



# Ready or not: Associations between participation in subsidized child care arrangements, pre-kindergarten, and Head Start and children's school readiness

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## ABSTRACT

Research has found disparities in young children's development across income groups. A positive association between high-quality early care and education and the school readiness of children in low-income families has also been demonstrated. This study uses linked administrative data from Maryland to examine the variations in school readiness associated with different types of subsidized child care, and with dual enrollment in subsidized child care and state pre-kindergarten or Head Start. Using multivariate methods, we analyze linked subsidy administrative data and portfolio-based kindergarten school readiness assessment data to estimate the probability of children's school readiness in three domains: personal and social development, language and literacy, and mathematical thinking. Compared to children in subsidized family child care or informal care, those in subsidized center care are more likely to be rated as fully ready to learn on the two pre-academic domains. Regardless of type of subsidized care used, enrollment in pre-kindergarten, but not Head Start, during the year prior to kindergarten is strongly associated with being academically ready for kindergarten. No statistically significant associations are found between type of subsidized care, pre-kindergarten enrollment, or Head Start and assessments of children's personal/social development.

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## 1. Introduction

Children's early development plays a critical role in setting the foundation for their performance in kindergarten and first grade (Hair, Halle, Terry-Humen, Lavelle, & Calkins, 2006; Justice, Bowles, Pence Turnbull, & Skibbe, 2009). Furthermore, positive associations have been documented between kindergarten math, reading, and social-emotional skills and later academic performance (Claessens, Duncan, & Engel, 2009; McLelland, Morrison, & Holmes, 2000; Raver, Garner, & Smith-Donald, 2007). Though sociodemographic risk factors, including family income, have been associated with variations in children's skills in early childhood as well as differential growth toward future academic achievement (Duncan, Brooks-Gunn, & Klebanov, 1994; Hair et al., 2006; Hart & Risley, 2003), early childhood programs have demonstrated potential in mitigating these risk factors. The strongest evidence of positive long-term outcomes associated with early childhood programs comes from studies of intensive and comprehensive programs

targeting at-risk children (Burger, 2010; Reynolds, Magnuson, & Ou, 2010). Research using multi-site and local samples has also consistently documented positive associations between high-quality center-based programs and children's language and academic skills (Ansari & Winsler, 2011; Bassok, French, Fuller, & Kagan, 2008; Burchinal et al., 2000; Loeb, Fuller, Kagan, & Carrol, 2004; O'Brien Caughy, DiPietro, & Strobino, 1994; Votruba-Drzal, Coley, & Chase-Landsdale, 2004; Yoshikawa, 1999). However, a number of questions regarding the association between subsidized child care, early education programs, and indicators of children's academic and social-emotional readiness for school remain unanswered.

The purpose of this study twofold. First, using a sample of children from low-income families whose child care was subsidized by the State of Maryland, this study explores the associations between type of subsidized care in the year prior to kindergarten and children's school readiness upon kindergarten entry. Second, using the same sample, this study explores whether children's likelihood of being assessed as consistently demonstrating specific skills needed to learn in school, herein referred to as being "fully ready" to learn, is higher when subsidized child care is combined with publicly funded early education (e.g., pre-kindergarten or Head Start). Multivariate tests of these associations are possible through linked subsidy administrative data and portfolio-based

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kindergarten school readiness assessment data from Maryland's State Department of Education.

In most states, three publicly funded programs, child care subsidies, public pre-kindergarten, and Head Start, provide free or subsidized early care and education for at-risk children. These programs vary in primary purposes, quality standards/regulations, and eligibility criteria. The Child Care and Development Fund (CCDF), administered in all 50 states, subsidizes the cost of care to facilitate parental employment and families' access to high-quality care. It is important to note that state quality regulations and incentives, and professional development systems available to providers offering subsidized care, vary across states. Public pre-kindergarten, offered in 40 states as of 2011, is designed to support children's school readiness (Barnett, Carolan, Fitzgerald, & Squires, 2011). State quality regulations for pre-kindergarten also vary as do protocols for assessing compliance to these regulations (Barnett et al., 2011). Head Start, offered by local grantees in all 50 states, provides comprehensive services and early education to very low-income families with young children. Unlike CCDF subsidies and pre-kindergarten, Head Start programs across the nation are held accountable to the same quality regulations and are required to engage in a comprehensive monitoring program (U.S. Department of Health and Human Services, 2011). As discussed in the next section, literature documenting the effectiveness of these programs in preparing children for school varies in breadth and consistency of findings.

### 1.1. Child care subsidies and school readiness

Few studies have addressed the relation between child care subsidies and children's developmental outcomes, and existing studies have mixed findings. Using a sample of 4-year-old children eligible for a child care subsidy from the Early Childhood Longitudinal Study (ECLS)-Birth cohort, Johnson, Martin, and Brooks-Gunn (2013) found only one statistically significant association between subsidy receipt (measured via a combination of parent and child care provider report) during the year prior to kindergarten and assessments of children's reading, math, and social-emotional skills in kindergarten. Specifically, a negative association was found between the use of subsidized center care as compared to unsubsidized center care and children's math achievement. Herbst and Tekin (2010), using a sample of children living with single mothers drawn from the ECLS-Kindergarten cohort study, and parent report of subsidy receipt, found that children in subsidized care the year prior to kindergarten score lower on reading and math assessments, and have more behavior problems upon kindergarten entry than children who are not in subsidized care the year prior to kindergarten. It should be noted that though Herbst and Tekin (2010) controlled for income in their analyses, not all children in their analytic sample were eligible to receive child care subsidies. Finally, using subsidy administrative data and child assessments, Ansari and Winsler (2011) found, within a subsidized Latino population, 4-year-olds in subsidized center-based care developed stronger language and cognitive skills from fall to spring than 4-year-olds in subsidized family child care. It should be noted that, in their study, the average income among families who chose subsidized center care was comparable to those that chose subsidized family child care.

### 1.2. Pre-kindergarten and school readiness

Multiple studies have documented positive associations between experience in pre-kindergarten and children's academic and social development. For example, in a regression-discontinuity design study using data from their five state study of pre-kindergarten programs, Wong, Cook, Barnett, and Jung (2007)

found significant gains in pre-kindergarten students' receptive vocabulary and math skills compared to children whose parents applied to send their child to pre-kindergarten, but were denied due to age eligibility criteria. The magnitude and significance of these associations varied across states. Analyses of data from the multi-state National Center for Early Development and Learning (NCELD) and study of state-wide Early Education Programs (SWEEP) found significant gains in pre-kindergarten students' academic and social skills from fall to spring of the pre-kindergarten year as assessed using age-normed measures, particularly in classrooms with high-quality instruction or close teacher-child relationships (Howes et al., 2008). Howes et al. (2008) found no statistically significant differences in children's exhibition of behavior problems from fall to spring of the pre-kindergarten year.

### 1.3. Head Start and school readiness

Evidence has demonstrated some positive effects of Head Start on children's academic and social-emotional development. The Head Start Impact Study (U.S. Department of Health and Human Services, 2010), a longitudinal, experimental study including a sample representative of the national population of Head Start programs and students, documented significant impacts of Head Start on the language and literacy skills of 3- and 4-year-olds, as compared to eligible children who did not attend Head Start. Most of these impacts were either no longer evident or attenuated by first grade (U.S. Department of Health and Human Services, 2010). This attenuation of effects may be related to the quality of children's classroom experiences in kindergarten and first grade.

### 1.4. Comparisons of pre-kindergarten, Head Start, and child care subsidies

A few studies have compared the school readiness of children who experienced pre-kindergarten, Head Start, subsidized child care, or parental care only in the year prior to kindergarten. Findings of these studies suggest that pre-kindergarten enrollment is associated with the strongest academic gains for children (Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Magnuson, Ruhm, & Waldfogel, 2004; Winsler et al., 2008). This finding is consistent when comparing children enrolled in pre-kindergarten to those in Head Start (Gormley, Phillips, & Gayer, 2008; Loeb, Bridges, Bassok, Fuller, & Rumberger, 2007; Magnuson, Ruhm, et al., 2004), and other care arrangements in the year prior to kindergarten (Magnuson, Ruhm, et al., 2004; Winsler et al., 2008). Studies have found that children enrolled in center-based preschool have smaller academic gains compared to pre-kindergarten students and greater academic gains compared to children in parental care (Loeb et al., 2007; Magnuson, Meyers, et al., 2004; Winsler et al., 2008).

Most comparisons of children in subsidized child care, pre-kindergarten, and Head Start have not found differences in children's social-emotional readiness for school. In comparing multiple social-emotional skills of children eligible for free school lunch enrolled in pre-kindergarten, Head Start, or other arrangements, Gormley, Phillips, Newmark, Welty, and Adelstein (2011) found no differences between children enrolled in pre-kindergarten versus Head Start, though children enrolled in pre-kindergarten were more attentive than children in other care arrangements. Similarly, Winsler et al. (2008), using administrative data and child assessments, found no significant differences in children's behavioral concerns when comparing ethnically diverse children participating in pre-kindergarten and subsidized centers. In comparison, based on parental report of early childhood program participation among a sample of children from the Early Childhood

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