EXTENDED ABSTRACT

How Does Head Start Compare? Evidence from Three Contemporary Datasets

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Head Start was introduced in 1965 as a compensatory early childhood education program for low income children, at a time when few other preschool options for them existed. Today, however, numerous other child care arrangements are available, and so to understand the effects of Head Start, it is essential to know how it works in comparison to available alternatives. Thus, the question we focus on in this study is not whether Head Start works, but how Head Start compares to other available child care and preschool arrangements. To do so, we draw on analyses from three contemporary datasets—the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B), the Early Childhood Longitudinal Study-Kindergarten Class (ECLS-K), and the Fragile Families and Child Wellbeing Study (FFCWS).

Background

President Barack Obama released his proposal for early education in the State of the Union Address in February 2013. Building upon evidence that the early years of a child's life are critical for later success in school and in life, his proposal included specific plans to provide high-quality preschool for every child. At the same time, his proposal included plans to maintain and build on current Head Start investments (e.g., increasing support for the Early Head Start program and implementing reform in the Head Start program) (The White House, Office of the Press Secretary, 2013).

Head Start was designed as a main piece of the War on Poverty in 1965 and, since its inception, has been the single publicly funded federal early childhood intervention providing early education and other social services to preschool-age children and their low-income families (Zigler, Gilliam, Jones, & Styfco, 2006). In 2012, Head Start served about 960,000 low-income children with annual federal funding of about $8 million (Office of Head Start, 2012). Furthermore, given that the President's early learning initiative will further increase investment in Head Start programs, more research to provide reliable evidence of Head Start effectiveness seems appropriate and timely.

The success of Head Start has been a persistent topic of debate in the literature (see reviews by Shager et al., 2013; Zigler & Styfco, 2004). The first nationwide randomized Head Start experiment, the Head Start Impact Study (HSIS) found that Head Start participants showed short-term benefits in diverse domains of school readiness (however, only few of the benefits were preserved in two- and four-year follow-ups) (U.S. Department of Health and Human Services, Administration for Children and Families, [USDHHS, ACF] 2005, 2010, 2012). While there are critics pointing out that Head Start effects, particularly those on academic achievement outcomes, are small and transitory (Besharov & Higney, 2007), other researchers have paid more attention to methodological issues in Head Start studies (e.g., differences in type of comparison

groups, type and quality of outcome measures, and analytic approaches), which might contribute to differences in the results of those studies (Cook & Wong, 2007; Shager et al., 2013).

One important challenge has been how to define the control or comparison group to which Head Start is compared. Most Head Start studies have overlooked this issue, despite the fact that child care arrangements of children in the control or comparison group are quite heterogeneous (Lee, Brooks-Gunn, & Schnur, 1988; Lee, Zhai, Brooks-Gunn, Han, & Waldfogel, in press; Ludwig & Phillips, 2007; Rigby, Ryan, & Brooks-Gunn, 2007; USDHHS, ACF, 2005; Waldfogel, 2006; Zhai, Brooks-Gunn, & Waldfogel, 2011). Although randomized experiments have been regarded as the gold standard of program evaluation (Cook, Shadish, & Wong, 2008), the HSIS also seems not to be free from this issue given that over 40% of children in the 3- and 4-year-cohort control groups attended another center-based care program or a different Head Start program (USDHHS, ACF, 2005). The importance of this issue is further bolstered by a recent systemic review that, using 241 Head Start evaluations implemented between 1965 and 2007, found the extent to which children in the control or comparison group received alternative types of early education or care was significantly associated with lower effect sizes for cognitive and achievement outcomes (Shager et al., 2013).

Therefore, using three contemporary datasets (i.e., ECLS-B, ECLS-K, and FFCWS), we examine whether Head Start effects differ depending on the comparison group to which Head Start is compared, analyzing comprehensive domains of school readiness at age 5 (i.e., academic achievement, socio-emotional development, behavior problems, health, and parenting). Based on the analyses using these three datasets, we extend earlier research by showing that how the comparison group is defined can be an important context for interpreting the results of Head Start evaluations.

The Universe of Alternative Child Care Arrangements

Whether comparison group children in Head Start evaluations participate in other center-based care or preschool is important since they, particularly those of low-income families (Lamb, 1998; Vandell, 2004), benefit from attending those other child care arrangements (National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network, 1998, 2000). Therefore, comparing Head Start participants to all comparison group children may contribute to variations of estimated Head Start effects across studies depending on the composition of child care arrangements among comparison group children. For example, recent evaluations of state prekindergarten (hereafter, pre-K) programs found larger effect sizes compared to the results of the HSIS, and this might be partially explained by the differences in the rates of comparison group children's participation in other formal and informal child care arrangements—over 50% in the HSIS versus 20% in pre-K evaluations (USDHHS, ACF, 2005; Wong, Cook, Barnett, & Jung, 2008).

Several recent studies have shown differing associations between Head start participation and school readiness outcomes depending on what the comparison group was (i.e., parental care, informal non-parental care with relatives or non-relatives, other center-based care, or pre-K). Using data from the FFCWS, a recent study showed that Head Start participation was associated with improved academic school readiness compared to parental care or informal care; this study also found that Head Start participation was associated with improved social competence compared to pre-K, other center-based care, or informal care, and reduced behavior problems compared to other center-based care or informal care (Zhai et al., 2011). Another study using data from the FFCWS reported that Head Start participation was associated with mothers'

reduced use of spanking, and the association was more pronounced when compared to parental care or other center-based care (Zhai, Waldfogel, & Brooks-Gunn, 2013). Also, using data from the ECLS-B, a study found that Head Start participation was associated with improved reading and math skills compared to parental care or informal care, but also reduced reading skills compared to pre-K; this study also reported that Head Start participation was associated with increased conduct problems compared to parental care (Lee et al., in press). Finally, another study using data from the ECLS-B found that Head Start participation was associated with increased healthy eating habits and dental checkups, and these associations were more pronounced when compared to parental care or informal care; this study also showed that Head Start participation was associated with reduced BMI and lower probability of being overweight compared to informal care (Lee, Fuhua, Han, Brooks-Gunn, & Waldfogel, 2013).

Following these previous studies, we define four specific comparison groups—parental care, informal non-parental care with relatives or non-relatives, other center-based care, and pre-K, based on the assumption that Head Start effects might vary depending on what the comparison group is. We expect that Head Start participants obtain more benefits in school readiness outcomes compared to children in parental care or informal care than children in other center-based care or pre-K, since the latter children also receive diverse services that vary substantially in type and quantity across programs, but promote school readiness (Rigby, Ryan, & Brooks-Gunn, 2007; USDHHS, ACF, 2003).

Data and Methods

We use three contemporary datasets to examined whether Head Start effects on children's school readiness outcomes at kindergarten entry differ according to comparison group. The first dataset, the ECLS-B, is a nationally representative cohort sample of about 10,700 children who were born in 2001 and have been followed when they were approximately 9 months old, 2 years old, 4 years old, and at kindergarten entry. In this dataset, we use child care arrangements information from the 4 year old survey, school readiness outcomes from the kindergarten entry survey, and other covariates from the 9 months and/or 2 years surveys. The second dataset, the ECLS-K, is also a nationally representative cohort of about 21,000 children who entered kindergarten in 1998 fall and have been followed from kindergarten entry to 8th grade. In the 1998 survey, parents reported their children's care arrangements right before kindergarten entry. Using this information, we define child care groups. We also use school readiness outcomes and covariates from the 1998 survey. The last dataset, the FFCWS, is a birth cohort sample of approximately 5,000 children who were born in 20 big cities between 1998 and 2000 and have been followed when they were approximately one, three, five, and nine years old. In the age 5 survey, parents reported the focal child's care arrangements right before kindergarten entry, so we use this information to define child care groups. We use school readiness outcome measures from the age 5 survey and other covariates from the age 1 survey.

In three datasets, we commonly define five child care groups: 1) Head Start participants who were attending Head Start on a regular basis, 2) pre-K participants who were attending pre-K programs on a regular basis (not including Head Start), 3) children in other center-based care who were attending day care centers, nursery schools, or other preschool programs on a regular basis (not including Head Start and pre-K), 4) children in informal non-parental care with relatives or non-relatives who were receiving care from someone other than the custodial parents on a regular basis for at least eight hours per week, and 5) children in parental care who were not receiving informal non-parental care for at least 8 hours per week or who were receiving care

only from parents. We use a wide set of school readiness outcomes: 1) academic school readiness outcomes (e.g., early reading and mathematics), 2) behavior and socio-emotional outcomes (e.g., social skills and externalizing, internalizing, and attention problems), 3) health outcomes (e.g., BMI, overweight/obesity, healthy eating habits, medical checkups, and dental checkups), and 4) parenting outcome (e.g., use of spanking). In all analyses, a rich set of covariates (e.g., child, maternal, parenting, and family characteristics) are controlled for. To address missing information in covariates, we conduct multiple imputation. To reduce selection bias, we use propensity-score weighted regressions.

Initial Results

Regarding academic school readiness outcomes, as shown in Table 1, preliminary results suggest that Head Start participation is associated with improved reading skills compared to parental care or informal care, but also reduced reading skills compared to pre-K; Head Start participation is also associated with improved math skills compared to parental or informal care. Regarding behavior and socio-emotional outcomes, as shown Tables 2 and 3, preliminary results suggest that Head Start participation is associated with increased externalizing problems compared to parental care, but also reduced externalizing problems compared to other center-based care; Head Start is also associated with improved social skills compared to other center-based care.

Table 1

Head Start Effects on Academic Outcomes Compared to Other Specific Care Arrangements

	Reading				Math			
	Parental	Informal	Pre-K	Oth CB	Parental	Informal	Pre-K	Oth CB
ECLS-B	0.08*	0.12*	-0.18**	0.00	0.09*	0.11*	-0.06	-0.00
	(0.04)	(0.06)	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)
ECLS-K	0.08*	0.05	-0.20**	0.05	0.11**	0.09*	-0.17**	-0.18
	(0.04)	(0.04)	(0.06)	(0.09)	(0.03)	(0.04)	(0.04)	(0.06)
FFCWS	0.46**	0.41**	0.01	0.05	n/a	n/a	n/a	n/a
	(0.07)	(0.06)	(0.07)	(0.07)				

Note. Standard errors are in parentheses. Oth CB = other center-based care.
**$p < .01$. *$p < .05$.

Table 2

Head Start Effects on Behavior Outcomes Compared to Other Specific Care Arrangements

	Externalizing problems				Internalizing problems			
	Parental	Informal	Pre-K	Oth CB	Parental	Informal	Pre-K	Oth CB
ECLS-B	0.12*	0.07	0.09	0.05	-0.04	0.02	-0.04	0.01
	(0.05)	(0.07)	(0.06)	(0.05)	(0.05)	(0.08)	(0.07)	(0.05)
ECLS-K	0.10**	0.16***	-0.18***	-0.19***	-0.05	-0.07	-0.06	-0.06
	(0.04)	(0.05)	(0.06)	(0.04)	(0.04)	(0.06)	(0.06)	(0.04)
FFCWS	-0.07	-0.10	0.03	-0.14*	-0.06	-0.18	-0.04	-0.07
	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.11)	(0.08)	(0.07)

Note. Standard errors are in parentheses. Oth CB = other center-based care.
***$p < .001$. **$p < .01$. *$p < .05$.

Table 3
Head Start Effects on Socio-emotional Outcomes Compared to Other Specific Care Arrangements

	Attention problems				Social skills			
	Parental	Informal	Pre-K	Oth CB	Parental	Informal	Pre-K	Oth CB
ECLS-B	0.05	-0.03	0.07	0.05	0.05	0.08	-0.03	0.02
	(0.05)	(0.06)	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)
ECLS-K	-0.02	-0.04	0.06	0.02	0.04	0.05	0.07	0.11*
	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.06)	(0.04)
FFCWS	-0.10	-0.19**	-0.05	-0.18*	0.24**	0.05	0.15*	0.17*
	(0.09)	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)	(0.07)	(0.07)

Note. Standard errors are in parentheses. Oth CB = other center-based care.
**$p < .01$. *$p < .05$.

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