude by drawing attention to the need for prevention of disparities early on in childhood to foster the decrease in the cycle of inequality.

Keywords: early childhood, cognitive development, SES, school readiness, education, parental involvement, program participation, inequality

INTRODUCTION

For decades now, educators, researchers and policy makers have been investigating the school readiness gap among children before they enter kindergarten. At large, disparities seen in children entering kindergarten are due to factors related to the child's home life. The first years of a child's life are critical to their overall development and it is these years that are closely spent with a parent/guardian or other relatives who facilitate learning and growth.

School readiness is the child's cognitive, social, and emotional development. They learn executive functions early in their life to allow them to successfully function in a classroom setting. Although the social and emotional aspects are just as important for school readiness, this study focuses on the cognitive aspects of school readiness to investigate why children from households of low SES are associated with lower levels of school readiness (Tunceli, Berrin 2013). Inequalities across social classes are a factor of life for many that is unlikely to be solved anytime soon, but recent studies have been searching for ways to overcome the gap of disparities in school readiness.

This study addresses how factors stemming from disparities in social class effect early childhood cognitive development. This study as well examines how parental involvement and program participation act as mediators between SES levels and observed disparities in school readiness as well as their potential to mitigate negative outcomes. Finally, this study assesses if program involvement outside of the home compensates for low parental involvement. I use OLS regression models to examine disparities between levels of SES and their impact on development. `predxcon` and `predxcat` commands are used to test interactions between variables that mitigate the effects of poverty.

LITERATURE REVIEW

Disparities in School Readiness

Studies in the United States have consistently shown that low socioeconomic status is related to children's development and academic achievement (Chazan-Cohen, et al 2009; Mistry, Rashmita, et al. 2010). Low SES has negative effects on a child's development, especially their cognitive and school readiness abilities. These negative effects prevent them from developing critical skills so they start behind before even entering kindergarten. Research shows that children who reside in homes of lower socioeconomic status have more difficulties adjusting to and succeeding in a classroom setting than their counterparts who reside in homes of higher socioeconomic status (Schlee, Mullis, and Shriner 2009; Herrold, O'Donnell, and Mulligan 2008).

Disparities in school readiness relate to differences in behavioral and literacy abilities. Low SES children are at a disadvantage in a normal classroom setting because it is an environment they have not been properly equipped to transition to. They are also at a disadvantage because children in poverty are more likely to have lower levels of cognitive abilities, including recognizing letters of the alphabet. Exposure to language is fundamental in literacy development, and on average, children growing up in lower income families have less exposure to rich language than those in higher income homes. They hear fewer words and are less likely to have extended discussions or engage in interactive reading (Bierman et al. 1999;

NAEYC 2009). By 36 months of age, substantial socioeconomic disparities already exist between children in vocab knowledge alone (NAEYC 2009).

Disparities in language acquisition are linked to how SES disadvantages affect parents themselves. Pelletier and Brent (2002) found that parents who perceive themselves as more effective are more involved in their children's education. Typically, this confidence in effectiveness comes with higher education levels of the parent themselves or some type of program that has educated them on the critical role of higher order cognitive skills and ways to promote them (Pelletier and Brent 2002). For example, Parker et al. 1999, found that parents with a good understanding of the importance of play showed better outcomes in cognitive competencies as well as classroom behavior. Parents who do not have an understanding of this or who do not feel like they will be effective in facilitating this, will be less likely to engage with their child in crucial activities that promote development early on. Also, parent's with higher education levels tend to be linked with children showing higher cognitive abilities because education has been a valuable part of their life. Adults with low education levels most likely had parents themselves with unequal opportunities growing up, resulting in them to pass down the trend of not placing an importance on education (Piotrkowski, Botsko, and Matthews 2001).

Research also shows that children from higher SES households are advantaged in school readiness because they have parents with the economic means to provide resources crucial for early development (Berger, Paxson, and Waldfogel 2009). Families who have the means are able to purchase the materials, experiences and services that benefit a child's development and well-being. Economic inequality hinders children from vital resources that aid in development such as books and toys. It is crucial for parents to be able to provide these types of materials for their children to kick start personal development before engaging in learning activities to support cognitive development.

The negative effects that originate from SES disparities undermine a child's ability for school adjustment. School readiness among children who come from varying SES levels fronts for other causal variables of why these children are falling behind cognitively and struggling behaviorally and emotionally. The difficulties children experience reflects the negative impact that low SES has on parenting practices and the ability to obtain and provide necessary resources for educational success.

Parental Involvement

Socioeconomic status has an extensive impact on the ability parents have to be involved in their child's life. Variations in SES can lead to variations in the quality and quantity of involvement with their child, which ultimately either promotes or prohibits school readiness skills depending. In this case SES effects on school readiness are mediated through the role of parental involvement. In regards to school readiness, parents who fall below the poverty line may not have the time or resources to invest in their child's development, as well as the proper knowledge of the importance of school readiness. A great volume of research shows that increased parental involvement has positive effects on school readiness levels among children (Gou and Harris 2000; Herrold et al. 2008; Magnuson, Meyers, and Ruhm 2004). This popular finding holds greater importance when looking at the effects of income levels on child development as parental involvement can mediate the effects of the inequality in school readiness that stems from poverty. Kingston and colleagues' (2013) found that parent

involvement did moderate some of the relationships between socioeconomic resources and social-emotional- behavioral dimensions of school readiness.

Economic hardship causes emotional distress in parents which allows for them to be less attentive to their child's development and education. Hill (2001) found that less supportive parenting strategies had a more negative relationship with pre-reading performance among lower income families than among higher income families. Impoverished parents devote fewer resources both financially and emotionally to their children due to outside stressors that are exclusive to them and not high income families. Parker et al. (1999) found that parents who spent more time helping their children learn skills at home reported higher overall cognitive and language competencies. This study stresses the role of a primary parent/guardian to facilitate early learning.

Parental involvement as well can mitigate effects of low socioeconomic status on school readiness. In cases where families of low socioeconomic status do not have other factors from low income to hinder their involvement, increased involvement can counter other effects that low SES has on school readiness. Studies point out that despite income level, parental involvement is one of the sole variables that affects child development. Some say that regardless of income, parents who can provide resources and be involved with their child will see less of a disparity than their privileged counterparts (Schlee et al. 2009; Ma et al. 2016). For example, Ma et al. (2016) found that the role of parents was more important than the role of schools and communities on learning outcomes. They went deeper into this finding to say that income and social status are not accurate predictors of academic achievement in school, but the extent to which a family is able to create a home environment that encourages learning, communicate high expectations for achievement, and becoming involved in their child's education at school and in the community are accurate predictors. This study emphasizes the vital role parents play in early childhood development across all domains.

Program Participation

While the literature has pointed to the ways in which parental involvement is a mediator between SES and school readiness and how it can also mitigate the effects of SES disparities on child development, it expresses a similar role of early childhood programs geared for aiding in development of children in lower income homes. Research has yielded evidence that early childhood programs for low income children can produce sizeable improvements in school success (Barnett 1995; Benasich, Brooks- Gunn, and Clewell 1992; Anderson et al. 2003). These programs focus on encouraging parents to become more involved by offering them better resources and knowledge that they do not have easy access to unlike advantaged families. These programs offer home visitations, where families are evaluated and offered resources that will benefit the family first to in turn be able to invest fully in their child's development, as well as offers health screenings and classes for the child directly to assess their needs in their own development.

A well-known example of a program like this is Head Start. Head Start is a national federally sponsored early childhood education program developed to reduce socioeconomic disparities in school readiness (Bierman et al. 2008). The program provides education, health, nutrition, and social services to children and their families through direct services or referrals (Barnett 2002). A lot of literature favors the effectiveness of early childhood programs using research based on results from implementation of Head Start programs because it is a well-

known and widely used program. For example, Parker et al. (1999) found that mothers who were more involved in Head Start were less aggravated and less likely to be strict with their children.

The benefits of early programs like Head Start lie in the ways in which the programs not only provide resources for children, but equip families with vital resources to be able to be a positive role in their child's development. Early childhood programs increase positive parenting practices, decrease neglect and abuse, and increase parent's rates of involvement not only with their child at home but involvement in their child's school itself. Programs that offer home visitations, allow for an outsider to evaluate the needs of the family and provide proper knowledge and direction to necessary health, psychological, educational and food resources that in turn foster an at home environment that encourages learning (Council on Child and Adolescent Health 1998).

Early program participation has long-term effects for early childhood development. There is strong evidence of their effectiveness in preventing delay of cognitive development and increasing school readiness. One study concluded that the effects of early childhood programs can mean the difference between failing or passing, regular or special education, staying out of trouble or becoming involved in crime and delinquency, and dropping out or graduating from high school for lower income kids (Barnett 1995). These programs can act as preventative measures for children from lower income families whose parents are unable to pay for programs or educate and provide support their child needs on their own. Another study of children involved in a Head Start program at the age of four found that the program narrows the gaps between disadvantaged children and all children in vocabulary and writing skills (Abbott- Shim, Lambert, and McCarty 2003).

This study adds to the body of literature surrounding the disparities in school readiness by emphasizing negative effects of low SES on development and how programs can counter these effects not only by directly providing learning services to the child, but indirectly as well through parents by providing education and access to resources to better equip them to support their child.

METHODS AND DATA

This study makes use of a section of the National Household Education Surveys (NHES) developed by the National Center for Education Statistics (NCES). The surveys that comprise the NHES are integral data collection tools for addressing topics that cannot be studied through institutional data collection. By collecting data directly from households, the NHES has allowed the NCES to gather data on a wide range of issues, such as early childhood care and education, children's readiness for school, before and after school activities of school-age children, adult basic and work-related education, parents' involvement in education, school choice, and homeschooling. Surveys were administered through a web-based questionnaire and by mail. The NHES 2016 surveys were designed to provide nationally representative data about topics central to education policy and research. Multiple surveys are conducted at the same time due to high costs associated with screening large numbers of households in order to meet sample size requirements for nationally representative estimates.

More specifically, this study utilizes the Early Childhood Program Participation (ECP) Survey component from the 2016 NHES. This survey focuses on children aged six or younger who are not yet enrolled in kindergarten. The questionnaire covers children's participation in early education and care arrangements provided by relatives or nonrelatives in private homes,

center-based day care, or preschool programs (including Head Start). Additional topics include family learning activities, early literacy and numeracy skills, out-of-pocket expenses for non-parental care and education, factors related to parents' selection of providers, and parents' perceptions of care and education quality. Parents were also asked about child characteristics, including the child's health and disability status; characteristics of the child's parents or guardians who live in the household; and household characteristics. The survey instructions requested that the respondent be a parent or guardian in the household who knew about the sampled child's care and education (NCES, IES, U.S. Department of Education).

Measures

In this study survey questions pertaining to school readiness are used to measure early childhood cognitive developmental level. To operationalize development, I created a composite variable using variables measuring different early educational abilities including: the ability to count, write first name, recognize letters of the alphabet, and identify color by name. A primary parent/guardian was asked these questions about their child with answer options ranging from if the child was simply able to do the task or not to providing a scale of ability; for example, if the child was able to recognize all letters, some, or none at all. These variables were standardized to create a developmental index score ($\alpha = 0.96$) of early childhood development. Other studies have similarly operationalized cognitive school readiness by standardizing dimensions of academic readiness skills of literacy, language, and numeracy (Reardon and Ximena 2015; Fitzpatrick, Mckinnon, Blair, and Willoughby 2014).

In this study, age and sex of child are controlled for due to the fact that girls typically develop faster than boys and the older kids are, the more likely they will be able to read and function cognitively because, in theory, they have experienced more learning (Cooper, Osborne, Beck, and McInahan 2011). By controlling for these variables, the study is able to rule out the effects of these variables to better focus on the main determinants of concern on development. Main determinants of concern include: total household income, parent education level, child's primary care provider, if the child has participated in an early childhood education program outside of the private home and if so if the program was a Head Start program, and parental involvement in educational activities with their child. These variables are the primary factors in this study when looking at what affects differing levels in school readiness amongst children.

On the survey, the primary parent/guardian was asked which category best fits the total income of all persons in their household over the past twelve months with a total of ten options of income levels ranging from \$0 to \$150,001 or more. This question was collapsed into five income categories in this study for ease of interpreting results. The parent education level variable was taken from a question on the survey asking for the highest level of school the first primary parent/guardian had completed. There were eleven options of schooling that were grouped into five categories to be easier displayed. Total household income and parent education act as measures of socioeconomic status in this study. The child's primary caregiver was determined from a question on the survey asking if the child is now receiving care from a relative other than a parent or guardian on a regular basis. For the purpose of this study, the focus is whether or not the child's primary caregiver is not their parent/ guardian and not necessarily which relative provides the care. The variable measuring child program participation was specified by whether or not the child is attending a day care center, pre-school, or prekindergarten outside of the private home, and whether or not the program is a Head Start

program. Including Head Start in this measure is able to specify between children who are receiving a free program geared for low income families vs. other types of early educational programs. Parental involvement in educational activities with their child is a composite (alpha= 0.83) formed from measures of involvement including how many minutes per week the parent/guardian has spent reading with their child, and if the parent/guardian has done the following activities with their child, not at all, 1 or 2 times, or 3 or more times in the past week: told a story to child, taught the child letters, words, or numbers, spent time on arts and crafts with child, and sang songs with child.

Methods

I used Stata Statistical software to conduct bivariate analyses to examine differences in early childhood development across multiple domains to choose which independent variables to include in analyses. Then, I developed four ordinary least squares (OLS) regression models predicting the effects multiple independent variables had on early childhood development. Age, sex of child, and race and ethnicity were controlled for, while primary caregiver of child, race of child, total household income, parent education, program involvement, and parental involvement acted as possible causal factors. Children under the age of two were excluded from analysis due to the fact that they were not included in the questions on the survey pertaining to school readiness that were used to create the developmental index score. Children who were six were also excluded from this study due to a low population in this age group. These two elements left children over the age of two through the age of five to be the focus age group of the study.

Before running the OLS regression model, multicollinearity, outliers, and heteroskedasticity were tested for. A mean VIF of 1.6 was produced, indicating no concern of multicollinearity. There were six potential outliers but none were high in their leverage and squared residual, and since there were so few out of a large sample, they were noted but left in the analysis in confidence that they would not heavily skew any data. Due to an even distribution of residuals, results were not indicative of heteroskedasticity.

Looking beyond the individual effects of variables on childhood development, I conducted a test to predict the probabilities of the regression to see if parental involvement and program participation had positive effects on childhood development, despite the negative effects from low SES, to see if these variables acted as moderators. I also used the predxcon command to see if program participation increased parental involvement. Finally, I used the predxcat command to see the ability of programs to compensate for SES disadvantages.

Table 1. Descriptive Statistics of Regression Variables (n= 3,960)

	Mean	SD	Min	Max
Dependent Variable				
Childhood Development	1.26e-09	0.8	-1.9	1.2
Independent Variables				
Parental Involvement	-.00035	0.7	-2.6	2.1
	%(n)			

Program Involvement	
In private home	44.9 (1779)

Outside home, not HS	43.5 (1735)
Outside home, HS	6.2 (247)
Outside home, don't know	5.0 (199)
Total Income	
\$0- \$30,000	20.2 (799)
\$30,001- \$60,000	23.0 (911)
\$60,001- \$100,000	24.3 (964)
\$100,001- \$150,000	16.8 (666)
\$150,001 or more	15.7 (620)
Primary Caregiver	
Parent/ Guardian	26.7 (1059)
Other Relative	73.3 (2901)
Parent Education	
Less than HS	5.6 (220)
HS diploma or equivalent	12.9 (514)
Some college	30.3 (1210)
Bachelor's degree or equivalent	30.0 (1197)
Professional degree	21.3 (849)
Race & Ethnicity	
White, non- Hispanic	58.2 (2304)
Black, non- Hispanic	7.9 (312)
Hispanic	20.8 (822)
Asian or Pacific Islander, non- Hispanic	6.2 (244)
All other & multiple races, non- Hispanic	7.0 (278)
Control Variables	
Sex of Child	
Male	51.6 (2044)
Female	48.4 (1916)
Age of Child	
2	36.0 (1426)
3	27.4 (1084)
4	27.1 (1074)
5	9.5 (376)

*Percentages made not add up to 100 due to rounding

FINDINGS

I develop four OLS regression models to analyze effects of low income, parent education, primary caregiver, parental involvement, and program participation on early childhood development, controlling for race and ethnicity, sex of child, and age of child. Table 1 presents descriptive statistics for the dependent and independent variables used in the regression models. Over half (2,181) of the children from the NHES survey attend a program outside of their private home accounting for 54.7 percent. The number of families in each income level group are fairly evenly distributed. 20.2 percent have a total annual income of \$0- \$30,000 and 15.7 percent fall at \$150,001 or more. 73.3 percent of children have a primary caregiver of a relative other than their parent or guardian. Most parents have either some college or the equivalent to a bachelor's degree, 30.3 percent and 30.0 percent respectively. Only 5.6 percent have an education level of less than high school and 21.3 percent have obtained some type of professional degree. The survey is made up of 58.2 percent children who are White, non-Hispanic and 20.8 percent Hispanic. There is a fairly even ratio of males to females, with 3.2 percent more males. A majority of the children are under the age of 5; 36 percent are two years old, 27.4 percent are three years old, 27.1 percent are four years old, and 9.5 percent are five years old.

Table 2 displays the regression coefficients of each variable. Model 1 includes sex of child, age of child, and race and ethnicity of child to see these effects alone on development. Within this model we see that being male, black, and Hispanic have the most practical significant negative effects on development. We also see that being male has a significant negative effect on development and that as age increase, development significantly increases. This model accounts for 47.1 percent of the variation in early childhood development.

Model 2 adds total household income and parent education. We see that when accounting for measures of socioeconomic status, the negative effects of being male and Hispanic slightly decrease, although they still carry a significant practical effect on early childhood development. Parents who have obtained a professional degree have a slightly positive significant practical effect on early childhood development whereas having an education level of less than high school has a significant practical negative effect on development with reference to those who have a high school diploma or equivalent. All income levels above the \$0-\$30,000 income group have positive effects on development. This model accounts for 51.0 percent of the variation in development. Figure 1 provides a visual of the coefficients from Models 1 and 2. We can see that after accounting for income and parent education, these variables take away the significant effects of other confounding variables, such as being black, non-Hispanic, that we saw had an effect in Model 1, as the coefficients move closer to the reference line of no effect. We see disparities in income lay within race disparities. Race disparities are in large part due to socioeconomic disparities between race and ethnic groups. In this model we also see that age remains fairly constant in having positive effects on development.

Model 3 incorporates parental involvement. With this variable taken into consideration, the negative effects of being male, Hispanic, and having an education level less than high school slightly decrease. Parental involvement carries a practically significant positive effect on childhood development. Within this model we see as well that all income level coefficients slightly decrease, showing that parental involvement accounts for some of the original effects of income in Model 1. This model accounts for 53.0 percent of the variation in childhood development. Figure 2 displays the differences in confidence intervals between these two models. We see the significant decrease in being black non- Hispanic as the plots move closer to the reference line from Model 1 where this had a significant negative effect. As well we see the decrease in the negative effect of being Hispanic. This model accounts for 53.0 percent in the variation of early childhood development.

Table 2: OLS Regression Results

	Model 1	Model 2	Model 3	Model 4
Sex of Child (Female= ref)				
Male	-0.080*** (0.019)	-0.078*** (0.018)	-0.066*** (0.018)	-0.066*** (0.018)
Child Age (2= ref)				
3	0.662*** (0.024)	0.663*** (0.023)	0.666*** (0.023)	0.612*** (0.023)
4	1.203*** (0.024)	1.202*** (0.023)	1.209*** (0.023)	1.121*** (0.024)
5	1.471*** (0.034)	1.466*** (0.033)	1.481*** (0.032)	1.396*** (0.033)
Race & Ethnicity (White, non-Hispanic= ref)				
Black, non-Hispanic	-0.074* (0.036)	0.048 (0.035)	0.031 (0.035)	0.020 (0.034)
Hispanic	-0.219*** (0.024)	-0.087*** (0.024)	-0.084*** (0.024)	-0.079*** (0.024)
Asian or Pacific Islander, non-Hispanic	0.085* (0.040)	0.052 (0.039)	0.069 (0.038)	0.080* (0.037)
All other and multiple races, non-Hispanic	-0.001 (0.038)	0.055 (0.037)	0.039 (0.036)	0.047 (0.035)
Parent Education (high school diploma or equivalent= ref)				

Less than high school	-0.215*** (0.047)	-0.187*** (0.046)	-0.158*** (0.046)
Some college	-0.017 (0.031)	-0.023 (0.030)	-0.028 (0.030)
Bachelor's degree or equivalent	0.078* (0.033)	0.068* (0.032)	0.043 (0.032)
Professional degree	0.115** (0.036)	0.098** (0.035)	0.073* (0.035)
Total Income (\$0- \$30,000= ref)			
\$30,001- \$60,000	0.115*** (0.028)	0.109*** (0.028)	0.103*** (0.028)
\$60,001- \$100,000	0.192*** (0.030)	0.195*** (0.030)	0.179*** (0.030)
\$100,001- \$150,000	0.249*** (0.034)	0.243*** (0.034)	0.197*** (0.034)
\$150,001 or more	0.362*** (0.036)	0.353*** (0.036)	0.292*** (0.036)
Parental Involvement		0.178*** (0.014)	0.178*** (0.013)
Program Participation (In private home= ref)			
Outside home, not HS			0.220*** (0.021)
Outside home, HS			0.194*** (0.039)
Outside home, don't know			0.268*** (0.042)

Constant	-0.559*** (0.020)	-0.802*** (0.035)	-0.802*** (0.035)	-0.843*** (0.034)
Observations	3960	3960	3960	3960
R^2	0.4705	0.5095	0.5298	0.5446

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Finally, Model 4 includes program participation. Attending a program outside of the private home further decreases the negative effects of being Hispanic and having a low education level. Although these effects are still negatively significant on childhood development, we see that parental involvement and program participation mediate the relationship between SES and school readiness disparities. They also mitigate effects as they decrease the variance in childhood development that can be explained by parent education level, income, and race and ethnicity. Figure 3 displays the changes in coefficients when involving program participation. It is also significant to note that the practical significance of parental involvement remains the same between Models 3 and 4.

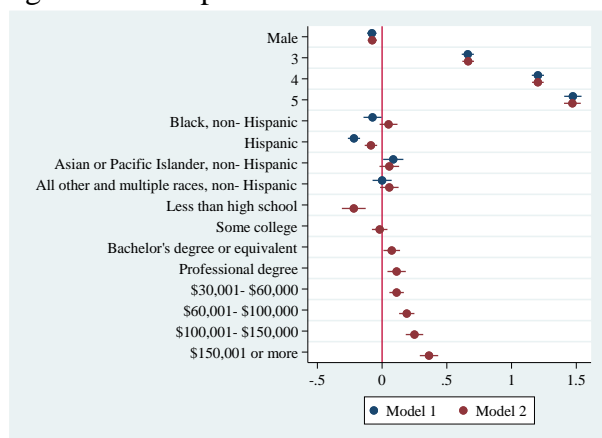


Figure 1. Confidence Intervals of Models 1 & 2.

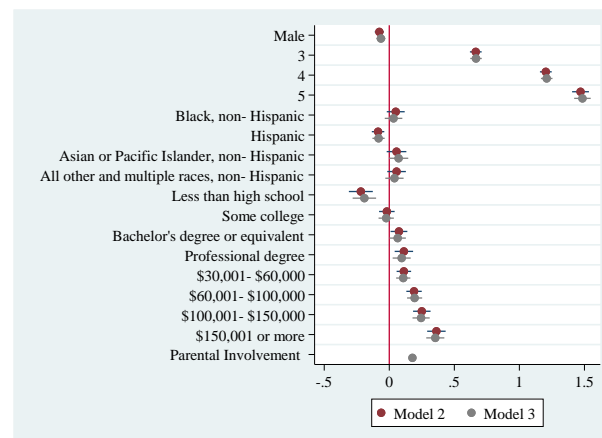


Figure 2. Confidence Intervals of Models 2 & 3.

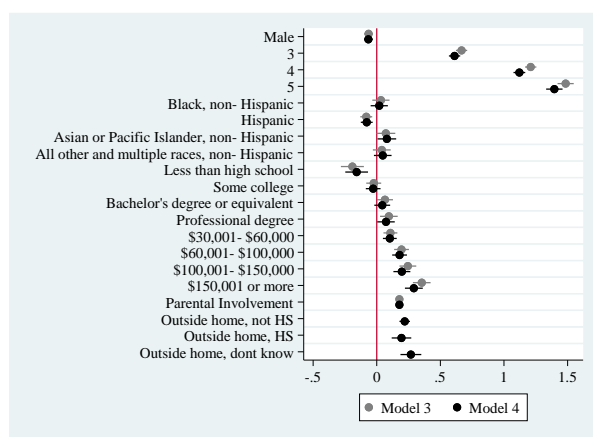


Figure 3. Confidence Intervals of Models 3 & 4.

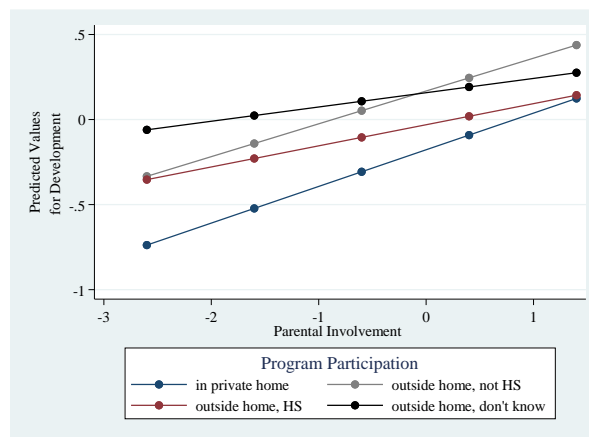


Figure 4. Interaction between Parental Involvement and Program Participation on Estimated Levels of Development.

After looking at the various effects of these independent variables on early childhood development, I tested the interaction between program participation and parental involvement on predicted values of development (See Figure 4). Childhood development is predicted to increase as both program participation and parental involvement increase. It is apparent that any type of program outside the home increases the predicted values in early childhood development. As well, we can see the connection of program participation and parental involvement. It is apparent that at lower levels of parental involvement, program participation can help compensate for disparities in development. However, programs do not add the same value when there is already high parental involvement.

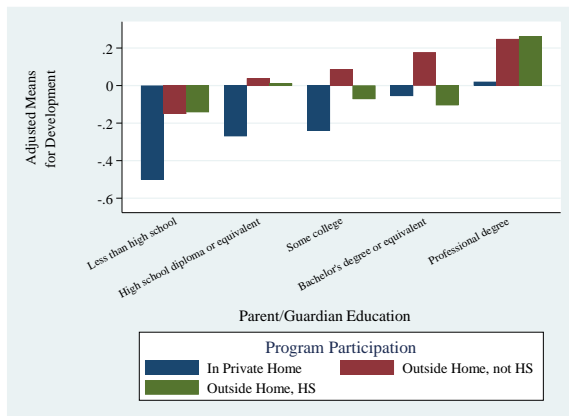


Figure 5. Interaction Between Parent/Guardian Education Level and Program Participation on Development.

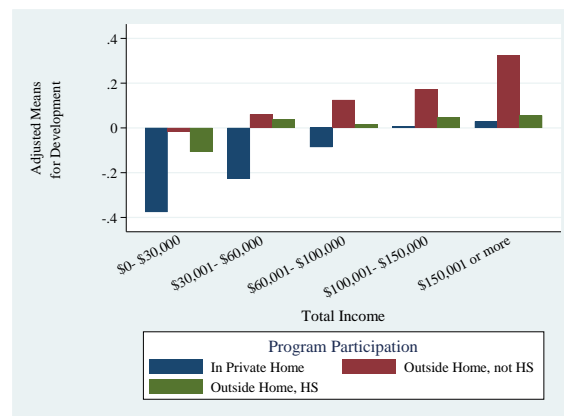


Figure 6. Interaction Between Income Level and Program Participation on Development.

Additionally, I used the `predxcat` command to test the interaction between program participation and measures of SES to see the individual role of programs have on mitigating the disparities in SES. We see again that programs matter the most at lower SES levels, but in Figures 5 and 6 we see as well how programs outside the home are associated with greater equity in preparedness. Although these programs do not fully compensate for the disparities that result from low SES, they do lessen the gap in school readiness levels between children from high and low SES households. In Figure 6, we see the effects of programs having a slightly greater positive effect on school readiness when accounting for income disparities than we do in Figure 5 with parent education disparities. These figures do not show that Head Start is a more beneficial program than any other program outside the home, although it does mitigate effects.

DISCUSSION AND CONCLUSIONS

Overall, measures of SES negatively impacted levels of development. This finding holds true with that of other research that children in lower income homes and parent(s)/guardian(s) with lower education levels display lower levels of cognitive abilities before kindergarten (Chazan-Cohen, et al 2009; Mistry, Rashmita, et al. 2010; Pelletier and Brent 2002). I found that parental involvement and program participation were mediating variables in explaining deficits in development as with lower SES there were lower levels of each. Parental involvement and

program participation were as well important in moderating some of the effects of disparities in SES. I also found the well-known finding that school readiness increases as age increases to be constant. In each model age was the only variable that was for the most part unchanging.

Low levels of parent/guardian education and household income are associated with lower levels of parent/guardian interaction which in turn leads to decreased development. This matches what others have found that parents of lower SES are fronted with more issues to overcome than other parents, resulting in being unable to invest in preparing their child for school (Hill 2002). This study emphasizes the struggle of parents from low SES backgrounds to be able to commit to their child's education and implies the need for future efforts to find ways to aid families in being able to invest in their child.

This study found that programs are always beneficial to development no matter the type. Programs can be helpful to children from high or low income, but we see that they are more critical for those of low income to decrease the inequality gap. Programs can take away some of the effect of other variables prohibiting development due to low levels of SES. This is constant with previous research that programs produced for children of low SES are an important underlying factor in creating similar levels in school readiness across social classes (Barnett 1995; Benasich, Brooks- Gunn, and Clewell 1992; Anderson et al. 2003).

Between Head Start and not Head Start Programs, this study did not conclude like others that Head Start closes inequality gaps. It does diminish effects from SES that children from higher SES do not encounter, however this study did not find that Head Start Programs are more beneficial than others. This could mean that future research might need to look into differences between programs that have a cost and programs that are grant based or government funded. Due to the fact that Head Start is a government based program, we may see in this study that it was lacking in effect compared to other outside programs, because it lacks funding and resources. Future research could look into the need for better funding for early childhood education programs in order to better decrease inequality in school readiness levels. The other outside programs in this study are not distinguished by cost or level of cost, but it is a possibility that could be important to explore to see if these yield better results because they are programs that receive private funding or programs that families directly pay for.

The cycle of inequality perpetuates itself through families. Children reared in SES homes are more likely to fall behind in education and therefore obtain a future like their parents. Factors regarding children's school readiness levels are vital because it is important to recognize that a minority of children require additional support to enter school healthy and ready to learn (Ghandour, et al. 2018). Prevention is necessary in early childhood cognitive development so all children are able to start school at equal levels. There may always be factors that affect a child's learning but if given equal opportunities and investment from the start, they may be more likely to break the cycle.

Limitations and Implications for Future Research.

This study has some limitations. First, the survey was answered by a parent or guardian of the child so there may have been some bias from the respondent. Also, models only accounted for about half of the variance in development, meaning there are many other factors that were not tested for that affect development. This study only includes social factors that impact development, but does not account for health or physical environmental factors that can negatively impact development as well. This study as well only accounts for one measure of

school readiness. School readiness is multi-dimensional and includes social and emotional behaviors as well as academic skills. There is not one single measure to capture all the qualities necessary to be school ready.

There are several implications for future research. First, researchers may investigate other potential causal factors that hinder development to be able to expand on solutions and bettering resources now available that are focused on hindering the gap in school readiness. Scholars might also further examine the positive effects of parental involvement and program participation. They might look into how programs of varying cost levels affect development to emphasize the need for more and better high quality programs for low income children. Researchers as well may investigate the importance of parental involvement to implement stronger courses within more enriched programs for parents.

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