Research Paper

Head Start Impact on Social–Emotional Outcomes for Children With Disabilities

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Abstract

Objective: Using the Head Start Impact Study data, this study examines Head Start's impacts on social–emotional outcomes for children with disabilities. **Method:** Among 4,442 children, 570 children were reported to have disabilities. Ordinary least squares regression was used to determine whether the number of disabilities, having an individualized education plan (IEP), and receiving Supplemental Security Income (SSI) affect social–emotional outcomes for children with disabilities and whether Head Start's impact differs depending on these factors. **Results:** Children with multiple disabilities, an IEP, and SSI had lower social–emotional scores. Head Start impact was found for the following subgroups: children with no disabilities, children who never received an IEP, children living in a higher income household, and Black children. **Conclusions:** Head Start should identify potential disabilities early and support the provision of adequate services to increase social–emotional outcomes for children with disabilities.

Keywords

Head Start, children with disabilities, social–emotional development

Introduction

Head Start began in 1965 during the War on Poverty (Koedel & Techapaisarnjaroenkit, 2012). The program was intended for preschool age children of families in poverty to promote school readiness (Neidell & Currie, 2007). Head Start focuses on literacy, cognitive skills, physical health, social–emotional development, and learning. Head Start is mandated to provide preschool services for children with disabilities and their families (Muccio, Kidd, White, & Burns, 2014). Children with developmental delays are more likely to enter preschool not only with lower cognitive abilities but also with lower social–emotional skills (Baker et al., 2003). Head Start aims to support these skills in the classroom by increasing kindergarten readiness in children with disabilities in the least restrictive environment possible, as outlined in Section 1308.19 of the Head Start Program Performance Standards (U.S. Department of Health and Human Services [USDHHS], Administration for Children and Families [ACF], 2006).

Although there has been much research done on the impact of Head Start on the cognitive and social–emotional outcomes for children with disabilities, there is no existing research regarding the differences in Head Start's impact on social–emotional outcomes, specifically addressing the effects of whether the child has an individual education plan (IEP), receives Supplemental Security Income (SSI), and has a specific number of disabilities. The purpose of this study is to address the following: (1) Do the number of disabilities, having an IEP, and receiving SSI affect social–emotional outcomes for children with disabilities? (2) Do children with disabilities who participate in Head Start have more positive social–emotional outcomes than those who do not participate in Head Start? Does Head Start's impact differ depending on the child's number of disabilities, having an IEP, receiving SSI, and family baseline variables?

Head Start Program Performance Standards for Children With Disabilities

The federal government spent over US$7.9 billion and served nearly one million children in the Head Start program during 2012 (USDHHS, 2012). According to the U.S. Department of Health and Human Services, Administration for Children and Families USDHHS (2006), children with disabilities are either identified before enrollment or identified after starting Head Start services. Federal mandates require that 10% of enrollment opportunities be held for children with disabilities. The Individuals with Disabilities Act of 1975 (IDEA) and its many revisions guide disability program services in the United States and hold significant implications for Head Start support for children with disabilities.

Section 1308 of the Head Start Program Performance Standards and Other Regulations establishes requirements for Head

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Table 1. Descriptive Statistics for Variables Included in the Study.

Head start enrollment status	Not enrolled Head Start	Enrolled Head Start	Total	*p*
n (%)	204 (35.8)	366 (64.2)	570	
Child characteristics:				
Ages	3.5 (0.5)	3.5 (0.5)	3.5 (0.5)	*ns*
Gender (% female)	0.39	0.34	36	*ns*
% Belong to lower quartile at age 3	27	30	29	*ns*
Family characteristics:				
Ethnicity				
Black	23	20	21	*ns*
Hispanic	35	33	34	*ns*
White	42	47	45	*ns*
% Teen mother	14	17	15.6	*ns*
% Married	40	42	41	*ns*
% Less than high school education	42	36	38	*ns*
% Bilingual speaking	81	77	78	*ns*
% Living in urban area	81	85	84	*ns*
Income ($ per month)	1,858 (1,316)	1,856 (1,435)	1,858 (1,421)	*ns*
Number of disabilities	0.9	1.1	1	***
% Children without doctor's diagnosis	34	20	25	***
% Children with one doctor's diagnosis	68	65	66	*ns*
% Children with multiple doctor's diagnosis	29	34	32	*ns*
% Children who had IEP	31	43	39	**
% Children who had ever received SSI	42	51	48	*
Social–emotional outcomes				
Child–teacher relationship[a,b]	61.9 (10.1)	61.1 (10.4)	61.4 (10.3)	*ns*
Child–parent relationship[a,b]	63.4 (10.1)	62.2 (8.1)	62.6 (8.0)	*ns*
Positive approach to learning[b]	12.2 (2.0)	12.1 (2.1)	12.2 (2.1)	*ns*
Social competency[b]	10.9 (1.4)	10.8 (1.6)	10.9 (1.5)	*ns*
Total behavioral problem scores[c]	6.3 (4.2)	6.7 (4.5)	6.5 (4.4)	*ns*

Note. [a]Based on Robert Pianata scale. [b]Higher scores indicate positive socio-emotionaloutcomes. [c]Higher scores indicate more problem behavioral scores. IEP = individual education plan; SSI = supplemental security income.
*$p < .05$. **$p < .01$. ***$p < .001$.

Start preschool programs in delivering services to children who have been identified with disabilities (USDHHS, ACF, 2006). This policy addresses service requirements related to children with disabilities, including service planning, recruitment and enrollment, assessments and eligibility criteria, IEPs, nutrition, parent participation, and transition into public school. Children with specific disabilities are eligible for Head Start, according to the Program Performance Standards and Other Regulations. These disabilities include health impairments, emotional/behavioral disorders, speech or language impairments, mental retardation, hearing impairments, orthopedic impairments, vision impairments, learning disabilities, autism, traumatic brain injury, and other disabilities.

IEPs, Income Assistance, and Number of Disabilities

IEPs requirements are clearly outlined in Regulation 1308.19 (USDHHS, 2006). An IEP for preschool children with an eligible disability is a plan for how the child will be supported in school in the least restrictive environment, along with any necessary modifications, accommodations, or extra services required based on their disability. During the 2010–2011 school year, 6.4 million U.S. children received special education services under IDEA (including IEPs), which was 13% of the total public school enrollment. Children with a specific learning disability received the most services (37%), followed by children with speech impairment (22%). Students with disabilities such as intellectual disabilities, emotional disturbances, developmental delays, and autism each accounted for between 6% and 7% of children and youth served under IDEA. Children and youth with multiple disabilities, hearing impairments, orthopedic impairments, visual impairments, traumatic brain injury, and deaf–blindness each accounted for 2% or less of all children served under IDEA (Aud et al., 2013). For children with high behavioral needs, the IDEA requires a behavioral intervention plan be included in the IEP to address those needs in the classroom (Maag & Katsiyannis, 2006).

Many Head Start children with disabilities qualify for SSI benefits. SSI is a means-tested income support program for low-income adults and children with disabilities. According to the Social Security Administration (2014), eligibility criteria for a child's family to receive SSI include a physical or mental impairment that can be medically documented, which results in severe functional limitations and is expected to last at least 12 months or will result in death. Rupp et al. (2006, p. 29) reports that almost 68% of children receiving SSI had an IEP at some point during their schooling.

> Overall, parents or guardians reported that 50 percent of SSI children had a mental disability, and about 44 percent had a physical disability. For preschool-aged SSI children, physical disabilities were the most frequent, while for SSI children aged 6 to 12 and 13 to 17, mental disabilities were more frequent. About 28 percent of SSI children reported more than one disabling condition.

Kraus, Stoddard, and Gilmartin (1996) state that in the United States there are approximately 4.7 million children (6.7% of the total population of children) with a disability. Head Start programs served 135,914 children with identified disabilities during the 2012–2013 year, which is 12.1% of the total number of children enrolled in Head Start (USDHHS, 2013). "The majority of children with diagnosed disabilities are reported to have either speech/language disabilities (75%) or cognitive impairments (25%)" (Aikens, Klein, Tarullo, & West, 2013, p. 6). Twenty-six percent of children identified with a disability in Head Start have multiple disabilities, 14% have a behavioral or emotional impairment, 9% have a sensory impairment, and 8% have a physical impairment. It is interesting to note that although Rupp et al. (2006) identifies that most preschool age children receiving SSI have a physical impairment, the number of children with an identified physical disability in Head Start is relatively low. This may be because the primary disability of children in Head Start is a diagnosed speech or language impairment (60% of all children in Head Start with a disability), which may not be considered a disability severe enough to qualify for social security benefits (Schmit & Ewen, 2012).

Social–Emotional Development for Children With Disabilities

Social–emotional competence plays a critical role in children's quality of life and lays the foundation for success in their homes, schools, neighborhoods, and adult lives (Brown & Conroy, 2011). Social–emotional competence could be defined when children exhibit maladaptive behaviors (Upshur, Wenz-Gross, & Reed, 2009) that can be witnessed in a child's ability to socially interact and regulate their emotions (Cohen & Mendez, 2009). Research has also shown that "children exhibiting emotional and behavioral problems are likely to demonstrate a host of difficulties within the preschool classroom that interfere with learning and developing peer relationships" (Bulotsky-Shearer, Fantuzzo, & McDermott, 2008, p. 3). Social–emotional outcomes for children with disabilities can be especially challenging to address, as children with disabilities generally begin with lower levels of abilities in this area than children without disabilities. Teachers tend to give lower rates for children with disabilities in areas of compliance, expressiveness, and pro-social behaviors than they rated children without disabilities (Gallagher & Lambert, 2006).

In 2013, Petrenko further stated:

> The prevalence of internalizing (i.e., anxiety, depression) and externalizing (i.e., aggression, noncompliance) behavior problems in young children with developmental disabilities is estimated between 40% and 64% (based on clinical cut-points on behavior rating scales), which is about 2 to 4 times higher than rates in the general population. (p. 652)

Interventions to Enhance Social–Emotional Development

Interventions have been shown to improve social–emotional outcomes in children with disabilities. The Promoting Alternative Thinking Strategies (PATHS) curriculum was developed and taught in Head Start classrooms. PATHS is a "curriculum for 3-5 year olds that includes 44 lessons and focuses on social emotional competence, problem solving skills, self control, prevent or reduce behavior and emotional problems, create a positive classroom" (Arda & Ocak, 2012, pp. 2693–2694). The PATHS program has been shown to be an evidence-based practice for teaching social–emotional skills to preschool children with both teachers and parents reporting improvements in children's social–emotional outcomes (Domitrovich, Cortes, & Greenberg, 2007).

Stanton-Chapman and Snell (2011) found social communication interventions to be effective in increasing turn-taking skills with children with disabilities. Parents also play a role in providing social–emotional support to their children with disabilities. Roberts, Mazzucchelli, Studman, and Sanders (2006) found that behavior training with parents reduced behavior problems in children with disabilities. Macdonald and Hastings (2010) found that teaching mindfulness techniques to fathers of children with disabilities improved child behavior. Combining peer-mediated intervention and social narratives is another evidence-based intervention used to increase pro-social behaviors in classrooms with children with disabilities (Harjusola-Webb, Parke Hubbell, & Bedesem, 2012). Child-centered play therapy has been found to be successful in decreasing disruptive behavior problems when used in Head Start programs with children who have demonstrated aggressive, disruptive, or attention problem behaviors (Bratton et al., 2013).

Recently, the Head Start Impact Study (HSIS) showed that children with disabilities in a 3-year-old age cohort displayed positive social–emotional outcomes illustrated by increased attentiveness, reduced hyperactivity, and improved teacher relationships by the end of first grade (Puma, Bell, Cook, & Heid, 2010). These results indicate that there are benefits on social–emotional outcomes for children with disabilities. It is important to note that the study did not specifically examine which population received more benefits from the Head Start program. For example, the study did not explore children's social–emotional outcomes from the perspectives of the number of disabilities and presence of an IEP or SSI.

Head Start was founded based upon an ecological understanding of human development, a belief that children's development should consider the child, family, and contextual environments in which the child resides (Bronfenbrenner, 1977). As proposed by the ecological theory, children's social–emotional development should be understood by considering the dynamics among child (number of disabilities),

school (IEP), and family (income assistance) factors. Further, other family contextual factors such as income, parental education, and ethnicity have shown effects on children's development and performance in a school setting. Head Start is tasked with mitigating these risk factors and supporting children and families. Examining the number of disabilities, receipt of SSI, and an IEP provide tools for measurement of risk factors and Head Start effectiveness. Using national HSIS data collected with random assignment to Head Start or a control group, this study examines Head Start's impact on social–emotional outcomes for children with disabilities measured at age 5–6 by considering these factors.

Method

HSIS Data

In the 1998 reauthorization of Head Start, Congress mandated that the DHHS determine the impact of Head Start on the children it serves. The HSIS design is based on the random assignment of children and families entering Head Start at the start of the 2002–2003 program year to either a Head Start (program) group or a non-Head Start (control) group to determine the impact of Head Start on the children. To obtain a nationally representative sample of Head Start programs (and the children they serve), the HSIS used a multi-stage sampling process. First, grantee/delegate agencies were clustered, stratified, and randomly selected; second, eligible centers were stratified and randomly selected; and finally, eligible children within these centers were selected. These children were randomly assigned to the Head Start program group ($n = 2{,}646$) or the control group ($n = 1{,}796$). The total sample, spread over 23 different states, consisted of 84 randomly selected Head Start grantees/delegate agencies, 383 randomly selected Head Start centers, and a total of 4,442 children (USDHHS, ACF, Office of Planning, Research and Evaluation, 2010).

Target Sample

The HSIS data were obtained through the Child Care and Early Education Research Connections provided by the Inter-University Consortium for Political and Social Research. Within the HSIS data ($N = 4{,}442$), 570 children reported to have disabilities documented by parents, teacher, and doctors were selected for this study sample.

Measures

Number of disabilities. Within a sample of 570 children, 427 children had the following disabilities diagnosed by doctors, that is, speech/language impairment ($n = 281$, 49%), cognitive impairment ($n = 97$, 22%), behavioral/emotion impairment ($n = 98$, 22%), sensory impairment ($n = 81$, 18%), and physical impairment ($n = 22$, 5%). Participants were divided into the following three groups: children with no disabilities diagnosed by a doctor ($n = 143$, 25.1%), children with one disability diagnosed by a doctor ($n = 286$, 50.2%), and children with multiple disabilities diagnosed by a doctor ($n = 141$, 24.7%).

Head Start enrollment status. Among the 570 children with disabilities, 366 (64.2%) children participated in Head Start and 204 (35.8%) children were in the non-Head Start group. Head Start participants consisted of children with no disabilities diagnosed by a doctor ($n = 74$, 20.2%), children with one disability diagnosed by a doctor ($n = 191$, 52.2%), and children with multiple disabilities diagnosed by a doctor ($n = 101$, 27.6%). Non-Head Start participants consisted of children with no disability diagnosed by a doctor ($n = 69$, 33.8%), children with one disability diagnosed by a doctor ($n = 95$, 46.6%), and children with multiple disabilities diagnosed by a doctor ($n = 40$, 19.6%).

Receipt of IEP and income assistance. Based on parental reports, the status of IEP and income assistance was measured at three points when children were from age 3–4 to age 5–6 (spring 2003, 2004, and 2005). Children with a prior or present IEP were coded 1 ($n = 221$, 38.8%) and those with history of receiving any types of government income assistance (SSI) were coded 1 ($n = 271$, 47.5%).

Children's social–emotional outcomes. Based on a study by Puma et al. (2010), five instruments were selected as indicators for children's social–emotional outcomes. These instruments were measured by either parents and teachers when children were 5–6 (spring 2005).

Social skills and positive approaches to learning. Parents were asked to assess their children's social–emotional outcomes. This measure assesses social skills focused on cooperative and empathic behavior, such as, ''makes friends easily,'' ''comforts or helps others,'' and ''accepts friends' ideas in sharing and playing.'' The measure also assesses aspects of children's approaches to learning such as curiosity, imagination, openness to new tasks and challenges, and having a positive attitude about gaining new knowledge and skills. Examples include ''enjoys learning,'' ''likes to try new things,'' and ''shows imagination in work and play.'' The scale contains 7 items, with each item scored from 0 (*not true*) to 2 (*very true*), and scores can range from 0 to 14. Mean scores on the scale obtained from parents in the sample was 12.2 ($SD = 2.1$, range = 4–14), with higher scores indicating more positive social skills and approach to learning.

Behavioral problem scores. To measure problem behavior of children, parents were asked to rate their children on items dealing with aggressive or defiant behavior, such as ''hits and fights with others,'' ''has temper tantrums or hot temper,'' and ''is disobedient at home.'' Other items dealt with inattentive, hyperactive, shy, withdrawn, or depressed behavior. For each item, the parent was asked to judge whether the behavioral description was *not true*, *sometimes true*, or *very true* of the child. The Total Behavior Problem scale

derived from parent ratings contained 14 rating items, and the total scale score could range from 0 (all items marked *not true*) to 28 (all items marked *very true*). Mean scores on the scale obtained from parents in the sample was 6.5 ($SD = 4.4$), with higher scores indicating more behavioral problems (range = 0–21.3).

Child and parents positive relationship skills. Using the Robert Pianata scale, parents were asked to rate the child on 7 items, such as, ''if upset, this child will seek comfort from me'' or ''this child easily becomes angry at me.'' The parent rated the child on each item using a 5-point response format ranging from 1 (*definitely does not apply*) to 5 (*definitely applies*). The closeness scale contains 7 items and the scores could range from 7 to 35. The conflict scale contains 8 items and the scores can range from 8 to 40. The total positive relationship scale contains 15 items and the scores can range from 15 to 75. Mean total score on the scale obtained from parents in the sample was 62.6 ($SD = 8.0$), with higher scores indicating a more positive child–parent relationship (range = 38–75. 4).

Child and teachers positive relationship skills. Teachers were asked to rate child–teacher relationship based on the Robert Piananta scale. Mean scores on the scale obtained from teachers in the sample was 61.4 ($SD = 10.3$), indicating higher scores as more positive child–teacher relationship scores (range = 28–75).

Social competencies checklist. Parents were asked to provide information on social capabilities using the Social Competencies Checklist. The checklist consists of 12 items. For each item, the parent was asked to report whether the child engaged in that behavior or exhibited that attribute ''regularly'' or ''very rarely or not at all.'' Examples of the items included, ''shares newly learned ideas''; ''takes care of personal belongings''; ''helps with simple household tasks''; and ''notices when others are happy, sad, angry.'' The total scale score may range from 0 (all items rated *rarely or not at all*) to 12 (all items rated *does regularly*). Mean total scores on the scale obtained from parents in the sample was 10.9 ($SD = 1.5$), indicating higher scores as more competent social skills (range = 3–12).

Baseline variables. The following individual and family variables are covariates in this examination of Head Start's impact on children's social–emotional outcomes for children with disabilities. Child characteristics include ages at the time of enrollment, gender (*female* = 1, *else* = 0), and ethnicity (Black, Hispanic, and White). Children's cognitive skills measured prior to Head Start enrollment were also included (*lower quartile* = 1, *else* = 0). Family characteristics include maternal age (*teenage mother* = 1, *else* = 0), education (*less than a high school education* = 1, *else* = 0), marital status (*married* = 1, *else* = 0), family income (income per month), bilingual household (*bilingual household* = 1, *else* = 0), and residential location (*urban area* = 1, *else* = 0). Family income per month was also included (M = US$1,858, SD = US$1,421, range = US$0–US$9,000). Child and family characteristic variables were measured in fall 2002 when the children were 3–4 years old. All covariate variables were used as originally defined in HSIS data, without recoding or collapsing or transforming. Due to missing data, the family income variable used in the analysis was replaced with missing.

Analyses

Ordinary least squares (OLS) regression analyses tested whether the number of disabilities, the status of IEP, and income assistance (SSI) have any impact on children's social–emotional outcomes (Research Question 1); whether Head Start enrollment affects children's social–emotional scores measured at aged 5–6 (Research Question 2); and whether Head Start effects differ depending on the number of disabilities, the status of IEP and income assistance (SSI), and baseline variables (Research Question 3). The model estimation for children's social–emotional outcomes is described in Appendix B. In this model, three steps of OLS regression analyses are estimated to predict children's social–emotional scores, as measured when children are 5–6 years old. The Chow test (Norusis, 2006) is conducted to determine the model fit. The listwise missing method is used for all analyses. In Step 1, all baseline variables, including the child's number of disabilities (DISABILITY), the receipt of IEP, and the receipt of income assistance (SSI), are entered into each regression model. In Step 2, children's Head Start enrollment status is entered into the model. In Step 3, two-way interaction terms are entered, that is, the interactions between Head Start and the number of disabilities, the receipt of an IEP, the receipt of income assistance, and baseline variables. The Statistical Package for Social Sciences was used to conduct the analyses.

Results

Descriptive analysis indicated that except for number of disabilities, status of IEP, and income assistance (SSI), the baseline characteristics did not differ between Head Start and non-Head Start children (See Table 1). Head Start participant children tend to have more disabilities ($M = 1.1$, $SD = 0.7$) than non-Head Start participant children ($M = 0.9$, $SD = 0.7$, $p < .001$). Head Start children are less likely to have disabilities without doctors' diagnoses ($n = 74$, 20%) than non-Head Start children ($n = 69$, 34%, $p < .001$). Head Start children are more likely to receive an IEP ($n = 159$, 43%) than non-Head Start children ($n = 62$, 30%, $p < .01$). Head Start children tend to receive more SSI ($n = 186$, 51%) than non-Head Start children ($n = 85$, 42%, $p < .05$).

Findings for Research Question 1: The Effects of Number of Disabilities, IEP, and SSI

As shown in Table 2, regression results indicate that there were significant effects of the number of disabilities, receipt of an IEP, and receipt of SSI on children's social–emotional outcomes at age 5–6. Compared to children with one disability

Table 2. Unstandardized Coefficients, Standard Error, and Standardized Coefficients Predicting Effects of Head Start on Children's Socio–Emotional Scores.

Variables	Child–teacher relationship	Child–parent relationship	Behavioral problem scores	Positive approach to learning	Social competency skills
(Constant)	62.5 (5.1)	63.8 (3.6)	5.5 (2.0)	11.6 (1.0)	10.5 (0.7)
Ages	0.94 (1.12), 0.05	−0.37 (0.82), −0.02	0.14 (.45), 0.02	0.08 (0.22), 0.02	0.15 (0.16), 0.05
Gender (1 = *male*, 0 = *female*)	3.91*** (1.15), 0.19	1.49† (0.84), 0.09	−0.79† (0.47), −0.09	0.59** (0.22), 0.14	0.22 (0.16), 0.07
Lower quartile in cognitive skills (prior to head start) (1 = *yes*, 0 = *no*)	−1.17 (1.22), −0.05	−1.14 (0.88), −0.07	1.17* (0.49), 0.12	−0.60** (0.23), −0.13	−0.30† (0.17), −0.09
Family characteristics at birth ethnicity					
Black (1 = *yes*, 0 = *else*)	−3.08† (1.63), −.12	0.15 (1.14), 0.01	−0.12 (0.63), −0.01	−0.16 (0.30), −0.03	−0.06 (0.22), −0.02
Hispanic (1 = *yes*, 0 = *others*)	−1.48 (1.57), −0.07	0.68 (1.16), .04	−0.12 (0.65), −0.01	0.35 (0.31), 0.08	−0.03 (0.23), −0.01
White			Reference group		
Married (1= yes, 0 =others)	−0.03 (1.21), −0.00	0.52 (0.88), 0.03	0.12 (0.49), −0.01	0.08 (0.23), 0.02	−0.12 (0.17), −0.04
Education (1 = *less than high school*; 0 = *else*)	(2.65)* −1.26, −0.12	−1.30 (0.90), −0.08	0.77 (0.50), 0.09	−0.18 (0.24), −0.04	−0.17 (0.18), −0.05
Total family income	0.00 (0.00), −0.03	0.00* (0.00), 0.11	0.00 (0.00), −0.08	0.00† (0.00), 0.09	0.00*** (0.00), 0.17
Children who had IEP (1 = *yes*, 0 = *others*)	−1.41 (1.20), −0.07	−0.98 (0.86), −0.06	1.17 * (0.47), 0.13	−0.49* (0.23), −0.12	0.07 (0.17), 0.02
Children who received SSI (1 = *yes*, 0 = *others*)	−1.88 (1.18), −0.09	−2.16* (0.86), −0.14	0.68 (0.47), 0.08	−0.27 (0.23), −0.07	−0.29† (0.17), −0.09
Number of disabilities					
0 Doctor's diagnosis	6.21 (4.14), 0.08	−4.48 (2.98), −0.08	2.40 (1.63), 0.07	−0.18 (0.79), −0.01	−0.01 (0.59), −0.00
1 Doctor's diagnosis			Reference group		
Multiple doctor's diagnosis	−0.70 (1.25), −0.03	−1.82* (0.88), −0.12	1.62* (0.48), 0.18	−0.48* (0.23), −0.12	−0.35* (0.17), −0.12
Head Start enrollment (TX; 1 = *yes*, 0 = *no*)	−0.35 (1.20), −0.02	−1.18 (0.87), −0.07	0.14 (0.48), 0.02	0.04 (0.23), 0.01	−0.03 (0.17), −0.01
Interactions					
TX × Black	3.04 (3.58), 1.0	2.69 (2.49), 0.12	−0.70 (1.38), −0.06	0.60 (0.48), 0.12	0.95* (0.49), 0.21
TX × Hispanic	0.21 (3.47), 0.01	2.49 (2.49), 0.13	−0.99 (1.38), −0.09	1.12† (0.66), 0.22	1.06 (0.49), 0.29
TX × Income	0.00* (0.00), 0.32	−0.00 (0.00), −0.12	0.00 (0.00), 0.01	0.00 (0.00), 0.04	0.00 (0.00), 0.01
TX × IEP	−5.07† (2.73), −0.23	0.87 (1.93), 0.08	−1.25 (1.07), −0.14	−0.10 (0.51), −0.02	0.26 (0.32), 0.09
TX × SSI	2.08 (2.78), 0.10	−1.14 (2.0), −0.07	1.98 (0.90), 0.23	0.02 (0.45), 0.01	−0.07 (0.34), −0.02
TX × Number 0	5.17 (8.67), 0.05	14.3* (6.19), 0.16	−3.17 (3.44), −0.06	2.21 (1.65), 0.10	0.51 (1.22), 0.03
TX × Number 2	−1.30 (2.79), −0.05	1.38 (2.0), 0.08	0.55 (1.11), 0.05	−0.07 (0.53), −0.02	−0.27 (0.39), −0.07
Adjusted R^2	.06***	.06***	.07***	.05***	.03***

Note. IEP = individual education plan; SSI = supplemental security income.
$^{\dagger}p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

diagnosed by a doctor, children with multiple disabilities had significantly lower child–parent relationship scores ($\beta = -12$, $p < .05$), reported more behavioral problems ($\beta = .18$, $p < .05$), and scored lower on positive approach to learning ($\beta = -.12$, $p < .05$) and social competency scores ($\beta = -.12$, $p < .05$) than children who had no disabilities diagnosed by a doctor. Children who received an IEP had more behavioral problems ($\beta = .13$, $p < .05$) and a less positive approach to learning ($\beta = -.12$, $p < .05$) than those who never received an IEP. Children with SSI had a less positive child–parent relationship ($\beta = -.14$, $p < .05$) and lower social competency scores ($\beta = -.09$, $p < .10$) than those who never received SSI. Baseline variables also affected social–emotional outcomes for children with disabilities. Girls had a more positive child–teacher relationship ($\beta = .19$, $p < .001$) and a more positive approach to learning ($\beta = .14$, $p < .01$) than boys. Maternal education was positively associated with the child–teacher relationship ($\beta = -.12$, $p < .05$). Family income was positively related to child–parent relationship ($\beta = .11$, $p < .05$) and social competency skills ($\beta = .17$, $p < .001$). Children with lower pre-academic skills at an early age had significantly higher behavioral problems ($\beta = .12$, $p < .05$) and lower positive approach to learning scores ($\beta = -.13$, $p < .01$) than those with higher pre-academic skills at an early age.

Findings for Research Question 2: Head Start Impact on Social–Emotional Outcomes

As shown in Step 3, Table 2, Head Start did not have any significant effects on social–emotional outcomes for children with disabilities. However, subgroup effects of Head Start were found depending on the number of disabilities on child–parent relationship scores ($\beta = .16$, $p < .05$) and the status of IEP on child–teacher relationship scores ($\beta = -.23$, $p < .010$). As shown in Figure 1, among children who had no doctors' diagnosed disabilities, the child–parent relationship score was higher for Head Start children (62.9) than for non-Head Start children (61.9). Comparatively, for those with multiple disabilities, child–parent scores were similar between Head Start and non-Head Start children (61.4 vs. 61.6). Further, Head Start children had lower child–parent scores (62.7) than non-Head Start children (64.6), when children had one disability. For children without an IEP, Head Start children had higher child–teacher relationship scores (62.2) than non-Head Start children (61.2). Conversely, among children with an IEP, Head Start children's child–teacher relationship score was significantly lower (59.7) than that of non-Head Start children (62.2).

There were interaction effects between Head Start and baseline variables such as family income and ethnicity. Head Start impact was positively associated with family income on child–teacher relationship scores ($\beta = .32$, $p < .05$). For further analysis, family income was divided into two groups based on mean scores of family income (US$1,858). Head Start children's child–teacher relationship score was higher (62.2) than those of non-Head Start children (57.4) when children lived in higher income households (>US$1,858). This was reversed for children in lower income households (≤US$1,858), that is, Head Start children had lower scores (60.5) than non-Head Start children (63.7). Head Start's impact on social competency scores also differed across ethnicity ($\beta = .21$, $p < .05$). As shown in Figure 2, among Black children, Head Start children had significantly higher social competency scores (10.9) than non-Head Start children (10.4). Comparatively, among White children, Head Start children had lower social competency scores (10.8) than non-Head Start children (11.1).

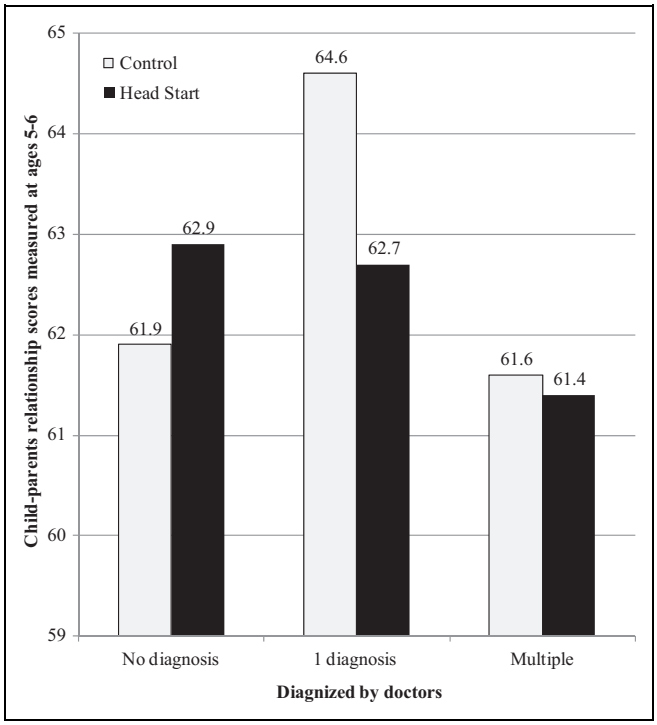


Figure 1. Head Start's impact on child–parent relationship scores depending on the number of disabilities.

In sum, the study found that children who had multiple disabilities diagnosed by a doctor, had an IEP, and received SSI tended to have lower social–emotional scores than others. No main effect of Head Start was found for social–emotional outcomes for the variables included in this analysis. However, children who had no disabilities diagnosed by a doctor, children who had never received an IEP, children living in a higher income household, or Black children had higher social–emotional outcomes when they participated in Head Start compared to their peers who did not participate in Head Start. Children's gender, maternal education, family income, and pre-academic skills also had significant associations with social–emotional scores for children with disabilities.

Discussion

The Associations Between IEP, SSI, Disabilities, and Social–Emotional Outcomes

Among children with disabilities, children with an IEP have more social–emotional problems than those who do not have

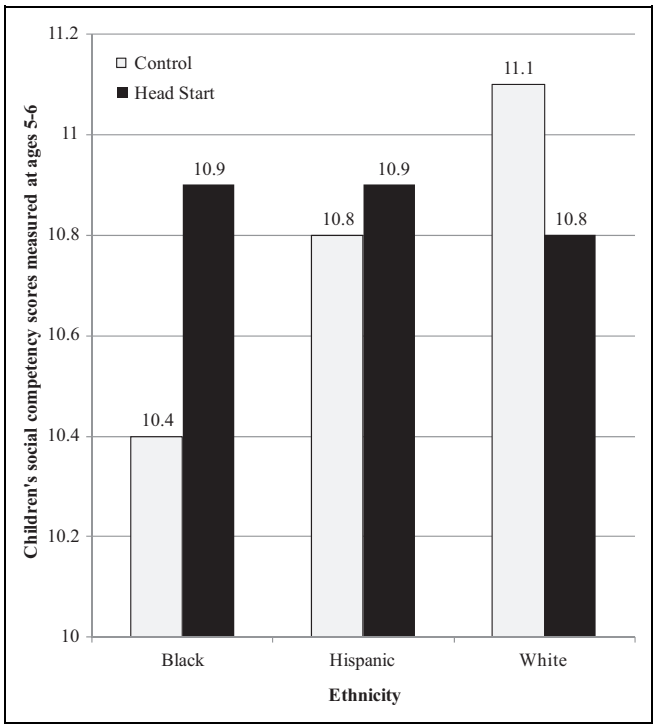


Figure 2. Head Start's impact on social competency scores depending ethnicity.

an IEP. Children with more severe disabilities are more likely to have an IEP than children with less severe disabilities. In this study, children with multiple disabilities (65%) were more likely to have an IEP than those with one disability (36%) or no disability (18%). According to Aud et al. (2013), in general, most children receiving special education services have diagnoses of learning disabilities and/or speech impairment. Attention-deficit hyperactivity disorder (ADHD) and other similar diagnoses that have a behavioral component do not necessary qualify a child for an IEP, but these diagnoses adversely affect children's social–emotional outcomes. ADHD is not included as a qualifying diagnosis under the IDEA; however, it is included in Section 504.1 under the broader disability definitions, which allows for some accommodations (Zirkel & Gluckman, 1997). According to Laver-Bradbury (2012), children with ADHD may exhibit social–emotional deficits in the areas of misunderstanding interactions, poor eye contact, poor listening and reading of facial expressions and lack of appropriate emotional responses, which can lead to callous emotional traits and other behaviors. It is possible that families of children with less severe disabilities are not aware that they may qualify for an IEP. It is important to examine which service components are included in the IEP and who is involved in IEPs for social–emotional development of children with disabilities. Further, a future study should examine whether this association of children's cognitive outcomes would be replicated.

Children with disabilities who receive SSI benefits experience more social–emotional issues than children with disabilities who do not receive SSI benefits. According to the Social Security Administration (2014), children must have a disability that is long term and causes severe limitations in order to qualify for SSI benefits, and their family income must be below the poverty line. Children with the most severe disabilities would certainly be more likely to experience social–emotional issues than children with milder disabilities that would not qualify them for SSI benefits. In the study sample, children with multiple disabilities are more likely to receive SSI (64%) than those who have a single disability (47%) or those who have no disabilities (34%). It is also interesting to note that children receiving SSI benefits have more risk factors for social–emotional issues. In the study sample, children who receive SSI are more likely to have bilingual homes (86% vs. 72%), single mothers (70% vs. 50%), and low family income (US$1,643 vs. US$2,055 monthly) than those who do not receive SSI. Rupp et al. (2006) stated that most children receiving SSI live with a single mother, and approximately half of the children whose families receive SSI have at least one other family member with a disability.

It is not surprising that children with more than one diagnosed disability have greater social–emotional issues than children with just one disability. According to Rupp et al. (2006), about 28% of children receiving SSI have more than one disability diagnosis. Each additional risk factor naturally increases the potential for increased social–emotional issues. If a child has diagnoses across domains, this could potentially decrease their ability to learn social–emotional skills without significant additional support and accommodations. For example, a child with an intellectual disability combined with a physical disability presents a higher need for social–emotional intervention in school than a child with just an intellectual disability.

Head Start Impact on Social–Emotional Outcomes for Children With Disabilities

In this study, children with disabilities in the Head Start program have similar social–emotional outcomes as children with disabilities who are not in Head Start. This is different than findings in the HSIS that found positive social–emotional outcomes at the end of first grade among a 3-year-old cohort with disabilities (Puma et al., 2010). Children who enter Head Start have higher risk factors for social–emotional issues, including poverty, single parents, or fewer years of parental education. Further research is necessary to identify specific programs and services for social–emotional development of children with disabilities among Head Start children compared to non-Head Start children and to determine the effectiveness of these interventions for children with disabilities. Broader implementation of evidence-based social–emotional programs such as the PATHS program and the Research-Based, Developmentally-Informed (REDI) program for children with disabilities across all Head Start programs nationwide would provide more consistent social–emotional outcomes (Bierman et al., 2008). Additional focus should be given for Head Start's support of children with more severe and multiple disabilities and their social–emotional needs. Adding mental health professionals and other clinicians to develop plans to help teachers and

parents with the specific social–emotional needs of children with disabilities in the classroom may improve outcomes (Azzi-Lessing, 2010).

Despite no main Head Start effects, subgroup effects were found. Children in Head Start with no disabilities had higher social–emotional scores than children with multiple disabilities. When children have multiple disabilities, they require extensive adaptations and may not respond to requests, if not given enough time to process (Clark & McDonnell, 2008). Perhaps Head Start programs for children with disabilities have not provided extensive enough programs for responding to severe disabilities. Head Start was shown to be more effective for children with no IEP, but it was less effective for children with an IEP. The percentage of children with disabilities in Head Start with an IEP is 43%, as opposed to 31% among children with disabilities in the non-Head Start control group. This may have influenced the findings, because children with the most severe disabilities are more likely to qualify for and have an IEP. The IEP personalizes the education of a student with a disability and outlines all services that are to be provided as well as ensures the student receives the equal opportunity for education (Johns, Crowley, & Guetzloe, 2002). Teachers, parents, and children, if possible, should work together in the IEP process to contribute valuable information, including the child's strengths, weaknesses, and goals in order to create an effective IEP tool that addresses and supports the child's needs (Johns et al., 2002). Children with more severe disabilities that require special education services may benefit from increased goals and plans focused around their social–emotional needs, in addition to their academic support.

Moderation Effects of Baseline Variables on Social–Emotional Outcomes

This study found that Head Start had a greater impact on children from higher income families (>US$1,858 per month) than children from lower income families (≤US$1,858 per month). Previous research has shown that children from lower income families have higher rates of social–emotional problems (Green, Malsch, Kothari, Busse, & Brennan, 2012). If children are learning social–emotional skills while in school, but their skills are not reinforced at home due to lack of basic needs or increased financial stress, this can negatively impact children's social–emotional outcomes. In this study sample, mothers of children in higher income families are more likely to have paid jobs (72.5% vs. 27.5%), have a high school education (72% vs. 58%), and read books to a child every day (55% vs. 41%) than mothers in lower income families. As found in earlier studies, these factors may contribute to enhancing positive impacts of Head Start on children's social–emotional outcomes (Lee, 2011; Love et al., 2005).

Head Start's impacts differed across ethnicities. Black children with disabilities who participated in Head Start had higher social competency scores than Black children in the non-Head Start group. The opposite was true for White children. Non-Head Start White children with disabilities had better social competency scores than those in Head Start. Across ethnicity, compared to the cluster of scores the children in the Head Start group achieved (10.8–10.9), the children in control group scored diverse ranges in social competency score (10.4–11.1). This is perhaps due to the compensation effects of Head Start that was more beneficial for children with cumulative risk factors. Among study sample, compared to White children, Black children had more risk factors such as living with a single mother (85% vs. 55%), living in a low-income family ($US1,608 vs. US$1,965), and living with working mothers (62% vs. 47%). Previous studies indicate that intervention effects tend to be more significant for those at risk (Lee, 2011). When Black children with disabilities had a lack of home-based learning resources to promote positive social–emotional skills enrolled in Head Start, the marginal benefits Black children obtained could be more significant than the total social–emotional skill levels for White children.

Studies also indicate that children living in higher income families tend to have more positive social–emotional outcomes (Green et al., 2012). Black parents were less likely to read books to their children everyday than White parents (29% vs. 49%), which might also negatively affect children's social–emotional outcomes. It is also interesting to note that in one Head Start study, 92% of the teachers were Black (Feil et al., 2005). Cultural similarities could account for higher ratings on social–emotional assessments for children from the same ethnic background. It is critical that all educators within the Head Start program receive adequate cultural competency training to prevent misunderstanding in the behaviors of the children from various ethnic and cultural backgrounds. Additionally, more benefits found among children with high-risk factors suggest that current Head Start enrollment policies that consider family risk factors should be maintained.

Several baseline factors directly affected social–emotional outcomes for children with disabilities. Girls had better social–emotional scores than boys. This is consistent with the previous research by Squires, Bricker, and Twombly (2004), indicating that preschool boys have more significant behavior problems than girls. This difference appears to be unchanged among children with or without disabilities. Boys and girls interact differently even at young ages, which may be interpreted by parents and teachers as boys receiving lower social–emotional scores. Further research into the gender differences of social–emotional issues is necessary to determine causes and possible solutions. Children of married mothers had better social–emotional scores than children with single mothers. Children of mothers with less than a high school education had lower social–emotional scores than children with mothers with at least a high school education. These children have a higher number of risk factors, including higher rates of poverty, which impacts their social–emotional functioning (Bulotsky-Shearer et al., 2008). There may be possible bias from mothers with risk factors in regard to self-efficacy and lower ratings of their children's social–emotional skills. Single mothers or mothers with fewer years of education may also have a disadvantage in teaching social–emotional skills as well as limitations in providing nurturing and support.

This study confirms that children with lower pre-academic skills also had lower social–emotional outcomes. Previous research has documented the link between cognitive and social–emotional outcomes in children (Barnett, 2008; Blackorby et al., 2010). It is possible that children with lower cognitive abilities may experience more stress in the school environment, which could impact their social–emotional functioning. Further research could identify the causes of the impact of cognitive deficits on social–emotional functioning. It is important to note that initial cognitive skills were measured at age 3, before starting Head Start. Early intervention, including prenatal and family support, is an important component in children's social–emotional outcomes once they begin preschool.

Limitations

One of the limitations in this study pertains to specific types of disabilities. There is a great variety in cognitive and social–emotional deficits and severity among different diagnoses. Although this study considers the number of disabilities, more specific disability categories and degrees of severity could show different effects of Head Start and reveal possible areas for program improvements. The limitation of social–emotional assessment and testing is also a consideration. It can be difficult to obtain an accurate measurement of social–emotional functioning for a particular child. It is important to consider that social–emotional assessments are relatively subjective when reviewing the findings, as they rely on teacher and/or parent reports of the child's behavior. An additional limitation is the unknown factor of what types of services were included in the IEPs for each child. It is possible that IEPs may have included supports for cognitive goals, but not social–emotional supports, which could impact outcomes. The amount of SSI financial assistance each child's family received and the possible relationship between the level of SSI support and social–emotional outcomes are unknown. Each individual variation and multicollinearity within specific variables have the potential to impact these findings. This study did not include the information regarding assignment to agency, school, and family that could affect study findings. For example, provision and quality of IEPs could be highly dependent on individual schools, which are likely to create intraclass correlations. A follow-up study that could account for potential clustering/nested effects should be conducted to determine the unique effects of intervention on social–emotional outcomes for children with disabilities.

Discussion and Application to Social Work

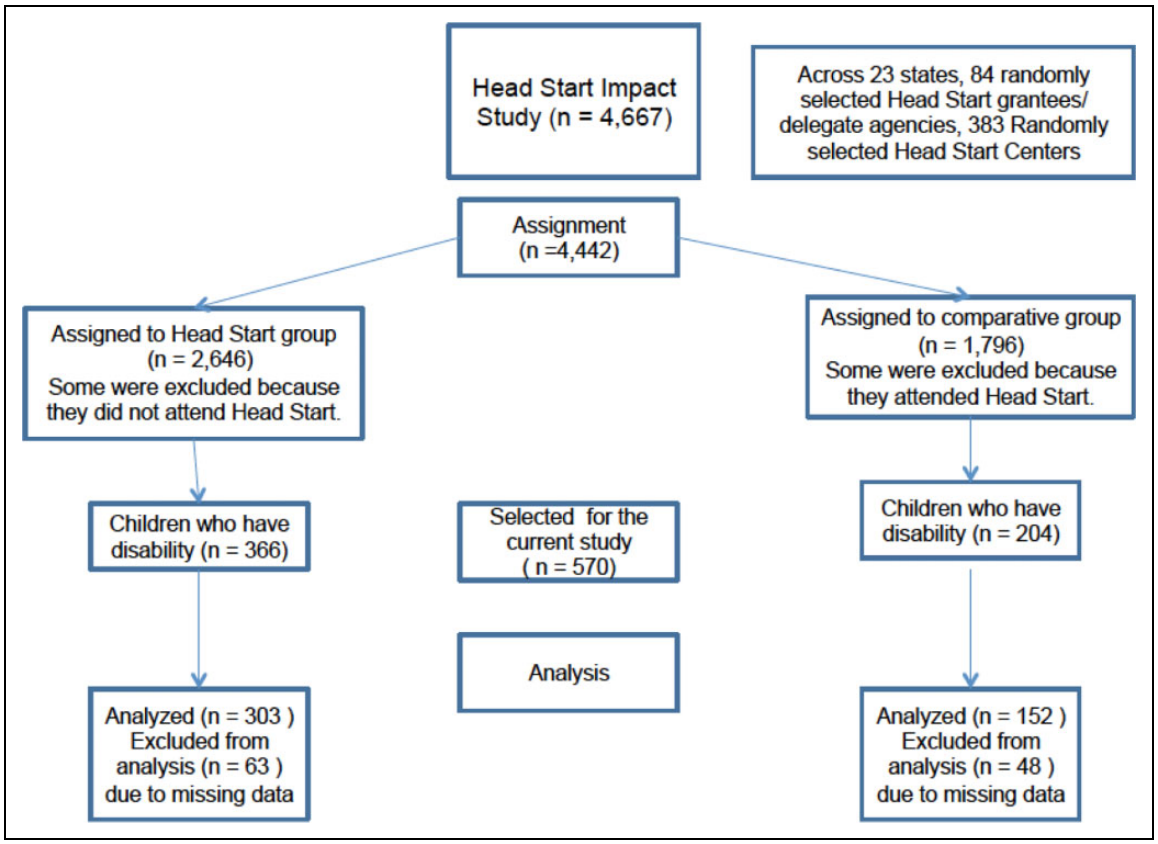
Children with disabilities have unique challenges in the area of social–emotional need. The finding of no main effect of Head Start on children with disabilities compared to a random assignment control group not receiving Head Start services suggests that more specific interventions are needed to address their unique social–emotional needs. Head Start programs should consider various aspects of disabilities through increased recruitment and advocacy of available services to children with disabilities. Children who had multiple disabilities, those who had an individualized education plan (IEP), and those whose families received SSI had more social–emotional problems. Only children with multiple risk factors receive these services. Do children who are eligible for IEP receive the appropriate individualized services in Head Start? Further, do SSI-eligible families receive referrals for the financial benefits? Head Start could become advocates, directing families to seek necessary diagnoses from primary care doctors. Accurate medical diagnoses can assist in identification and appropriate intervention. IDEA emphasizes collaboration with parents of children with a disability and on providing services within natural and inclusive settings. Head Start, as an early intervention, should identify potential disabilities early and support adequate services, which can lead to improved social–emotional outcomes for children with disabilities.

Subgroup Head Start impacts for children with less severe disabilities and for children with no IEP indicate that Head Start might need more support for children with multiple disabilities that reflect types and level of disabilities. Who is involved in IEP plans and how the planned IEP is implemented should be included in the Head Start intervention for children with disabilities. In particular, there are specific implications for social workers in the delivery of services for children with disabilities in a preschool setting. Social workers have been largely underrepresented within preschools across the country compared to educators and other clinicians (Azzi-Lessing, 2010). Social workers could provide support for teachers and administrators facing the tough challenges of providing quality education to children with behavior or social–emotional issues. More positive Head Start impacts are found for higher income families and Black children. This reinforces the importance of an ecological approach and cultural competency. Head Start should meet the needs of the diverse ethnic and cultural backgrounds of the children they serve.

Focusing on the specific needs of each gender as well as potential biases regarding gender could begin to close the gap of higher reported social–emotional issues in boys. In addition to Head Start, social support programs to enhance family well-being is important, since children with disabilities in higher income households had more positive social–emotional outcomes relative to those in lower income households. Earlier intervention is necessary due to the significant effects of early cognitive skills on children's social–emotional outcomes. An early intervention based on ecological understanding of human development that connects the child, family, and community environments and systems is essential to enhance outcomes for children with disabilities. Increased funding and system of care involvement in early childhood education centers could provide much needed support for children, families, and educators.

Appendix A

Flow of Participants for This Study Through Each Stage of Sampling Using Head Start Impact Study Data



Appendix B

Model Estimation for Social–Emotional Outcomes

Based on the previous study (Lee, 2011), for each social–emotional outcome of an individual child between age 5 and 6, a model is estimated (Y). Each model is assumed to depend on the child's number of disabilities (DISABILITY), the receipt of IEP, the receipt of income assistance (SSI), Head Start enrollment (HEAD START), two-way interaction effect of those factors (HEAD START × DISABILITY, HEAD START × IEP, HEAD START × SSI, and HEAD START × BASELINE VARIABLES), and a vector ($\mathbf{X}$) for a set of individual-specific control variables:

$$\begin{aligned} Y = {} & \beta_0 + \beta_1 \mathbf{X} + \beta_2 \text{ DISABILITY} + \beta_3 \text{ IEP} + \beta_4 \text{ SSI} \\ & + \beta_5 \text{ HEADSTART} + \beta_6 \text{ HeadStart} \times \text{Disability} + \\ & \beta_7 \text{ HeadStart} \times \text{IEP} + \beta_8 \text{ HeadStart} \times \text{SSI} \\ & + \beta_9 \text{ HeadStart } \mathbf{X} \text{ BASELINE} + \varepsilon \end{aligned}$$

Head Start is an indicator variable for enrollment status (*HEAD START* = 1 if the child enrolled in Head Start; *Head Start* = 0 otherwise), disability indicates number of disabilities (DISABILITY = 0 if the child had no disability diagnosed by a doctor; DISABILITY = 1 if the child had one disability, and DISABILITY = 2 indicates multiple disabilities [DISABILITY = 1 is the reference group]), IEP is the indicator of status whether the child received IEP (= 1) or not (= 0), SSI is the indicator of the status whether the child received SSI (= 1) or not (= 0). The vector $\mathbf{X}$ includes observable exogenous variables that are likely to be correlated with such outcomes; child's ages at time of enrollment, gender, ethnicity (Black, Hispanic, White [White is the reference group]), cognitive skills measured prior to Head Start enrollment, maternal age, education, and marital status, family income (income per month), bilingual speaking at home, and residential location. Unobserved heterogeneity is captured by ε.

Declaration of Conflicting Interests

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