Broader Benefits of Early Childhood Care and Education: Families, Communities, and Society

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Early Childhood
Effectiveness/Quality

Introduction

Early childhood care and education (ECE) programs can improve children's short- and long-term outcomes and may also generate important benefits beyond the participants themselves. ECE programming serves the dual role of fostering children's development in their early years and supporting families by freeing up parents to work or pursue education or training. While programs serving young children often play both roles, they may emphasize one or the other or may not advance children's outcomes and parents' outcomes in equal measure.

Evidence from several decades of research on ECE effectiveness highlights a few important themes: Beyond the direct benefits to participants, programs providing care and education to young children can generate (1) total benefits that well exceed the cost of the initial investment, (2) long-lasting effects that create positive spillovers to participants' communities and society, (3) improved outcomes for their parents, and (4) effects that transmit to the siblings and children of the direct beneficiaries.

Key findings

High-quality ECE interventions can generate important benefits for children, their families, and society. While much research focuses on the direct benefits to children participating in or exposed to new, expanded, or subsidized ECE offerings, this chapter summarizes policy and program effects beyond those privately realized returns. The high rates of return on investments in early childhood programs documented in the literature are often generated, in no small part, through the broader benefits enjoyed by parents, families, and communities.

Key finding #1: *Cost–benefit analyses suggest that ECE programs can lead to substantial returns in excess of their costs.*

While estimates of the return on a dollar invested in ECE programming vary across programs and contexts, studies of Head Start, model preschool programs, and Boston's public pre-kindergarten (preK) all document positive returns over and above the cost of the initial ECE investment. Researchers estimate that even fairly modest standardized test-score gains in the short term can lead to positive net benefits over the longer run because of program impact on societally important outcomes.

Key finding #2: *ECE programs that result in long-term improvements in participants' later-life outcomes generally lead to public benefits over and above the privately realized benefits.*

Because of these improvements in long-run outcomes with important implications for communities and society more broadly, ECE investments can generate substantial societal returns. In particular, ECE programs can lead to increased educational attainment, lower criminal engagement, better health, and greater economic resilience for those exposed to the program, all of which benefit the taxpaying public and local communities.

Key finding #3: *Publicly provided or subsidized ECE programs can produce direct benefits to parents and families by facilitating parental employment and freeing up resources.*

Parents' ability to engage in the labor market in response to ECE expansions or changes in ECE affordability and access has been extensively studied. In general, mothers' employment is responsive to expanded availability of public ECE programs and changes in the cost of ECE, with effects often concentrated among disadvantaged mothers. Slots in ECE settings that are either publicly provided or subsidized by public dollars also constitute a childcare subsidy to households that access those slots, and that subsidy can have direct effects on families' resources. This channel to improved outcomes in the family has not been well investigated.

Key finding #4: *ECE investments can generate spillovers to siblings and the next generation.*

Early childhood programming can influence participants' parents and home experiences—through both increased resources and greater information about child development and investment behaviors—in ways that benefit other children in the family. Improvements in participants' own later-life outcomes generated by ECE investments, in the form of improved educational attainment, greater labor force attachment, or reduced risky behaviors, can also transmit to their children to produce benefits for the second generation.

Avenues for further study

We know very little about the intermediary pathways through which early childhood programs generate long-term effects, and greater understanding of those pathways would allow for more comprehensive and earlier assessment of programs' likely benefits. Specifically, researchers have hypothesized that social–emotional and behavioral skill development in the critical early childhood years may be responsible for improvements in later-life wellbeing, but such skills are inconsistently measured across studies. It would also be helpful to better measure and explicate the key ingredients of programs that effectively serve the dual purpose of both supporting parental employment and fostering children's healthy development. In particular, these goals may constitute a quantity–quality tradeoff in that serving more children facilitates increased parental labor supply,

but providing a more intense, high-quality program better contributes to children's development and early learning. It would be useful to know the critical features of programs that are effective at improving outcomes via each channel. Future research could also focus on better documenting variation in long-run ECE benefits, across children, families, program types, and contexts, informing policymakers' efforts to understand the relative returns to targeted and universal, or near-universal, programs.

Policy implications

Investments in young children's care and education can generate returns not only through direct effects on participants but also through indirect effects on parents and families and spillovers to other non-participating family and community members. These effects are important in considering the cost-effectiveness of early childhood programs, but they are often more difficult to measure and fully capture in available data. The tools that policymakers currently use for budget scoring and regulatory analysis do not accommodate these considerations in measuring the costs and benefits of policy proposals and changes to existing policies. If policymakers could incorporate more broadly realized outcomes and longer time frames into their analyses of costs and benefits, they would be better equipped to make optimal investments in ECE policies and programs.

Evidence

This review focuses on the effects of ECE programs beyond those experienced by the participants themselves. Chapter "ECE program effects on parenting processes" summarizes the impact of interventions delivered directly to parents through ECE programs.[1]

Cost–benefit analyses

Several pieces summarize ECE impact and provide cost–benefit assessments, concluding that such investments can generate sizable returns, ranging from three to seven dollars in savings for every dollar spent providing the program.[2] Because of the long time horizon over which ECE programs can realize returns, complementarities between early investments and subsequent investments, and importantly, the externalities associated with early childhood programs, ECE investments can generate particularly high rates of return, especially compared to some later-childhood and later-life investments.[3] In some instances, the marginal value of public funds invested in early childhood education programs is infinite due to the large returns on such investment.[4]

Evidence from comprehensive, model preschool programs deployed in the 1960s and 1970s produces estimates of a rate of return on the Perry Preschool Project of $7–$12 dollars for every dollar spent and a 13.7% internal rate of return[5] and a 7.3 benefit–cost ratio for the Carolina Abecedarian Project (ABC) and the Carolina Approach to Responsive Education (CARE) child care program.[6] Cost–benefit estimates in the literature also imply that even modest effects on standardized test scores in the short run can be consistent with positive, long-term net benefits over the longer run, likely due to the multiple channels through which ECE investments affect later-life wellbeing.[7] While the following sections focus on the returns generated through improvement in long-term outcomes, recent research finds that, in some instances, ECE programs can generate significant fiscal benefits to governments solely through the effects on parental employment and family resources, the subject of the third section of this chapter.[8]

Long-term outcomes

This review focuses on the effects of ECE programs beyond those experienced by the participants themselves. Recent reviews provide thorough summaries of the effects of early childhood programming on participating children, over both the short and long term.

Educational attainment

Long-term evidence from the Perry Preschool Project, Head Start, and most recently, Boston's preK program suggests that educational attainment can be an important effect of high-quality ECE investments, which has important implications for a host of long-term outcomes with both private and social benefits. The Boston preK evidence suggests that program exposure improved SAT test-taking, high school completion, and college enrollment.[9] These findings are largely consistent with older evidence on the impact of Head Start and Perry Preschool on participants' education, although effects were concentrated on high school attainment and years of schooling.[10] Several research teams have documented the range of educational attainment impact estimates across the Head Start and preK literature to demonstrate the consistency of findings on high school completion and college-going.[11]

Criminal engagement

Early childhood investments may be particularly effective at reducing later-life criminal engagement, as they potentially facilitate noncognitive skill development, such as conscientiousness and executive function, that could directly influence later-life behavior. Evidence documents short-term effects on social–emotional development.[12] Participation in effective ECE programs also leads to increased educational attainment, which enhances legal employment options and increases the opportunity cost of crime. Crime is particularly important to understanding the cost–benefit calculus of ECE programs because crime is socially costly, in terms of costs to victims and to taxpayers through the judicial and carceral systems. The victims can also be broadly defined, as social disorder and criminal activity affect neighborhood function, feelings of safety, and investment.

Evidence from Perry Preschool suggests that access to the program led to fewer arrests, lower likelihood of incarceration, and lower rates of violent crime and property crime by age 40.[13] Studies of the Chicago Child–Parent Centers, a publicly funded early childhood program deployed across multiple sites in Chicago in the 1980s, similarly find lower rates of juvenile and young adult criminal activity.[14] Evidence from Head Start comports with these findings,[15] and more contemporaneously, the study of the long-term effects of Boston's preK program for children who attended the program between 1997 and 2003 showed reductions in disciplinary actions including juvenile incarceration.[16]

Other outcomes

There are additional channels through which long-term benefits to ECE participants also manifest as important social benefits. Research on the long-term effects of Head Start demonstrates that individuals exposed to the program are economically better off later in life, in that they are less likely to receive government benefits or in-kind transfers in adulthood.[17] Recent research on Georgia's universal preK program similarly finds declines in later-life receipt of food assistance as well as reductions in teen pregnancy.[18] In addition, participants in the Carolina Abecedarian program were healthier in adulthood, as measured by lower prevalence of cardiovascular risk factors and indicators for metabolic diseases in their mid-30s, with concentrated reductions in hypertension and obesity for

men.[19] These effects are likely driven by improvements in childhood health and reductions in younger-age obesity, effects also observed for Head Start.[20]

Variation in outcomes

Many of the ECE programs in the summary of long-term effects targeted children from low-income and otherwise disadvantaged households, limiting the dimensions on which researchers could explore heterogeneity in program effectiveness. One fairly consistent finding in much of the existing literature on long-term effects is that of concentrated effects for boys who participated or were exposed in childhood, particularly on outcomes related to behavior, delinquency, and criminal engagement.[21]

Because the long-term effects of investments in children are of particular interest—and are the focus of adequately capturing the costs and benefits—there is ongoing innovation in the measurement of long-term effects, using new and reinvigorated approaches. Typically, researchers would collapse information on a number of long-run outcomes into a single, composite index of standardized outcomes as a concise way to convey effects on later-life wellbeing.[22] To better understand likely effects over a long time horizon sooner—using information available earlier in the life-cycle and continuing to focus on a concise measure—researchers have more recently employed new methods to forecast life-cycle benefits and use short-term measures to project long-term effects (e.g., net present value of future wages measures and surrogate indices).[23] Finally, the framework of the marginal value of public funds allows researchers to use the return on public investment as a common metric for understanding program and policy impact.[24] Such approaches allow for more readily measuring the broader effects of early childhood programs, given the urgency of doing so for policymakers assessing short-run program effectiveness.

Benefits to families and parents

Parental employment and earnings

One area of much inquiry is the labor force participation effects of early childhood programming, particularly for mothers and often for mothers from disadvantaged circumstances. Access to ECE programming could allow parents to work more, and maternal employment is most responsive to ECE availability and expansion.[25] A large literature explores the effects of child care prices and subsidies on maternal employment, earnings, and receipt of government assistance.[26] Evidence suggests that effects are often concentrated among mothers who are most affected by the policy—e.g., those in low-income households and those with a just-right age child and no younger children—and among mothers on the margin of labor force participation, such as unmarried mothers and those with relatively low levels of education.

A recent review article summarizes estimates from across studies of how responsive mothers' employment is to changes in ECE prices, or more broadly availability and affordability.[27] The review focuses on studies after the period of welfare reform in the 1990s, from 2001 forward, and on those that leverage experimental and quasi-experimental variation in exposure to ECE changes. The included studies vary in the strength of their research designs and their ability to convincingly isolate the causal effect of ECE availability or affordability. These compiled estimates of the elasticity of mothers' employment with respect to the price of ECE generally range from 0.05 to 0.25, which implies that a 10% decrease in the price of ECE leads to a 0.5–2.5% increase in maternal

employment. There is some suggestion in the synthesis that studies in more recent contexts and outside of the U.S. may report smaller elasticities, meaning less responsiveness of mothers to changes in childcare prices. Studies in international contexts also confirm the responsiveness of mothers' employment to ECE expansions in Quebec,[28] Germany,[29] and Norway.[30]

Research drawing on broad expansions to ECE availability documents mothers' responsiveness to such policy changes. Researchers have leveraged expansions in public schooling—the introduction of kindergarten primarily in the late 1960s and 1970s as well as age eligibility for kindergarten in the same timeframe and in 2000—to explore impact on parental employment and identify which parents are most affected.[31] Evidence on public kindergarten suggests that mothers with no children younger than the child affected, and those who are relatively disadvantaged, are the mothers who respond to kindergarten introduction and availability by working more.[32] Additionally, work has documented the effects of the public provision of a full day of kindergarten on mothers' labor force attachment and finds effects in both Canada[33] and the U.S.,[34] although the nature of the effects differs. This suggests that the policy context matters for which mothers are affected and whether the effects appear on the extensive margin (working at all) or the intensive margin (working more or less intensely).

Similarly, evidence from the introduction of universal preK in Georgia and Oklahoma in the mid- to late 1990s documents no changes in mothers' labor supply on average despite large increases in public preK enrollment[35] but concentrated maternal employment effects among families of lower socioeconomic status.[36] This pattern was likely driven in part by higher-income families substituting to public preK from existing private child care arrangements, rather than switching from parental to non-parental child care. Notably, the major expansion of publicly subsidized child care in Quebec—which led to increased maternal employment—resulted in worse long-term outcomes for affected children, including lower life satisfaction, worse health, and higher criminal engagement, highlighting the importance of policy design and program quality in realizing improvements on both dimensions.[37]

Other instances of ECE expansions in the U.S. show a similar pattern, including the Lanham Act of 1940, which provided child care for children under age 13 regardless of family income from 1943–1946 as well as funding to 49 states to both construct and operate childcare facilities and to train and pay teachers in the facilities. Evidence from the Lanham Act documents large, positive effects on maternal employment, particularly for economically disadvantaged families and families with younger children.[38] Estimates suggest that a $100 increase in spending on universal, temporary child care increased the rate of full-time employment among mothers by 0.2 percentage points, with employment effects persisting 17 years after the program ended.[39]

Programs serving low-income and disadvantaged families similarly show effects on maternal employment, with some of those effects concentrated among the most disadvantaged mothers even in the context of programs directed to under-resourced families. Work on the Head Start program documents that program access—generated through program funding expansions in the 1990s and by the random allocation of slots in the Head Start Impact Study—improved employment and earnings outcomes for single mothers.[40] Research on the effects of child care subsidies on maternal employment consistently finds more pronounced effects among single mothers.[41] Evidence from the randomized control trial of the Carolina Abecedarian Project found that the small model

preschool program spurred improvements in mothers' labor force participation, particularly for teen mothers, and the treatment group mothers were also more likely to have post-high-school educational attainment.[42] Herbst and Tekin (2011) also document effects of child care subsidy receipt on single mothers' educational attainment and participation in workforce training.[43]

The synthesis of evidence on ECE employment effects suggests that women's labor force participation is less responsive to ECE availability and affordability in studies in non-U.S. contexts and in research using data more recent than the 1990s, perhaps suggesting declining responsiveness of mothers' employment over time.[44] Recent work may suggest otherwise. Three recent working papers document the responsiveness of maternal employment in current contexts and point to program structure as particularly important for facilitating parents' labor supply. One study relies on lottery-based assignment to extended-day preK in New Haven, Connecticut from 2003 through 2022.[45] The authors find large and persistent effects on mothers' earnings, with an initial boost of 27% during the preK year and earnings benefits that persist for six years. Another study leverages three decades (1990–2022) of full-day kindergarten expansions to look at maternal employment and documents that nearly one-quarter of the increase in employment of mothers of kindergarten-aged children was attributable to the rise in full-day kindergarten provision.[46] Finally, recent work that leverages variation in state preK program access across the U.S. in the period 2002 to 2019, coupled with children's age eligibility for preK, documents increased maternal labor force participation, with pronounced effects on married and college-educated mothers, those living in cities, and those at the low or high ends of the income distribution.[47] These recent results imply that mothers' employment can still respond to ECE access and that responses to more recent expansions may be broad-based precisely because such investments are now universal or near-universal and are available to a broader set of children and families.

Family resources

The impact of ECE expansions and funding on families' resources and spending is understudied, but spending on child care constitutes a significant portion of the household budget for families with young children.[48] Additionally, childcare expenses are most relevant for families when their children are young and parents are typically at the lower-earning stages of their careers.[49] Analyses document that lower-income families spend a larger share of their income on ECE when they pay for it, but they are also more likely to be in subsidized care. Families at the low end of the family income distribution report more difficulties finding ECE settings that meet their needs, most notably because of cost.[50] These findings are consistent with the constrained availability of subsidized ECE programs relative to the size of the eligible populations.[51]

Sibling and intergenerational spillovers

Some program spillovers are realized more locally, affecting family members and potentially close peers of those exposed to the ECE investment. For the Perry Preschool Project, researchers have documented program effects on the siblings of participants.[52] This finding suggests that any within-family comparisons, across participating and non-participating children, could understate the direct effect of the program on the focal child, as siblings also benefit from that child's participation. One channel for sibling spillovers could be the documented effects of program participation on parenting practices—evidence from the Head Start Impact Study shows that parents of treatment-group

children engaged in more learning activities and that non-resident fathers spent more time with their children.[53]

Another form of spillover that may be important in fully capturing the broad effects of investments in ECE is the effect on classroom peers of ECE-participating children in subsequent school environments. Such effects are challenging to capture because students are typically non-randomly sorted into schools and classrooms, making it difficult to isolate the effect of peer experiences, so there is a pronounced lack of empirical investigation of peer spillovers. One study convincingly controls for the within-school formation of peer groups and finds substantial spillovers of peer preschool exposure in the form of cognitive skills, as measured by math and reading assessments.[54] Their estimates suggest that conventional estimates of the direct effects of preschool participation understate the full social benefits by missing these broader effects.[55] Recent evidence from Georgia similarly finds that measuring only the effects of universal preK on participants fails to capture substantial spillovers to their peers.[56]

New evidence on the long-term effects of ECE investments also finds spillovers of ECE exposure to the second generation, the exposed or participating generation's children. This type of research has lofty data needs and requires a long time horizon over which to assess the intergenerational effects of ECE programs. Such research has been feasible in the contexts of the Perry Preschool Project, leveraging the initial random assignment of the first generation to slots in the Perry program, and with the early rollout of Head Start, capitalizing on quasi-experimental variation in exposure to the program.[57] In both cases, researchers document substantial benefits for the second generation in excess of program costs. Some potential pathways for effects on the children of those exposed to the program include increases in the likelihood of the second generation's own preschool participation and changes in the first generation's later-life parenting practices and home environment for their children.[58]

Policy implications

Investments in young children's ECE can generate returns through both direct effects on participants and indirect effects on parents and families and spillovers to other non-participating family and community members. These effects are important in considering the cost-effectiveness of early childhood programs but are often more difficult to measure and fully capture in available data. This effort is complicated by limited data on the wide set of outcome measures, linked to program exposure or participation, and the long time horizon needed to fully assess program impact beyond the participants themselves.

As in many policymaking contexts, investments in data infrastructure would support efforts to better understand ECE policy impact over the short and long run. In particular, longitudinal data systems that begin in early childhood—even at birth—and can be linked to existing administrative data systems, including education, criminal justice, health, and workforce data, would prove useful. When researchers can link children and parents in administrative data, it allows for analyses of broader effects, and such linkages facilitate study of which ECE programs, with what features, effectively serve the dual purpose of facilitating children's healthy development while also supporting parents' employment, training, or educational pursuits. If policymakers could incorporate more broadly realized outcomes and longer time frames into their analyses of costs and benefits, they would be better equipped to make optimal investments in ECE policies and programs.

Much of the existing evidence on broader and longer-term effects of ECE investments relies on programs targeting children and families experiencing disadvantage, limiting the interrogation of variation in effects. As ECE programs proliferate and mature—with new features and approaches to delivery, serving different populations—opportunities to investigate long-term (and broader) effects across program types and families served will emerge. Better understanding of heterogeneity in long-term effectiveness of ECE programs could inform policymakers on the critical aspects of programs, characteristics of participants, and features of the context that matter for realizing positive net benefits.

Across the mixed-delivery system of ECE in the U.S., programs and services can play the dual role of supporting parents' labor supply or engagement in schooling and training and developing children's skills for both short- and long-term flourishing. Expansions or policy changes in one area can have important ramifications for both the ECE workforce and affordability and access for families in other parts of the ECE landscape, as has been the case with the introduction of publicly provided preK in states and localities. The next frontier for policymakers, practitioners, and researchers alike is identifying the programs and features of programs that best support both aims and replicating or scaling those lessons learned across the patchwork of ECE offerings.

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