

---

# A Productive Investment: Early Child Development

*Rob Grunewald and Arthur Rolnick\**

For well over 20 years, economic development has been a major preoccupation for most state and local governments. Around the country, billions of public dollars are spent each year to subsidize private companies so that they will either locate or expand their businesses in hometown markets.

Recent studies of this approach to economic development, however, make clear that the so-called economic bidding war among state and local governments is actually counterproductive. At least from a national perspective, no new jobs or businesses are created; jobs and businesses are simply located or relocated to the highest bidder. The bidding war is at best a zero-sum game that distorts market outcomes and diverts public funds from more productive investments in economic development.

One of the most productive investments that is rarely viewed as economic development is early childhood development (ECD). Several longitudinal ECD studies that are based on a relatively small number of at-risk children from low-income families demonstrate that the potential return is extraordinary. In a previous essay, we found that, based on these studies—

The potential annual return from focused, high-quality ECD programs might be as high as 16 percent (inflation adjusted), of which the annual public return is 12 percent (inflation adjusted) (Grunewald and Rolnick 2003).

These findings, however, pose a challenge: While small-scale ECD programs can work, can they be reproduced at a much larger scale? There are reasons to be skeptical as some recent attempts at scaling up ECD programs have been disappointing. Nevertheless, we argue that a large-scale program can succeed if it has the following three features:

1. The program focuses on at-risk children and encourages direct parent involvement.
2. The program represents a long-term commitment to ECD.
3. The program rewards successful outcomes in order to encourage high-quality and innovative practices.

---

\* Rob Grunewald, B.A., is Regional Economic Analyst, and Arthur Rolnick, Ph.D., is Senior Vice President and Director of Research, Federal Reserve Bank of Minneapolis, Minnesota, U.S.A. This chapter is an excerpt from “A Proposal for Achieving High Returns on Early Childhood Development,” prepared for the 2006 Conference: Building the Economic Case for Investments in Preschool, convened by the Committee for Economic Development, The Pew Charitable Trusts, and PNC Financial Services Group, in New York, New York, on January 10, 2006. The full paper is available at <<http://minneapolisfed.org/research/studies/earlychild>>. An online video of Dr. Rolnick’s presentation at the conference is available at <<http://www.ced.org/projects>>.

Conditions that can indicate whether a child is at risk include low family income, violence or neglect in the home, low parent education levels, low birthweight, and parent chemical addiction.

**Evidence of a High Return to ECD**  
**The Advantages and Efficacy of an Endowed ECD Fund**  
**Addressing the Concerns**

## **Evidence of a High Return to ECD**

We find that the return to ECD is extraordinary whether compared with most dollars invested in conventional economic development or even with opportunities in the private sector.

### **Conventional Economic Development: A Zero Public Return**

In the name of economic development and creating new jobs, virtually every state in the union has a history of subsidizing private businesses. Previous studies have shown that the case for these subsidies is short-sighted and fundamentally flawed (Burstein and Rolnick 1995).

From a national perspective, jobs are not created—they are only relocated; that is, the public return is, at most, zero. From a state and local perspective, the apparent economic gains are also suspect, because the gains would likely have been realized without the subsidies. In other words, what often passes for economic development and sound public investment is neither.

If using public subsidies to influence the location decision of private companies is the wrong way to promote economic development, what is the right way?  
*Invest in human capital.*

Economists have long been interested in what determines the wealth of nations. They find that several factors appear to play an important role, especially the rule of law and well-established property rights. In addition, most successful economies are associated with a high-quality workforce, which includes workers with formal education as well as experienced workers with on-the-job training. Increased investment in skills and knowledge provides future economic returns through increases in labor productivity (Schweke 2004).

Minnesota is a good example of how long-term investment in education and training has helped to make the state's economy one of the most successful in the country (Fitzgerald 2004).

For the most direct evidence on the importance of education to the economic success of individuals and an economy, consider the increase in the so-called education premium. Twenty years ago the education premium, the average value of a college degree (4 years or advanced degrees) over a high-school degree, was worth 40 percent more in terms of lifetime earnings. Today that premium has grown to over 70 percent (Schweke 2004), and we think it is still growing.

## Early Childhood Development: An Extraordinary Public Return

Knowing that we need an educated workforce, however, does not tell us where to invest limited public resources. Policymakers must identify the educational investments that yield the highest public returns. Here the literature is clear—

Dollars invested in ECD yield extraordinary public returns.

The quality of life for a child and the contributions the child makes to society as an adult can be traced to the first few years of life. From birth until about 5 years old a child undergoes tremendous growth and change. If this period of life includes support for growth in cognition, language, motor skills, adaptive skills, and social-emotional functioning, the child is more likely to succeed in school and later contribute to society (Erickson and Kurz-Riemer 1999). Conversely, without support during these early years, a child is more likely to drop out of school, receive welfare benefits, and commit crime.

To provide such support for at-risk children, we need high-quality ECD programs. The problem is that most ECD programs fall short. Today, for example—

Head Start is spending roughly \$7,000 per child (DHHS 2004), and we estimate that a high-quality program requires at least \$9,500 (Grunewald and Rolnick 2003) and as high as \$15,000 for children with multiple risk factors. Moreover, Head Start's funding allows it to accommodate only about 60 percent of eligible children.

The question we addressed in our previous essay (Grunewald and Rolnick 2003) is whether the return to ECD justifies closing the ECD funding gap. We argued that it did, that the benefits achieved from ECD programs far exceed their costs. Our finding was based on several longitudinal studies that essentially reached the same conclusion—the return to ECD programs that are focused on at-risk families far exceeds the return on most projects that are funded as economic development.

The cost-benefit analyses conducted on the Perry Preschool, Abecedarian Project, Chicago Child-Parent Centers, and Elmira Prenatal/Early Infancy Project range from \$3 to almost \$9 for every dollar invested. Expressed as an internal rate of return, we estimate the real (adjusted for inflation) internal rates of return on these programs range from about 7 percent to above 16 percent annually.

A recently released 40-year summary report of the Perry Preschool Study shows that the long-term benefits registered at the 27-year mark of the study continued into adulthood.

The total benefit-cost ratio is now estimated at \$17 for every dollar invested; the benefit-cost ratio in respect to benefits that went to the general public is almost \$13:\$1 (Schweinhart 2004).

These new findings indicate that our original internal rate-of-return estimates for the Perry Preschool Study are too low.

Several other recent studies of ECD programs also indicate that investments to help young children prepare for school and beyond pay big dividends to society:

- An evaluation of the 1995–96 class of children of the Michigan School Readiness Program for at-risk children showed that a sample of participants through grade 4 were less likely to be held back a grade and had higher percentages of satisfactory ratings on standardized achievement tests in reading and mathematics relative to a comparison group (Xiang and Schweinhart 2002).
- Assessments of kindergarten children in New Jersey’s highest poverty school districts, or Abbott districts, showed marked improvement in the 2003–04 school year compared with previous years. Since 1999 these districts were mandated by the state’s Supreme Court to provide preschool for 3- and 4-year-old children in these districts. Language scores were significantly higher in the 2003–04 school year compared with scores 4 years earlier, and the percentage of children scoring “very strong” in early reading skills increased to 47 percent from 42 percent a year earlier (New Jersey Department of Education 2004).
- A recent study of children attending Oklahoma’s pre-K program (available to all 4-year-old children statewide) showed particularly strong gains for low-income children, including a 31 percent increase in cognitive skills and an 18 percent increase in language skills. Hispanic children demonstrated a 54 percent increase in test scores (Gormley and Phillips 2003).
- Two studies of child care released in 2004 found that enrollment in center-based child care was associated with positive cognitive outcomes for young children, particularly when providers had high levels of skill and education and child–teacher ratios were low (Loeb and others 2004; NICHD Early Child Care Research Network 2003).

## How to Invest in ECD

Research shows that high-quality ECD programs, particularly for at-risk children, produce substantial public and private benefits. In addition, research reveals the ingredients necessary for healthy development. For example—

High-quality ECD providers with well-trained teachers, relatively low child-to-teacher ratios, and effective parent education and involvement are more likely to succeed than providers with lower levels of quality (Barnett 2003; Brooks-Gunn, McLanahan, and Rouse 2005).

Furthermore, the current level of public investment in ECD is too low, as demonstrated by the number of families who don’t have access to high-quality ECD programs.

While we are convinced that well-focused ECD investments will produce high returns, questions remain about the mechanism that would most effectively bring ECD to a larger scale. We argue that potentially—

The most effective and efficient means to improve access to, and quality of, ECD is to implement incentives within the existing market for ECD, particularly providing scholarships to families with at-risk children.

The ECD market refers to current ECD providers from the public and private sectors, which represents a diverse mix of preschools, child care providers, and home-visiting programs.

## **A Market-Oriented Approach**

Programs such as Head Start and some other recent attempts to reach a large number of at-risk families have not consistently generated high returns. Several studies have concluded that even though there are pockets of short-term success, long-term gains from Head Start have fallen short of the studies cited above, such as the Perry Preschool and Abecedarian programs (Currie, Garces, and Thomas 2002).

We argue that funding a top-down, planned system is unlikely to yield consistently high returns. Instead, we propose—

A bottom-up, market-oriented system that first and foremost empowers at-risk families and keeps decision making about individual programs at the micro level with ECD providers.

Much of economic policy research demonstrates that resource-allocation decisions are more efficiently made by markets at the micro level (that is, by individuals and businesses) rather than by planning committees at the macro level.

## **Scholarships and Endowment**

We note that providing ECD to at-risk children provides the highest rate of public return. In addition, robust parent education and involvement are essential for desired child outcomes. Finally, a permanent source of funding is required to ensure an effective market response.

Based on these premises, we propose a tuition-plus scholarship program for all at-risk children—

A tuition-plus scholarship would cover tuition for the at-risk child to a qualified ECD program plus the cost of high-quality parent mentoring and home visits. The scholarships and parent mentoring would be funded with a permanent endowment led by state governments.

Parent mentors would play a key role in providing parent education and information about available high-quality ECD programs. According to the ECD research, parent involvement is critical to a success program, and home visits by qualified mentors are among the best ways to achieve a high degree of parent involvement. Mentor qualifications would include ECD training, parent training, and counseling on issues related to health and financial issues as well as education.

An executive board that manages the ECD endowment [would set] standards that ECD providers must meet in order to register the scholarship children. The standards would be consistent with the cognitive and social-emotional development needed to succeed in school.

We envision a mix of providers from the public and private sectors competing to serve at-risk children.

## **Expected Outcomes**

We expect the market-oriented approach to achieve strong results, because the scholarships would directly involve the parents with their children's education. Parents would be empowered to choose among the various providers and select one based on location, hours of service, quality of program, and other features. The process of self-education and provider choice would itself involve the parent.

The market-oriented approach would be outcome based, so scholarships would include financial incentives focused on performance and would encourage innovation.

While programs would have to meet requirements to accept children with scholarships, providers would have room for innovation in providing services. Furthermore, the scholarships would be priced at a level that will cover the costs needed to produce successful results.

Unlike a top-down, planned system, the ECD market, through parent decisions and response by providers, would determine the structure of the ECD industry. While the structure would be influenced by standards that are set by the executive board, families and ECD providers will make independent micro-level decisions. This would allow the diverse mix of current providers and new entrants into the market to find the best means to supply high-quality ECD.

## **The Advantages and Efficacy of an Endowed ECD Fund**

An endowed fund for ECD represents a permanent commitment and effectively leverages resources by public and private stakeholders. Because the endowment would provide a stable funding source, we would expect the market response to be better than otherwise.

A permanent commitment sends a market signal to providers that they can expect a consistent demand for their product. By drawing up a business plan that demonstrates it can successfully attract scholarship children—

An ECD provider can leverage funds for capital expansions or improvements from low-interest loan sources and philanthropic organizations; lenders will be assured by the stability of the ECD endowment.

## **How Much Money Would the Endowment Need to Raise?**

Based on costs used in previous studies and current programs for at-risk children, we estimate that—

Total resources needed to fund an annual scholarship for a high-quality ECD program for an at-risk 3- or 4-year-old child would be about \$10,000 to \$15,000 for a full-day program that includes parent mentoring.

The scholarship either would cover the full cost of tuition or would be layered on top of existing private and public funds, such as child-care subsidies, to enhance quality features that correlate with school-readiness outcomes.

The endowment board could vary the amount of the scholarship to reach children in families just over the poverty line on a sliding scale or increase the amount of the scholarship for children facing multiple risk factors. The board may also consider providing scholarships for families that do not qualify based on income, but whose children are identified with risk factors other than living in poverty.

## **Addressing the Concerns**

Various stakeholders in ECD, including ECD professionals and business leaders, have posed thoughtful questions that need to be addressed.

### **How Does the Market-oriented Approach Respond to the Infrastructure Needs of the ECD Industry?**

We have two responses—

- First, because an endowment takes about 3 years to build, there is time to increase the number of trained teachers and physical capacity before the first scholarships are rolled out.
- Second, with the commitment of an endowment to fund the scholarships, we expect the market would respond, that is, providers will address their infrastructure needs in order to enroll children with scholarships.

Expanding physical capacity would not likely require much additional building, but, rather, renovating current structures.

### **What Is the Role of Accountability in the Market-oriented Approach?**

Accountability plays an important role in the market-oriented approach and all other systems of ECD.

- First, since benefits of ECD programs are relatively intangible, broad-based and provider-specific assessments help make the gains in early childhood more tangible to stakeholders.
- Second, an accountability system produces data that can be used to provide incentives to achieve strong child outcomes.

- Third, accountability measures help ECD providers identify and implement best practices.

In the market-oriented approach, program-level assessments of structure and process would determine whether an ECD program qualifies to receive scholarship funds. Assessments of child outcomes would be used to measure the progress children make in the programs, provide incentives for strong performance, and identify best practices.

We feel that this tension regarding accountability—the difficulty inherent in measuring child outcomes and the use of these data to provide performance incentives—will ultimately be productive.

There is strong demand for fair, comprehensive, and cost-effective assessments of child outcomes.

Finally, collecting data on program structure, process, and child outcomes helps the ECD field identify best practices and disseminate information about best practices among providers. This feedback loop promotes quality and strengthens programs.

### **How Does this Approach Address the Needs of Infants and Toddlers?**

Concerns have been raised that beginning an ECD program at age 3 is too late, especially for children who are considered at high risk. Furthermore, neuroscience shows that when a child receives an intervention as an infant or toddler, the brain is more receptive than when the intervention is delivered at ages 3 and 4.

While we certainly agree that each year from birth to age 5 is critical for child development, for this proposal—

We argue beginning the scholarships for ECD programs at age 3 for two reasons. First, the parent-mentoring component of this program can begin much earlier than age 3. Second, given limited resources, this proposal can reach more children than if the scholarships were priced for 5 years (birth to age 5) at an ECD provider.

### **How Do We Encourage Families to Participate in the Scholarship Program?**

It is important to consider that the scholarship program is voluntary. Qualifying for a scholarship does not mandate families to enroll their children in an early childhood program. However, we are confident that most families would take advantage of the scholarship and enroll their children in a high-quality ECD program. Nevertheless, for families that may not at first enroll, incentives (e.g., a coupon for a bag of groceries) would likely help encourage them to participate.

One important aspect of successful programs is continuity. A challenge to early childhood programs is working with a population that tends to be relatively transient. Incentives to keep families involved in a program may be important to maintaining continuity with an ECD program.

## **How Does K–12 Education Quality Impact Investments in ECD?**

Even if the market-oriented approach is successful at getting at-risk children ready for kindergarten, the gains will be short-lived if children go into dysfunctional schools. According to Nobel Laureate economist James Heckman, “The complementarity or synergism between investments at early ages and investments at later ages suggests that early investment has to be complemented by later investment to be successful” (Heckman and Masterov 2004). Research indicates that gains made at Head Start centers in cognitive skills faded out over time in part due to the sub-par quality of later schooling (Currie and Thomas 2000).

We expect that ECD would help schools by improving children's cognitive and social-emotional development before they reach kindergarten. The inputs will be better.

## **How Does the Scholarship Program Fit with Initiatives for Universal Preschool and Child-Care Subsidy Tiered Reimbursement Systems?**

In our view the decision to implement a universal preschool program is a matter of resource allocation. The highest public return to investments in ECD on a per-child basis comes from reaching children who are most at risk. The cost to provide free voluntary preschool is about three to four times more expensive than a fully funded targeted preschool program (Brandon 2004).

While universal preschool does reach at-risk children, and may even be more effective in reaching at-risk children than a targeted program because universal programs don't have to screen children for qualifications (Barnett, Brown, and Shore 2004), the cost of preschool for all children is much higher. Nevertheless—

A choice to go universal does not preclude a targeted program for at-risk children in the near term.

Another widely discussed policy option that has been piloted in a number of states is tiered reimbursement for child-care subsidies based on quality, that is, child-care centers with higher levels of quality based on a rating scale would receive higher reimbursement rates for child-care subsidies relative to programs with lower quality. Higher reimbursement rates provide an incentive—and the means, since quality requires more resources—for a program to make enhancements, such as training teachers and lowering child-to-teacher ratios.

Rating systems encourage quality enhancements throughout the ECD market, potentially improving early education and care environments for children from all family income levels and from infancy to school age.

## **Conclusions**

The evidence is clear that investments in ECD for at-risk children pay a high public return. Helping our youngest children develop their life and learning skills results in better citizens and more productive workers.

Compared with the billions of dollars spent each year on high-risk economic development schemes, an investment in ECD is a far better and far more secure economic development tool. Now is the time to capitalize on this knowledge.

We argue that a market-oriented approach to ECD has several strong features. The present ECD landscape includes a variety of providers from the public and private sectors; a market-oriented approach would help improve the access and quality of ECD without creating additional bureaucracy. Focusing on at-risk children and encouraging direct parent involvement would help reach those children and families with the greatest need for ECD programs. Providers would receive incentives for successful outcomes and make local decisions on how to best achieve strong results. Finally, with a long-term, demand-side commitment through the creation of state-level public-private endowments, we expect a strong response from the supply-side of the ECD market.

In our view, the case is closed for why we must invest in ECD. Now it is time to design and implement a system that will help society realize on a large scale the extraordinary returns that high-quality ECD programs have shown they can deliver.

## Web Resources [as of November 2006]

Committee for Economic Development, conference publications, reports, and events to promote investment in early education: <<http://www.ced.org>>

Federal Reserve Bank of Minneapolis, research studies on early child education and links to related sites: <<http://minneapolisfed.org/research/studies/earlychild>>

Rob Grunewald's e-mail: <[Rob.Grunewald@mpls.frb.org](mailto:Rob.Grunewald@mpls.frb.org)>

Arthur Rolnick's e-mail: <[Art.Rolnick@mpls.frb.org](mailto:Art.Rolnick@mpls.frb.org)>

## References

- Barnett, W. S. 2003. Better Teachers, Better Preschools: Student Achievement Linked to Student Qualifications. *Preschool Policy Matters* (National Institute for Early Education Research), 2 (March):2.
- Brandon, R. 2004. *Financing Access to Early Education for Children Age Four and Below: Concepts and Costs*. Seattle: University of Washington, Evans School of Public Affairs, Human Services Policy Center. October.
- Brooks-Gunn, J., S. McLanahan, and C. Rouse. 2005. Introducing the Issue (School Readiness: Closing Racial and Ethnic Gaps). *The Future of Children* 15(1, spring):12.
- Burstein, M., and A. Rolnick. 1995. Congress Should End the Economic War Among the States: Federal Reserve Bank of Minneapolis Annual Report Essay. *The Region* 9(1, March):3–20.
- Currie, J., E. Garces, and D. Thomas. 2002. Longer-Term Effects of Head Start. *The American Economic Review* 92(4, September):999–1012.

- Currie, J., and D. Thomas. 2000. School Quality and the Longer-Term Effects of Head Start. *Journal of Human Resources* 35(4, fall):755–74.
- DHHS (U.S. Department of Health and Human Services). 2004. *Head Start Program Fact Sheet*, Administration for Children and Families. <http://www.acf.hhs.gov/programs/hsb/research/2004.htm>
- Erickson, M. F., and K. Kurz-Riemer. 1999. *Infants, Toddlers and Families: A Framework for Support and Intervention*. New York: The Guilford Press.
- Fitzgerald, T. 2004. Business Cycles and Long-Term Growth: Lessons from Minnesota. *The Region* 17(2, June):58–61.
- Gormley, W. T., and D. Phillips. 2003. The Effects of Universal Pre-K in Oklahoma: Research Highlights and Policy Implications. Unpublished manuscript. October.
- Grunewald, R., and A. Rolnick. 2003. Early Childhood Development: Economic Development with a High Public Return. *The Region* 17(4 supplement, December):6–12.
- Heckman, J. J., and D. V. Masterov. 2004. *The Productivity Argument for Investing in Young Children: Working Paper 5*. Washington, D.C.: Committee for Economic Development, Invest in Kids Working Group. October.
- Loeb, S., B. Fuller, S. L. Kagan, and B. Carrol. 2004. Child Care in Poor Communities: Early Learning Effects of Type, Quality, and Stability. *Child Development* 75(1):47–65.
- New Jersey Department of Education. 2004. *A Rising Tide: Classroom Quality and Language Skills in the Abbott Preschool Program*. Early Learning Consortium. September.
- NICHD Early Child Care Research Network. 2003. Does Amount of Time Spent in Child Care Predict Socioemotional Adjustment During the Transition to Kindergarten? *Child Development* 74(4):976–1005.
- Schweinhart, L. J. 2004. *The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions and Frequently Asked Questions*. Ypsilanti, Mich.: The High/Scope Educational Research Foundation. November.
- Schweke, W. 2004. *Smart Money: Education and Economic Development*. Washington D.C.: Economic Policy Institute.
- Xiang, Z., and L. J. Schweinhart. 2002. *Effects Five Years Later: The Michigan School Readiness Program Evaluation Through Age 10*. Research report to the Michigan State Board of Education.