



Differential effectiveness of Head Start in urban and rural communities[☆]



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ABSTRACT

Recent research suggests that Head Start may be differentially effective in improving low-income children's early language and literacy skills based on a number of individual- and family-level characteristics. Using data from the Head Start Impact Study ($n = 3503$; 50% male, 63% treatment group), the present study extends this work to consider program impact variation based on centers' location in urban versus rural communities. Results indicate that Head Start is more effective in increasing children's receptive vocabulary (as measured by the PPVT) in urban areas and their oral comprehension (as measured by the Woodcock-Johnson Oral Comprehension task) in rural areas. Additional analyses suggest that related characteristics of the center – including concentration of dual language learners and provision of transportation services – may underlie these associations. Implications for research on program evaluation and policy are discussed.

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Since the 1960s, increased understanding of the importance of the early childhood developmental period has led to substantial investment in early childhood care and education (ECCE) programs like Head Start for promoting school readiness and reducing income-based inequities at school entry. Rigorous evaluations of Head Start have shown mixed evidence for the program's effectiveness in achieving these goals, with some studies showing positive impacts on children's pre-academic skills (e.g., Deming, 2009; McKey, 1985; Shager et al., 2013) and others suggesting more modest or null effects (e.g., Bernardy, 2012; Currie & Thomas, 1993). Although useful for quantifying overall effectiveness, these studies of average program impact are less helpful for identifying specific conditions under which Head Start may be particularly beneficial – or deleterious – for children (Bloom & Weiland, 2015). Given the heterogeneity of community settings in which Head Start serves

children in the United States, understanding specific contextual sources of program impact variation is of critical importance for identifying existing programmatic strengths and weaknesses, providing more targeted approaches to addressing children's needs, and (re)allocating resources to optimize equity.

In the present study, we use data from the Head Start Impact Study (HSIS) to provide new, hypothesis-generating evidence on Head Start impact variation across urban and rural communities in the United States. First, we provide a descriptive characterization of the community settings in which HSIS Head Start centers are located. In particular, we focus on Head Start communities' levels of urbanicity, as defined by the percent of families within the surrounding census tract neighborhood who are living in urbanized areas or clusters with more than 400 people per square mile. Second, we explore whether the effectiveness of Head Start for promoting children's short-term early language and literacy outcomes – i.e., receptive vocabulary, oral comprehension, early writing, and early reading skills at the end of the preschool year – differs based on centers' levels of community urbanicity. Finally, we test whether any observed urban–rural differences in effectiveness may actually be explained by other contextual characteristics that are related to urbanicity. Specifically, we test whether larger impacts in urban or rural environments may be driven by co-varying levels of 1) neighborhood demographics, crime, and resource availability, 2) center characteristics and capacities, including teachers' average levels of education, centers' provision of family services, and quality of teacher–student interactions and 3) center compositional characteristics, including the types of families and children served.

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Neighborhood urbanicity and Head Start — evidence for contextual strengths and challenges

An extensive body of research from the psychological, sociological, and economic literatures suggests that neighborhoods play an important role in shaping children's early development (Aikens & Barbarin, 2008; Brooks-Gunn, Duncan, & Aber, 1997; Caughy, Hayslett-McCall, & O'Campo, 2007; Leventhal & Brooks-Gunn, 2000). Neighborhood socioeconomic disadvantage has been strongly linked with negative outcomes throughout the life trajectory through its direct and indirect effects on children's stress responses, family interactions, and broader social relationships (Boardman, Finch, Ellison, Williams, & Jackson, 2001; Chetty, Hendren, Kline, & Saez, 2014; Pinderhughes, Nix, Foster, Jones, & The Conduct Problems Prevention Research Group, 2001; Sampson, Morenoff, & Earls, 1999). Importantly, the ways that community poverty manifests across diverse geographical and sociocultural contexts appears to have important implications for its effects on children and families. The urban poor, for example, tend to report better physical health outcomes but worse psychological functioning than the rural poor, with these relationships differing for individuals from diverse sociodemographic and racial/ethnic backgrounds (Amato & Zuo, 1992; Bender, Fedor, & Carlson, 2011; Glaeser, 2011; Rutter, 1981). Although the mechanisms underlying urban versus rural poverty's effects on children are relatively poorly understood, researchers have posited that differential concentrations of particular risk and protective factors like crime and social/educational resources across the urbanicity continuum may be responsible (Amato & Zuo, 1992; Rutter, 1981).

In this paper, we extend work on neighborhood settings to consider the ways that urban and rural environments – and the risk and protective factors therein – explain variation in the impact of Head Start on young children's language and literacy development. Launched in 1965 across 2400 communities through President Lyndon B. Johnson's "War on Poverty," Head Start has been conceptualized as a critical social resource for buffering children and families from the effects of both urban and rural poverty. Since its inception, Head Start has provided comprehensive educational, social, and health-related services to more than 30 million children across all 50 states, as well as the District of Columbia, Puerto Rico, and the U.S. territories (Office of Head Start, 2014). Although Head Start's mission has always been to serve children across a diversity of communities – including urban, suburban, and rural environments facing various risk and protective factors – research on Head Start and related educational programs for low-income children has historically focused almost exclusively on low-income, urban environments (Tieken, 2014). The under-representation of rural communities in Head Start research has led to a dearth of knowledge regarding whether Head Start's programmatic model is able to support children equally across different types of communities. Given that up to 30% of Head Start children are served in rural areas (Rural Poverty Research Institute, 2008), understanding the extent of urban–rural disparities is of great relevance to both advocacy and policy, as it would not only draw attention to existing inequities, but would also provide information on where additional resources are needed.

Descriptive research suggests several important differences across rural and urban environments that may affect Head Start programs' ability to provide optimal services to children. Rural ECCE programs, for example, have traditionally been shown to be more personal and less bureaucratic than urban programs, yet face more difficulty recruiting highly credentialed staff and achieving "economies of scale" due to lower population density, difficulty in transportation, and reduced resources (Chertow, 1968; National Advisory Committee on Rural Health and Human Services, 2012; Rural Poverty Research Institute, 2008). Historically, social services and physical and mental health programs that constitute "wrap-around services" for Head Start families have been less accessible in rural, compared with urban areas (Chertow, 1968). Similarly, the availability of (and/or demand for) alternative, formal child-care options tend to be more limited in rural

settings, with research showing that children from rural environments are significantly more likely to receive care from relatives and less likely to be enrolled in center-based care than their urban peers (Miller & Votruba-Drzal, 2013; Swenson, 2008). Indeed, the original Head Start Impact Study report postulates that the "difficulties that children and families in non-urban communities have in getting comprehensive services and in finding quality early care and education for their children" may be responsible for impact variation across these settings (Puma et al., 2010a, p. 9–9).

There is also evidence to suggest that Head Start centers may serve different types of children and families in urban versus rural communities, or, said another way, the children and families in rural and urban Head Starts may differ from one another. Recent research has found, for example, that urban Head Start families show higher levels of educational engagement but lower levels of parent–child attachment than rural Head Start families (Bender, Fedor, & Carlson, 2011; Keys, 2015). Similarly, national data from the Early Childhood Longitudinal Study Birth Cohort suggest that the lower pre-academic skills of children living in both rural and highly urban settings upon kindergarten entry may be partially explained by higher levels of family socioeconomic adversity in these settings as compared with those in small urban or suburban ones (Grace et al., 2006; Miller & Votruba-Drzal, 2013).

Despite the fact that urban and rural communities, centers, and families face substantially different strengths and challenges, research on the degree to which Head Start and other ECCE program impacts may vary based on urbanicity remains limited and inconclusive. In the 1960s, the Ohio-Westinghouse study found non-experimental impacts of Head Start that were twice as large in urban centers with high concentrations of black children relative to those in the full sample (Smith & Bissell, 1970). Results from the Head Start Impact Study final report, on the other hand, showed stronger and more sustained impacts on language and literacy for three-year-old children from rural communities as compared to three-year olds in urban communities (Puma et al., 2010a, 2010b). Importantly, neither of these studies took into account the ways that additional community, center, family, and individual characteristics may have explained this impact variation. Additional research has found that what appears to be an urban–rural gap in Head Start classroom quality may actually be driven by community socioeconomic disadvantage (Resnick & Zill, 2000), a finding that was supported by recent evidence showing lower levels of material and relational classroom quality in high-poverty neighborhoods (McCoy et al., 2015). Given that higher levels of Head Start program quality have been linked with better academic outcomes for children (Bryant, Burchinal, Lau, & Sparling, 1994), understanding the relationships between urbanicity and the resources, interactions, and instruction that are taking place in classroom settings is a particularly important area of needed research.

Exploring ecological sources of impact variation

Despite limited understanding of contextual-level predictors of treatment impact variation in Head Start, exploration of moderation in ECCE research is far from novel. A growing body of research has shown consistent evidence for Head Start's differential effectiveness across a number of individual and family characteristics, including stronger impacts for children from families facing high levels of socioeconomic adversity (Cooper & Lanza, 2014; Lee, 2011), dual language learners (Bloom & Weiland, 2015; Puma et al., 2010a), and children with low levels of baseline skills (Lee, 2011; Puma et al., 2010a). For other individual-level characteristics, evidence is more mixed, with studies alternately finding stronger versus weaker impacts of Head Start for children of depressed mothers (Puma et al., 2010a; Robinson & Emde, 2004) and racial/ethnic minority children (Garces, Thomas, & Currie, 2000; Puma et al., 2010a). Although this research has been critical for moving the ECCE field forward, it provides limited information to policy makers aiming to improve program services at scale. Perhaps a key constraint to this area of research is the fact that much research

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