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A Life Course Perspective on the Promise of Public Preschool

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The Watts and colleagues' Monograph provides a major contribution to our cumulative knowledge on when, for whom, and for how long public pre-K promotes achievement. The study results should be encouraging for North Carolina citizens. Their investments in pre-K improved children's achievement through the elementary school years, particularly the achievement of children from more disadvantaged backgrounds. For the field of early childhood education, these results come at a time of collective soul searching. Findings from public pre-K expansions in Georgia, Massachusetts, Oklahoma, and Tennessee have been mixed. There is evidence of lasting positive impacts in Oklahoma, lasting positive impacts for poor children in Georgia, early but fading positive impacts in Massachusetts, and early positive but later negative impacts in Tennessee.

In this context, a critical contribution of the Monograph is the theory-informed tests of moderators, interactive consequences of pre-K and other aspects of children's lives. In many cases, the authors found additive effects rather than moderation. For example, pre-K funding and elementary school funding were both positively related to children's achievement in an additive fashion, but had no moderating effect on one another (i.e., the positive effect of pre-K funding was similar across levels of elementary school funding and vice versa). However, the authors also found a fair amount of support for the hypothesis that pre-K can act as a compensatory moderator of risk.

North Carolina pre-K helped offset the harm of some risk factors encountered during early childhood and other risks encountered during middle childhood. Positive effects were, for example, larger for children whose mothers had less than a high school education, larger for children enrolled in under-achieving elementary schools, and in some models (i.e., instrumental variable (IV) estimates) larger for children from low-income families than for other children. The effects of pre-K were also larger for Hispanic children than White children. Thus, learning opportunities in pre-K helped compensate for disadvantage and ethnic marginalization.

It is on these moderator findings, that I offer two comments influenced by Elder's life course development theory. Elder (1998, p. 1) articulated the central notion behind this theory as: "changing lives alter developmental trajectories." Following this insight, my first comment is

focused on how life course development intersects with social and economic disadvantage as well as culture in ways that help determine whether pre-K effects persist over time. My second comment is concerned with the ways changing socio-historical forces can differentially affect children due to when they were born, with consequences for what we should expect of pre-K for a given birth cohort.

A Life Course Development Perspective on Fadeout and Sustaining Environments

The sustaining environment hypothesis tested in the Monograph is motivated in part by concern over fadeout effects – decreasing intervention effects over time – for many early childhood education interventions (Bailey et al., 2020). One plausible explanation for fadeout has focused on the types of environments that are more or less likely to help children sustain the benefits of treatment (i.e., the sustaining environments hypothesis). Regarding sustaining environments for high-quality pre-K effects, high-quality elementary schooling has received the most attention. However, evidence supporting this hypothesis is mixed, at best (e.g., Burchinal et al., 2022; McCormick et al., 2022; Pearman et al., 2020). The Monograph adds to studies that have not found supporting evidence.

On this topic, however, I wonder if we are giving too little attention to the ways life course transitions, disadvantage, and culture intersect to determine a child's likelihood of benefiting from what could be sustaining environments. Or, to adapt Elder's wisdom: changing lives may alter developmental trajectories in markedly different ways. For the fifth graders in North Carolina whose achievement was bolstered by pre-K, I illustrate my point using life course changes that may unfold between middle childhood and early adolescence. These changes may partly determine not only who will experience potentially sustaining environments but for whom these environments will, in fact, sustain pre-K effects.

Typically, in the US, the transition to adolescence involves increased autonomy and increased responsibility, but how this takes shape can differ for children as a function of socio-economic status (SES) and cultural background. I highlight some variations in the transition to adolescence by SES and Latinx/e ethnicity, given their moderating roles in the Monograph. As one example, adolescents in lower-SES families may be more likely than others to have increased household responsibilities such as caregiving for younger siblings, whereas youth in higher-SES families may be guided to exercise their autonomy through engagement in community-based activities and programs (Dearing et al., 2009; Sanderson & Richards, 2010). Moreover, cultural variations in adolescent life may be relevant for after-school experiences.

For some Latinx/e children, early adolescence is a time of increased culture and language brokering responsibilities for their families, particularly among youth whose parents are first generation immigrants (Lin et al., 2018). As part of this, some Latinx/e youth have responsibility for enrolling themselves in after-school programs (Lin et al., 2022). These responsibilities may serve as developmental strengths, but Latinx/e youth can also face microaggressions, discrimination, and exclusionary behaviors once enrolled (Lin et al., 2016). To the extent that enriching after-school programs might provide sustaining environments, marginalization and

oppression could undermine not only access but also the potential for programs to provide enriching experiences that could help sustain pre-K effects.

As another example, consider the potential sustaining power of home environments. When children were in fifth grade in the Monograph study, most mothers were between 30 and 40 years of age (see Table 1 of the Monograph). At this stage of the life course, pay gaps for low-wage versus high-wage earners grow dramatically: earnings start to decline for low-wage workers (e.g., physical labor becomes less valued with age), remain stable for middle-wage earners, and increase (sometimes dramatically) for the highest-wage earners such as doctors, attorneys, engineers (Guvenen et al., 2021). Thus, it would not be surprising if income gaps for less educated versus more educated families in North Carolina widened across the adolescent years. In turn, worsening family economic conditions might not only threaten adolescents' access to sustaining environments (e.g., decreased access to high-quality middle and high school classroom instruction; Peske & Haycock, 2006) but may also constrain the sustaining power of those environments (e.g., learning in school can be limited by income loss via food insecurity, worsening mental health and classroom behavior, and an increased propensity to be suspended; Ashiabi & O'Neal, 2008; Conger et al., 1994).

While the persisting effects of pre-K in North Carolina through fifth grade are very encouraging, obstacles to and opportunities for building on these learning gains will unfold in complex ways. Some of this complexity will operate at the intersection of life course changes, disadvantage, and culture. Understanding when, for whom, and for how long contexts at school, after-school, and home offer children sustaining environments will likely require attention to this complexity.

Beyond Fadeout: A Life Course Development Perspective on Washout across Cohorts

To examine the effects of pre-K funding, Watts and colleagues have exploited a population-based natural experiment with children born across nearly 20 years in North Carolina, from 1987 to 2005. As mentioned, the effects of North Carolina pre-K funding on achievement were larger for Hispanic versus White children and larger for children of less educated versus more educated parents (and, in the IV models, largest for children from low-income families). Does this, therefore, mean that disparities between these groups narrowed alongside the pre-K funding increases over time? Are achievement disparities at fifth grade (e.g., between children whose parents had higher versus lower educational attainment) smaller for children who were born during and after funding increases than for those born prior? Perhaps, but not necessarily.

Importantly, Watts and colleagues do not argue that pre-K in North Carolina, alone, is a policy lever for establishing greater equity in school achievement. Indeed, the authors push back against the idea that funding pre-K should come at the cost of other social and educational programs that help build equity. I agree with this argument. We should be cautious with our expectations for what public pre-K, on its own, can accomplish for children and society. We should not conflate population-level compensatory effects of pre-K and population-level narrowing in achievement disparities.

Even when positive impacts of pre-K are largest for the most disadvantaged children and even when increasing public funding brings these positive impacts to more disadvantaged children each year, opportunity gaps between the most and least advantaged children may persist or even grow across historical cohorts. The reason, as life course theory would suggest, is that birth cohort matters not only for a child's likelihood of attending a high-quality public pre-K, but also that child's likelihood of encountering a host of other social forces and environmental experiences. As such, the distance in achievement test scores between advantage and disadvantaged children could remain stable or even grow across birth cohorts, even while increasingly larger proportions of disadvantaged children receive high-quality public pre-K. To help illustrate this point, I borrow evidence from Norway.

Between 2002 and 2008, Norway expanded public early education and care (ECE) coverage to infants and toddlers. This expansion led to a nearly two-fold increase in the number of 1- and 2-year-olds attending public ECE (Zachrisson et al., 2023; Sandsør et al., 2023). Very similar to the North Carolina study of pre-K, two Norwegian studies examined fifth grade reading and math achievement using population-based data, and for ECE effects exploited idiosyncratic expansion. And, like Watts et al., these authors detected interaction effects with parent education.

Attending public ECE increased fifth grade math and reading test scores in Norway, with the largest effects on children from families with low parental education (Zachrisson et al., 2023); based on some of the estimates, achievement differences between children of the least and most educated parents were about 50% smaller for children who attended ECE than for those who did not attend ECE. Yet, at the very same time, population-level achievement disparities were not reduced (at fifth or at eighth grade) across the birth cohorts of children born prior to, during, and after the expansion. Comparing children from the early and later cohorts, fifth grade achievement gaps between those of more and less educated parents remained large and stable, and achievement gaps between children in the richest and poorest families grew larger across cohorts (Sandsør et al., 2023). All other things being equal, public ECE in Norway should be helping narrow gaps. Yet, all other things are not equal, in Norway nor in the US.

A preschool experience is but one of a multitude of social forces operating on learning and opportunities to thrive. It is the net effects of pre-K plus these other forces that determine historical trends in life chances and equity, and net "washout" of pre-K effects across birth cohorts can occur regardless of whether there is "fadeout" in pre-K effects as children age. Even when disadvantaged children who attend public pre-K have persistently higher achievement across their life course than those who do not attend public pre-K, forces beyond pre-K may: (a) disproportionately undermine the average achievement of all disadvantaged children, (b) disproportionately lift the average achievement of advantaged children, or (c) both. In fact, looking at National Assessment of Educational Progress (NAEP) scores for the North Carolina cohorts in the Watts et al. study suggests that positive pre-K effects are being washed out for these children.

On North Carolina's fourth grade NAEP scores, for example, there is no evidence of narrowing White-Hispanic achievement gaps accompanying the pre-K scale-up for either Math or Reading. While NAEP tests were not available for every birth cohort, fourth grade North Carolina NAEP reading scores in 1998 (the 1989 birth cohort) and 2015 (a year after the 2005 birth cohort was in fourth grade) favored White students by 24 points compared with Hispanic students. This difference dropped as low as 19 points in 2002 (the 1993 birth cohort) but was as high as 26 points in 2009 and 2011 (the 2000 and 2002 birth cohorts). NAEP scores are not provided by parent education level, but fourth-grade score differences based on free/reduced lunch status also appeared highly stable across these cohorts of children, for both reading and math.

The authors capture the heart of the issue these NAEP scores seem to reveal when they concluded: "…we found no indication that investments in early childhood educational experiences should be thought of as a zero-sum game. Rather, positive investments across developmental periods will most likely yield additive benefits, and in some cases, positive investments will be greater for children who otherwise would have encountered lower-quality environments" (Watts et al., 2023). In other words, pre-K alone is unlikely to be sufficient for building equity.

Conclusion

The Watts et al. Monograph arguably provides the most thorough theoretically guided testing of moderation hypotheses for public pre-K effects on achievement, to date. As such, our understanding of when, for whom, and for how long public preschool can bolster achievement has taken another critical step forward. For North Carolina, the results are quite positive and encouraging. Yet, the authors are to be commended for their judicious interpretation, cautioning against policy approaches that invest in pre-K by divesting in other programs that, together, have much greater potential for reducing systemic social and economic inequity. Taking a life course development perspective on what we should and should not expect from pre-K underscores the validity of their position.

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