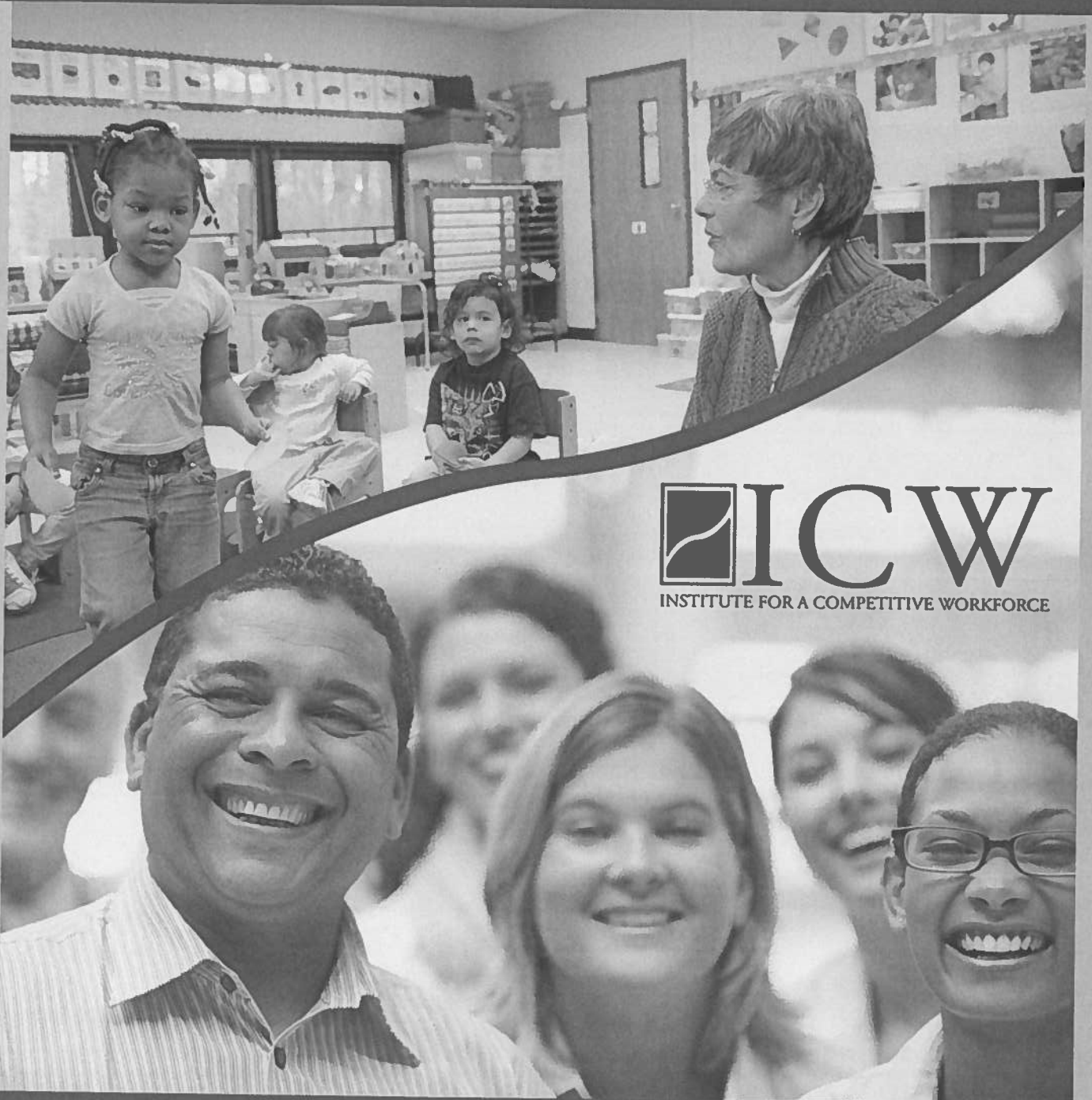


# Starting Smart & Finishing Strong

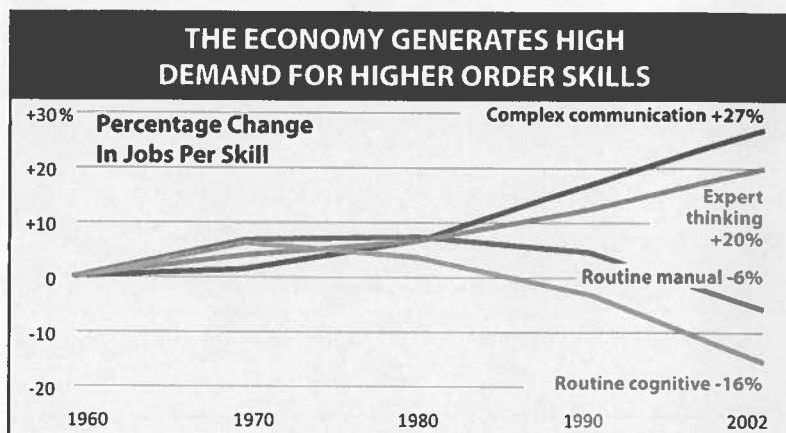


 **ICW**  
INSTITUTE FOR A COMPETITIVE WORKFORCE

**Fixing the Cracks in America's Workforce Pipeline  
Through Investments in Early Childhood Development**

## Business has a clear economic stake in the future of our nation's children and should be an active partner in promoting policies that help young children succeed.

In a survey of U.S. Chamber of Commerce members, nine out of ten agreed that, to ensure the United States remains competitive with other high-achieving countries, we must raise academic expectations and performance.<sup>1</sup> Right now, 80 to 90 million American adults, about half of the workforce, do not have the basic education and communication skills required to acquire and advance in jobs.<sup>2</sup> To compete and win in this economy, we need a well-educated, team-capable and job-ready workforce. Investments in young children set tomorrow's employees on a trajectory to meet these demands.



SOURCE: David Autor, Frank Levy and Richard J. Murnane, "The Skill Content of Recent Technical Change: An Empirical Investigation." *Quarterly Journal of Economics*, 118, 4 (November 2003) pp. 1279-1334. Data updated to 2002 by David Autor.

*"Univision believes business should actively promote the value of investing in early education to prepare the country's 21st century workforce. Our education campaign 'Es El Momento' emphasizes the benefits of early education for young children to help them succeed in school and to help strengthen our economy."*

**Maelia Macin**  
Vice President & General Manager  
Univision Communications, Inc.



## Developing a Skilled, High-Performing Workforce

Test scores indicate that U.S. students are not on pace to become the workers we need.

- The majority of 4<sup>th</sup> or 8<sup>th</sup> graders are not proficient in both math and reading in any state.<sup>3</sup>
- Most children reading well below grade level at the end of 4<sup>th</sup> grade will not graduate from high school.<sup>4</sup>
- A 2006 survey of students in 30 developed countries found that U.S. 15-year-olds ranked 25<sup>th</sup> in math and 21<sup>st</sup> in science.<sup>5</sup>
- Only 25 percent of 17- to 24-year-olds would qualify to serve in the U.S. military. The rest cannot meet the physical, behavioral or educational standards for

service—standards that are similar to those many industries use in hiring.<sup>6</sup>

- 20 percent of U.S. workers are functionally illiterate.<sup>7</sup>

Reversing these trends requires starting early. The foundation of skills required to be successful in school, work and life is built in the youngest years—birth to age five.

Young children's brains develop 700 synapses—neural connections that transmit information and support learning—every second.<sup>8</sup>

Yet, too often we do not give our young children the early educational, health (including dental health) and social support they need.

*"Quality pre-k is an important early childhood education and development issue, but it is also a critical workforce issue. That is why our Chamber supports these investments. We know that the return on today's investments in pre-k will be a stronger workforce in the future."*

**Dave Adkisson**  
President & CEO

Kentucky Chamber of Commerce



## Early Action Pays Off Today and Tomorrow

As in business, investing early in our workforce pipeline ensures the best outcomes.

We can reverse current workforce and education trends. The research is clear: High-quality early childhood programs can have a significant short- and long-term impact on children's lifelong success and on our economy.

**The savings start immediately.** Giving young children a good start reduces health problems and grade retention and special education costs in the first few years of school.

In addition, because early childhood spending tends to be local, and child care and pre-kindergarten professionals generally spend rather than save most of their earnings, states generate roughly \$2 in new local spending for each federal child care dollar spent.<sup>9</sup>

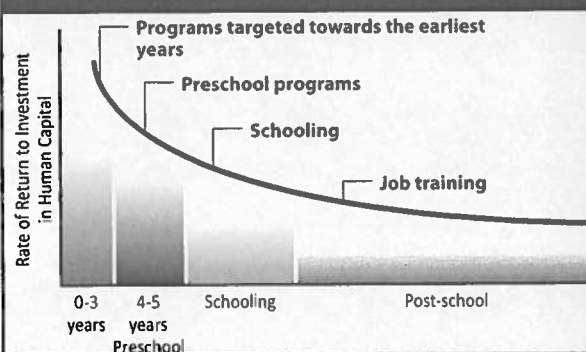
**And benefits accrue over the long term.** One study found that investing just \$6,692 in quality pre-k for at-risk children substantially improved outcomes such as **education levels, home ownership and salary** while reducing negative behaviors, including substance abuse and crime. The net result was a lifetime societal benefit of up to \$69,937—an ROI of greater than 10:1.<sup>10</sup>

For these reasons the Institute for a Competitive Workforce (ICW), a 501(c)3 nonprofit affiliate of the U.S. Chamber of Commerce, recommends:

- **Supporting and directing the expansion of high-quality programs** to serve young children's development and learning, including state-funded pre-k delivered in a variety of settings such as schools, child care centers and homes and Head Start agencies, with public funding targeted to low-income children first.
- **Ensuring that early childhood educators have the skills and knowledge** necessary to do the job right.
- **Supporting parental choice** by developing a mix of public, private and nonprofit programs that can meet a variety of needs.

- **Integrating the delivery of health and education services** to children from before birth to age five.
- **Making the best use of existing resources** by coordinating local, state and federal efforts.

### RATES OF RETURN TO HUMAN CAPITAL INVESTMENT AT DIFFERENT AGES



SOURCE: J.J. Heckman, "Skill formation and the economics of investing in disadvantaged children." *Science*, 312(5782):1900-2, (June 2006).

- **Integrating and aligning** early learning programs with elementary and secondary schools to create a seamless and efficient education system.
- **Increasing the availability of quality child care programs** that cover parents' full work day.
- **Building an evidence-based case** for change by collecting data and conducting the research needed to identify best practices, assess systems performance and report results to the public.



*"Investing in the earliest years of life is the first step in preparing a workforce that can meet the demands of the 21st century."*

**Ann Cramer**  
Director, Americas  
IBM Corporate Citizenship and Corporate Affairs

*"Alabama has one of the nation's highest quality pre-k programs. The Business Council has made keeping it that way a top priority. If we want to ensure a bright future for our companies, one of the most important investments the business community can make is in advocating for policies that fix the cracks in our workforce pipeline. That means starting at the very beginning with high-quality early childhood development programs. When children start life off on the right foot, our entire society reaps the rewards."*

**William J. Canary**  
President & CEO  
Business Council of Alabama



## Take Action

Join ICW, the Partnership for America's Economic Success at the Pew Center on the States and national business organizations, such as the Manufacturing Institute and the Society for Human Resource Management, in advocating for policies that maximize returns on investments in early childhood education.

### Four Steps Business Leaders Can Take toward a More Productive Workforce and a Stronger Economy

1. **Spread the Word:** Host events, talk to your employees, start a blog, write an article and share information with other business leaders.
2. **Make the Economic Case:** Encourage business organizations to support early learning as part of their policy agendas.
3. **Take a Stand:** Tell policy makers that the future of your business and our communities requires investments in quality early childhood development to fix our failing workforce pipeline now.
4. **Lead by Example:** Adopt policies in your business that support working families.

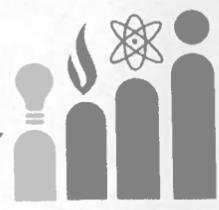
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web: www.PartnershipforSuccess.org

- 1 Education Reform: Insight into the Business Community's Views About the U.S. Education System. (2006). Retrieved from [http://www.uschamber.com/NR/rdonlyres/enau5qwsrn2qsp44krtoryjy4dofbndfxv4gkubcuivontlrh5wn4k33qibldkftqxsaitnuyogb6b4dggjh56h061213nclb\\_exec\\_report.pdf](http://www.uschamber.com/NR/rdonlyres/enau5qwsrn2qsp44krtoryjy4dofbndfxv4gkubcuivontlrh5wn4k33qibldkftqxsaitnuyogb6b4dggjh56h061213nclb_exec_report.pdf)
- 2 Reach Higher, America: Overcoming Crisis in the U.S. Workforce. (2008). Report of the National Commission Adult Literacy. Council for Advancement of Adult Literacy.
- 3 The National Assessment of Educational Progress. (2009). The nation's report card. Retrieved from <http://nces.ed.gov/programs/coe/2010/section2/table-mat-3.asp> and <http://nces.ed.gov/programs/coe/2010/section2/table-rd2-3.asp>.
- 4 Madden, N. A., Slavin, R. E., Karweit, N. L., Dolan, L. J., & Wasik, B. A. (1993). Success for all: Longitudinal effects of a restructuring program for inner-city elementary schools. *American Educational Research Journal*, 30, 123-148.
- 5 Baldi, S., Jin, Y., Skemer, M., Green, P. J., & Hergel, D. (2007). Highlights from PISA 2006: Performance of U.S. 15-year-old students in science and mathematics literacy in an international context [NCES 2008-016]. Washington, DC: National Center for Education

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- 6 Mission Readiness: Military Leaders for Kids. (2009). Ready, willing and unable to serve. Retrieved from <http://cdn.missionreadiness.org/NATEE1109.pdf>
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- 9 Warner, M. (2009). Child care multipliers: Stimulus for the states. Ithaca, NY: Cornell Cooperative Extension.
- 10 Reynolds, A., Temple, J., Robertson, D., & Mann, E. (2002). Age 21 cost-benefit analysis of the Title 1 Chicago child-parent centers. *Educational Evaluation and Policy Analysis*, 24, 267-303.



Center For  
**ENERGY**   
Workforce Development

## Meeting America's Energy Workforce Needs TOMORROW ...



## ... Means Meeting the Developmental Needs of Young Children TODAY

Today's infants and toddlers are tomorrow's **line workers, technicians, engineers** and **global energy solutions providers**. Priorities we set and investments we make NOW will have a dramatic impact on whether our children attain the skills necessary to power the future of our country—and our world.

# Energizing America's Future



*"We know that investments in early childhood are vital to building the team-ready, highly skilled workforce our industry—and all U.S. business—needs to be competitive. We also know that business leadership plays a key role in effective public policy. That's why I make sure to spend time promoting early childhood policies in Virginia."*

**Paul D. Koonce, CEO**  
Dominion Virginia Power

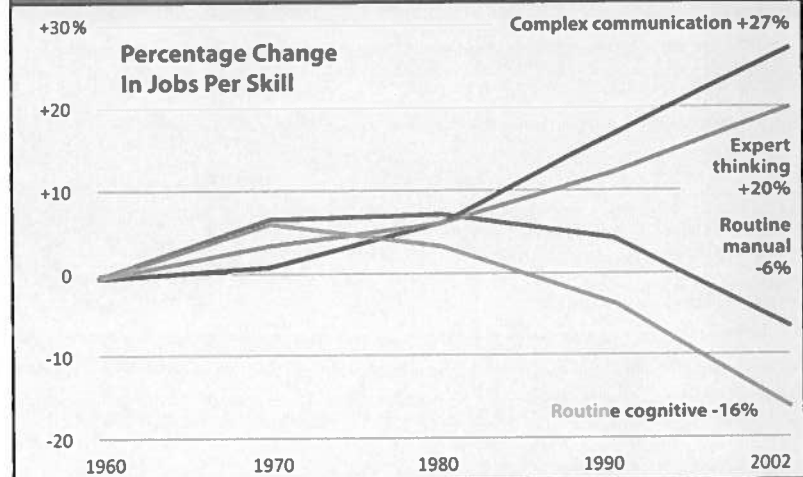
**As energy-sector workers begin to retire in large numbers, an urgent need exists for a new generation of well-trained and highly skilled employees to fill the gap.**

The team-capable men and women who make up the energy workforce also form the backbone of America's electric, natural gas and nuclear energy companies. Yet, if current trends hold, we will face a critical shortage of workers just when our country needs new, innovative solutions to energy independence.

Up to half of current workers will be eligible to retire or will leave for other reasons in the next five to ten years. According to the CEWD report, "Gaps in the Energy Workforce Pipeline," by 2015:

- ❗ 50 percent of skilled technicians may need to be replaced;
- ❗ Nearly 49 percent of employees who operate gas- and coal-fired generation will be eligible to leave;
- ❗ Roughly 51 percent of engineering jobs in all disciplines could become vacant; and
- ❗ About 42 percent of lineworker jobs may need to be filled.

## THE ECONOMY GENERATES HIGH DEMAND FOR HIGHER ORDER SKILLS



SOURCE: David Autor, Frank Levy and Richard J. Murnane, "The Skill Content of Recent Technical Change: An Empirical Investigation." *Quarterly Journal of Economics*, 118, 4 (November 2003) pp. 1279-1334. Data updated to 2002 by David Autor.

**Our industry requires a skilled workforce, but U.S. students are not on pace to meet our needs.**

- ❗ The majority of 4th or 8th graders are not proficient in both math and reading in any state.<sup>1</sup>
- ❗ Most children reading well below grade level at the end of fourth grade will not graduate from high school.<sup>2</sup>
- ❗ A 2006 survey of students in 30 developed countries found that U.S. 15-year-olds ranked 25th in math and 21st in science.<sup>3</sup>
- ❗ Only 25 percent of 17- to 24-year-olds would qualify to serve in the U.S. military. The rest cannot meet the physical, behavioral or educational standards for service—standards that are similar to those many industries use in hiring.<sup>4</sup>

## Reversing these Trends Requires Starting Early

The foundational skills required to be successful in school, work and life are built in the earliest years—between birth and age five. Young children's brains develop 700 synapses—the neural connections that transmit information and support learning—every second.<sup>5</sup>

Yet, too often we do not give our young children the early educational, health (including dental health) and social supports they need—public investments in young children are substantially smaller than those for older kids.<sup>6</sup>

## By Starting Early Our Country Can Develop Workers We Need

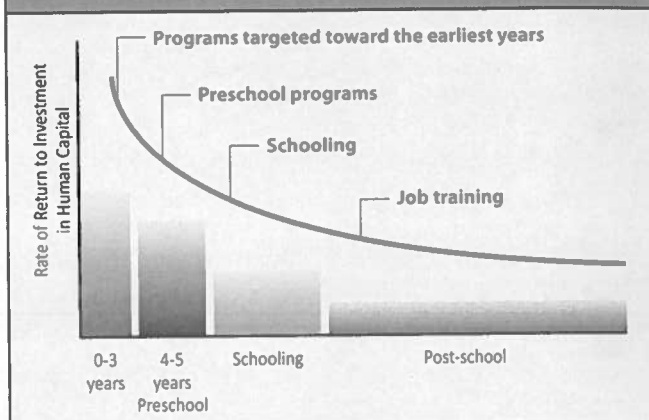
**Just as with generating and delivering energy, making smart investments early on in our workforce supply lines ensures the best outcomes.**

The research is clear: High-quality early childhood programs can have a significant short- and long-term impact on children's lifelong success, on our industry and on our economy.

**Benefits Today:** Giving young children a good start reduces health problems, as well as grade retention and special education costs in the first few years of school.<sup>7</sup> In addition, because early childhood spending tends to be local, and child care and pre-kindergarten professionals generally spend rather than save most of their earnings, states generate roughly \$2 in new local spending for each federal child care dollar spent.<sup>8</sup>

**Benefits Tomorrow:** One study found that an investment of just \$6,692 per child in a quality pre-k program for at-risk children substantially improved outcomes such as education levels, home ownership and salary while reducing negative behaviors, including substance abuse and crime. The net result was a lifetime societal benefit of up to \$69,937—an ROI of greater than 10:1.<sup>9</sup> These benefits help children become not only good employees— but the customers and neighbors we need as well.

### RATES OF RETURN TO HUMAN CAPITAL INVESTMENT AT DIFFERENT AGES



SOURCE: J.J. Heckman, "Skill formation and the economics of investing in disadvantaged children." *Science*, 312(5782):1900-2, (June 2006).



*"A child's earliest years are the most critical for setting the stage for their academic career and success in life. That's why we put so much emphasis on early childhood development programs. In Northwest Florida, Gulf Power Company supports organizations like Every Child a Reader in Escambia that help prepare children for kindergarten. In fact, we helped launch The Children's Movement of Florida right here in Pensacola."*

**Susan Story, President and CEO  
Gulf Power Company**

### Business Leadership Matters

The CEO of Entergy Arkansas, Hugh McDonald, has been a leader for pre-k. Based on the company's 2002 report calling for investments in early education, Mr. McDonald engaged his peers to persuade policy makers to take action. "I asked myself, how do we make the sale, and decided that first, we had to get the business community involved." To do this, Mr. McDonald focused on the economic evidence, noting, "Pre-k costs 10 times less per person than incarceration." He says the business community heard the message loud and clear—and so did Arkansas policy makers, with the state increasing its investment in pre-k from approximately \$6 million in 2001 to \$110 million in 2008.<sup>10</sup>





*"Our industry's ability to serve our customers depends on our workforce. We have to support smart education policies that will produce the highly skilled workers we need, including proven early childhood programs like pre-k."*

**Darrell Ishmael**  
Manager, Corporate Security and Continuity  
East Kentucky Power Cooperative



## Take Action

**Join the CEWD, the Partnership for America's Economic Success at the Pew Center on the States and national business organizations, such as the Manufacturing Institute and the Institute for a Competitive Workforce, an affiliate of the U.S. Chamber of Commerce, in advocating for policies that maximize returns on investments in early childhood development.**

### Four Steps You Can Take toward a More Productive Workforce and a Stronger Economy

1. **Spread the word:** Host events, talk to your employees, start a blog, write an article and share information with other business leaders.
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3. **Take a Stand:** Tell policy makers that the future of your business and our communities requires investments in quality early childhood development to fix our failing workforce pipeline now.
4. **Lead by Example:** Adopt policies in your business that support working families.

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<sup>1</sup> The National Assessment of Educational Progress. (2009). The nation's report card. Retrieved from <http://nces.ed.gov/programs/coe/2010/section2/table-mal-3.asp> and <http://nces.ed.gov/programs/coe/2010/section2/table-rd2-3.asp>.  
<sup>2</sup> Madden, N. A., Slavin, R. E., Kanweit, N. L., Dolan, L. J., & Wasik, B. A. (1993). Success for all: Longitudinal effects of a restructuring pro-gram for inner-city elementary schools. *American Educational Research Journal*, 30, 123-148.  
<sup>3</sup> Baldi, S., Jin, Y., Skemer, M., Green, P. J., & Herget, D. (2007). Highlights from PISA 2006: Performance of U.S. 15-year-old students in science and mathematics literacy in an international context (NCES 2008-016). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.  
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<sup>6</sup> Macomber, J., Isaacs, J., & Vericker, T. (2010). Public investment in children's early and elementary years (birth to age 11). Washington, DC: The Brookings Institution & The Urban Institute.  
<sup>7</sup> Partnership for America's Economic Success. (2009). Investing in America's children: The business case. Retrieved from [www.partnershipforsuccess.org/uploads/20100524\\_PAESCStatementBrochureendnotesweb.pdf](http://www.partnershipforsuccess.org/uploads/20100524_PAESCStatementBrochureendnotesweb.pdf).  
<sup>8</sup> Warner, M. (2009). Child care multipliers: Stimulus for the states. Ithaca, NY: Cornell Cooperative Extension.  
<sup>9</sup> Reynolds, A., Temple, J., Robertson, D., & Mann, E. (2002). Age 21 cost-benefit analysis of the Title 1 Chicago child-parent centers. *Educational Evaluation and Policy Analysis*, 24, 267-303.  
<sup>10</sup> Data from The State of Preschool 2003 and 2009. National Institute for Early Education Research at Rutgers University.



State Early Childhood Policy  
Technical Assistance Network

## **Many Happy Returns:** Three Economic Models that Make the Case for School Readiness

*Charles Bruner*

Resource Brief/December 2004

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# Chapter One

## INTRODUCTION AND OVERVIEW

Anyone who has been active in early childhood policy is familiar with the argument that for every dollar invested in quality early childhood programs, there is a return to society of much more than the original dollar invested. The potential for positive returns on investments in early childhood programs has led one Nobel laureate economist, James Heckman, to conclude: "Invest in the very young."<sup>1</sup>

Economic evaluations of early learning programs hold promise for enlisting new allies, particularly business leaders and economic development advocates, in supporting new early childhood investments.

Economists and businesspeople commonly use cost-benefit analyses—tools that are being increasingly applied to evaluations of early childhood and other social programs—to evaluate the profitability of new investments.

One standard tool for assessing the relative value of a new investment is its return on investment (ROI), which is the amount of financial benefit divided by the amount of investment. The higher the ROI, the better the investment. Since benefits sometimes accrue over periods of time, ROI models discount the value of dollars earned later, rather than earlier, to account for inflation and alternative uses of the money that might be made. They may also calculate the rate of return, or the average annual return on the investment, to compare one investment option with another.<sup>2</sup> ROI or rate-of-return analyses are key tools private-sector investors use to make decisions about where to make their investments.

These tools have been applied rather sparingly, however, in assessing public investments. While in the

business world it is generally possible to assess investments in monetary terms of profit and loss, public investments generally have goals that are not directly measured monetarily, if they can be measured in that way at all. They include improved health status, greater personal and community safety, equity and fairness in treatment and service, and even the dignity that comes from living in a supportive environment.

Yet some desired impacts of public investments, particularly those related to economic growth and human capital development, can be measured in economic terms. Early childhood programs in particular can produce three different types of economic benefits, which are described briefly below and more extensively in Chapters Two through Four of this resource brief. When policy makers, advocates, and program directors evaluate programs through the lens of these economic returns, they can more confidently enlist support for programs, assess the relative value of different types of programmatic investments, and even redirect or invest identified savings into program expansion.

### Returns Related to Child Growth and Development

The first and most studied economic benefit results from improved child health and development. The four seminal studies in this area evaluated the Elmira Prenatal/Early Infancy Project (PEIP), the Carolina Abecedarian Project, the High/Scope Perry Preschool Program, and the Chicago Child-Parent Centers. Each tracked costs and benefits related to the children's (and, in the case of Elmira, the parents') use of remediation or compensatory programs (special education, juvenile justice, child welfare, health and mental health services) and/or welfare benefits (AFDC/TANF, food stamps), as well as criminal

activity (corrections and victim costs). Some also tracked later earnings, both in terms of benefits to the individual and to society in increased taxes.

Each of the studies showed major, long-term benefits—with at least four dollars returned for every dollar invested. Statistics from these programs frequently have been cited by both policy makers and business leaders as a rationale for making new investments in early childhood. While these studies generally required long-term follow-up to establish the programs' full benefits, they already show the promise of substantial economic gains from early childhood interventions that improve child outcomes.

#### **Returns Related to Economic Activity**

A second, increasingly popular form of economic analysis assesses the economic impact of the early childhood industry (primarily child care) on society. Pioneered by Mildred Warner at Cornell University,<sup>3</sup> this economic model estimates the contribution that the early care and education industry makes to local and state economies. First, it examines the size of the industry in economic terms and estimates the jobs it produces—both directly (through its own employees) and indirectly (through the multiplier effect of putting money into the economy, which produces other jobs). Second, it estimates the degree to which child care makes it possible for people to work in the first place, creating a larger overall employment base. A significant share of America's economic growth over the past three decades can be attributed to the expansion of the labor force due to mothers choosing to work outside the home.

Evaluations using this model have also begun to estimate the economic benefits that accrue from expanding the investments made in the early

childhood industry. When a state raises its child care subsidies, for instance, it produces job growth and economic activity. In addition, the state's net investment may be less than the actual appropriation, since the additional economic activity translates into increased tax revenue and decreased reliance on public services.

#### **Returns Related to Adult Human Capital Development**

A third potential economic return from investing in early childhood programs—adult human capital development—is only beginning to be explored. It has particular implications for poor neighborhoods, which tend to have much higher proportions of young children and single mothers than more affluent ones. They therefore require relatively more early childhood programs and services, which produce returns in both child health and development and neighborhood economic activity.

At the same time, when residents are trained to become early childhood providers, thus increasing their skills and receiving greater compensation than they otherwise would have been able to obtain, the programs produce a third type of return on investment—adult human capital development—in neighborhoods where it is most needed. In effect, investments in early childhood programs in these neighborhoods also serve as community-building investments.

Alternatively, establishing standards and enhancing provider compensation without creating effective avenues for neighborhood residents to meet those standards can have an adverse impact on community building. Such actions may inadvertently replace existing caregivers from the neighborhood with credentialed staff from outside the neighborhood,

depleting the neighborhood of an occupational base and neglecting an opportunity for enhancing local human capital development.

While the least developed, this third type of ROI analysis ultimately may be one of the most significant—certainly for the disproportionate numbers of young children and their families who reside in poor neighborhoods.

### **Combining the Three Returns**

Results from any one of these types of economic analyses may be persuasive in making the case for early childhood investments. When the three are combined, however, as they logically deserve to be, they should be even more powerful.

The following three chapters discuss each of these types of analyses in more depth.

## Chapter Two

### RETURNS RELATED TO CHILD GROWTH AND DEVELOPMENT

Several exemplary early childhood programs have not only tracked their impacts on the children and families they served, but also have quantified these impacts in terms of their return on investment—to the individuals served (increased earnings), to society in general (reduced victimization), and to government and the taxpayer (reduced demand for public services and increased taxes as a result of higher earnings).

The four seminal studies that have quantified ROI related to child growth and development are: the Elmira Prenatal/Early Infancy Project (PEIP), the Carolina Abecedarian Project, the High/Scope Perry Preschool Program, and the Chicago Child-Parent Centers. The return-on-investment data for the most recent analyses of each of these programs are shown in the chart below. These studies and their findings are further described in Appendix One.

Although the four programs offered different types of early childhood services and were conducted across

