Advances in Life Course Research 20 (2014) 56–69

Contents lists available at ScienceDirect

Advances in Life Course Research

journal homepage: www.elsevier.com/locate/alcr

# When do socioeconomic resources matter most in early childhood?☆

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ARTICLE INFO

*Article history:*
Received 22 August 2013
Received in revised form 17 January 2014
Accepted 22 March 2014

*Keywords:*
Socioeconomic status (SES)
Cumulative advantage and disadvantage
Early childhood
Growth curve analysis
ECLS-B

ABSTRACT

Research has established the importance of early socioeconomic advantage and disadvantage for understanding later life outcomes, but less is known about change in the relationship between socioeconomic status (SES) and child development within the period of early childhood. Competing hypotheses drawn from the literature posited: (1) a stable SES-development relationship, (2) a stronger relationship in infancy than at older ages, and (3) a stronger relationship at school entry than at younger ages. Using the nationally representative Early Childhood Longitudinal Study-Birth Cohort (2001–2007), we followed 8600 children from infancy through kindergarten entry to model change over time in the relationship between socioeconomic status and cognitive and behavioral development. The unexpected main finding was that the relationships between three socioeconomic measures (household income, assets, and maternal educational attainment) strengthened from infancy through age 4 or 4½, then weakened slightly until the start of kindergarten. Indirect evidence suggested preschool education as one possible explanation. We argue for researchers to expand the school transition concept to include the now widespread prekindergarten year, as well as for attention to psychological and physiological developmental factors that may shape the relationship between SES and cognitive and behavioral development throughout early childhood.



## 1. Introduction

Socioeconomic inequality is regarded as a fundamental cause of disparities in physical, socioemotional, and cognitive development across the life course (Link & Phelan, 1995). Seeking to understand how inequality contributes to variation in development, social scientists have drawn on the concepts of cumulative advantage and disadvantage, hypothesizing that an abundance or dearth of socioeconomic resources at one point in the life course establishes a path of enduring well-being or hardship even when material circumstances change (Case, Lubotsky, & Paxson, 2002; Cunha, Heckman, Lochner, & Masterov, 2006; DiPrete & Eirich, 2006). Research investigating this path dependence has focused on early childhood as a period when environmental context is expected to enhance or constrain critical periods of development and growth. Because early childhood conditions have

☆ This research is based on work supported by a grant from the National Science Foundation (SES 1061058). Research funds were also provided by the NIH/NICHD funded CU Population Center (R24HD066613). The authors thank Richard Jessor, Joshua Goode, and Jeff Dennis for their contributions to this project.

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http://dx.doi.org/10.1016/j.alcr.2014.03.001
1040-2608/

long-term consequences, every U.S. dollar invested in early childhood education is estimated to return $8–14 later on (Duncan, Ludwig, & Magnuson, 2007). Despite increasing acknowledgment of the critical importance of support during early childhood, young children are particularly socioeconomically marginalized: Poverty rates are at their highest in early childhood, with 25% of U.S. children ages 6 and under living below the poverty line in 2010 and 48% classified as low-income (Addy & Wight, 2012).

The developmental stage called early childhood (here measured as ages 0 through 5 or 6) masks a wealth of developmental changes within young children over time, as well as changes in their families and contexts. Much of the literature on policy measures in early childhood focuses on the preschool period, rather than on earlier ages (Duncan et al., 2007). In contrast, research on the effects of socioeconomic status has investigated all ages within early childhood. The interdisciplinary literature on cumulative advantage and disadvantage has identified periods as early as fetal development when exposure to compromised nutrition or a mother's physical response to stress curtails children's optimal long-run development (Barker, Eriksson, Forsen, & Osmond, 2002; Boardman, Powers, Padilla, & Hummer, 2002). A distinct body of work on the school transition points to kindergarten and first grade as an important point when socioeconomic status sorts students into unequal educational experiences and sets up their trajectories of future achievement (Alexander, Entwisle, & Dauber, 1993; Entwisle, Alexander, & Olson, 2004).

As provocative as these and other findings are, much extant research on early childhood and later outcomes relies on between-person variation observed in natural experiments or retrospective data to establish an association between exposure to hardship at one point in childhood and later outcomes. Other studies treat early childhood as a homogeneous age block from 0 to 5 years old (e.g., Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Wagmiller, Lennon, Kuang, Alberti, & Aber, 2006). Collectively, these studies lack repeated observations on individuals over the course of early childhood. As a result, extant research cannot account for unobserved characteristics or intervening events that may explain observed associations; nor can it directly compare the influence of socioeconomic circumstances on development at various stages *within* the same individual. Longitudinal data can open the "black box" of the preschool years between birth and the transition to school to track the relationship between socioeconomic resources and outcomes within children over time. An analysis based on longitudinal nationally representative data can better pinpoint the period during which socioeconomic resources are most consequential for children and inform policy regarding the most effective time to intervene in the early lives of disadvantaged children with income supplements or educational programs designed to offset the effects of economic hardship. We employed this approach to determine at what point in early childhood socioeconomic status matters most for children's cognitive and behavioral school readiness at kindergarten entry. Using nationally representative longitudinal survey data that followed the same children from birth through the start of kindergarten, we conducted growth curve analyses to model change within children over time in the relationship between socioeconomic resources and cognitive and behavioral outcomes.

## 2. Background

### 2.1. Socioeconomic status (SES) and child development in the early life course

Early childhood, often defined at birth through age 5, is increasingly recognized as fundamental for understanding socioeconomic and other social disparities throughout life. Some researchers have arrived at this insight by documenting "inequalities at the starting gate" of school entry (Lee & Burkam, 2002) and reasoning that they must have been established during early childhood. Burkam, Ready, Lee, and LoGerfo (2004) found differences of more than a standard deviation between the kindergarten reading, mathematics, and general knowledge scores between children from the lowest SES quintile compared to the highest. Another line of research has noted the increasing importance of SES in middle childhood compared to adolescence. For example, Guo (1998) found that childhood (primarily measured at ages 5–8) is a more important period than adolescence for the development of cognitive ability. A third strand of research has directly compared early childhood to later life stages, treating ages 0–5 as a homogeneous block. Duncan et al. (1998) found that family poverty in early childhood was more important than later poverty for understanding cognitive achievement. Wagmiller and colleagues (2006, p. 850) summarized extant research: "Because early childhood is the period in which children acquire cognitive and social competencies that form the basis of future learning and academic success, persistent economic disadvantage during this period can have long-term effects on subsequent school performance and later status attainment." Reasoning similarly, Duncan et al. (2007) and Heckman (2008) concluded that policy investments in early childhood are the most efficient for maximizing returns throughout the life course.

Despite children's and parents' many developmental and circumstantial changes across early childhood, none of the work described above has actually measured the SES-development relationship across the range of ages 0–5. In doing so here, we articulated three competing hypotheses about change in the relationship between SES and cognitive and behavioral development across early childhood. Fig. 1 summarizes and illustrates each. To adjudicate among the hypotheses, growth curve analyses estimated the concurrent relationship between SES and cognitive and behavioral development in the same children from infancy through kindergarten start. We included three dimensions of socioeconomic status: education, wealth, and income.[1] Each has been found to be consequential for child development (Dearing, McCartney, & Taylor, 2001; Duncan & Magnuson, 2003; Hillemeier, Morgan, Farkas, &

[1] We excluded a fourth domain, occupational status, because many children do not have those data available for a coresident parent (many mothers are not employed, and many children do not have a coresident father).