

THE ECONOMIC IMPACT OF EARLY CHILD DEVELOPMENT PROGRAMS IN WEST VIRGINIA: EXECUTIVE SUMMARY

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The Executive Summary reviews the findings of the complete study *The Economic Impact of Early Childhood Development Programs in West Virginia*. In the complete study there is detailed analysis of each point in the Executive Summary as well as a wealth of additional material on the current research into early childhood development, the child development business in West Virginia, and programs in other states. It also contains an extensive bibliography. It can be obtained at www.marshall.edu/cber/.

THE ECONOMIC IMPACT OF EARLY CHILD DEVELOPMENT PROGRAMS IN WEST VIRGINIA: EXECUTIVE SUMMARY

Every state in the nation has constant calls for more economic development and job creation. Some of the many different ways to answer that call produce little, if any, returns yet receive widespread public and political support. In a highly respected study by the Minneapolis Federal Reserve Bank, economists Grunewald and Rolnick¹ concluded:

Around the county, billions of public dollars are spend 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 the state and local governments is actually counter productive. . . **One of the most productive investments that is rarely viewed as economic development is early child development (ECD).**²

Grunewald and Rolnick found investment in early child education produced inflation adjusted returns of 12 percent. Their conclusions were reinforced by the work of Nobel Prize wining economist Heckman whose extensive study of the economic returns to investing in early child development also found **ECD to have a major impact on economic development.**³ In her review of 24 studies linking early child development to economic development, Cornell University's Stoney concluded **early development programs were, “. . . an industry worthy of investment and as an important infrastructure that supports economic growth.**⁴

Early childhood development encompasses a variety of programs designed to provide care and education for children from birth until they enter kindergarten. These programs include child care centers, family homes, preschool programs, Head Start, Early Head Start and WV pre-k. Most of this report concerns itself with the entire ECD industry and its economic impact.

The State of West Virginia has embarked on an ambitious preschool education program for 4 year olds (WV pre-k).⁵ By the year 2012-13, each county school district must provide a pre-k program and have it available for all students. At the state level, the program will be a public/private partnership and up to half of the community programs delivered by providers who are not public school based. Criteria and standards have been established by the State relating to

¹ Grunewald, R. and Rolnick, A., (December 22, 2004) “A proposal for achieving high returns on early child development”, Committee for Economic Development: Washington, D.C. (December 2003) and “Early child development: Economic development with a high public return”, *The Region*, Federal Reserve Bank of Minneapolis, 6-12.

² Ibid, 2.

³ Heckman, J. and Masterov D, (October 2004), *The productivity argument for investing in young children: Working paper 5*, Washington DC: Invest in Kids Working Group, Committee for Economic Development.

⁴ Stoney, Louise, (February 2004) *Framing child care as economic development: Lessons from early studies*, Ithaca NY: Department of City and Regional Planning, Cornell University, 15.

⁵ W Va. Code 16-3-4, 18-2-5, 18E-1 et seq., 18-5-18c and 18-5-44

program quality.⁶ WV pre-k is more completely discussed in the full report. Implementation with appropriate public and private funding should produce solid long term economic gains for the State.

This report demonstrates the following:

- **Early child development is highly beneficial to children, increasing their capacity to be more productive workers and citizens.**
- **Early child development by freeing parents to work increases family income with the benefits for both family satisfaction and regional growth in income.**
- **Early child development is a major industry that both directly and indirectly creates millions of dollars of output and income as well as significant numbers of jobs in the West Virginia economy.**
- **Early child development produces returns on investment to public and private money which is in excess of returns to other economic development programs.**

Review of Previous Studies on Early Child Development (ECD)

The numerous studies on ECD indicate it has positive effects for children regarding:

- Cognitive and non-cognitive development
- Socialization
- Future academic success
 - Graduation from high school
 - Attend college
 - IQ scores
 - Grade repetition/retention
 - Social development
 - Special education placement
 - Math, reading, language skills
- Economic self sufficiency
- Health

In addition, these studies also reveal positive effects for society in general including:

- Reduced crime rate/delinquency
- Less teen pregnancy
- Lower welfare participation
- Higher quality workforce
 - Less absenteeism
 - Better skills and knowledge
 - More easily trained
 - Increased workforce participation
 - Improved workforce productivity
- More home ownership
- Greater lifetime earnings

⁶ Title 126, Procedural Rule Board of Education Series 28, *West Virginia's Universal Access to a Quality Education System (2525)*.

These studies are reviewed in detail in the full report.

Longitudinal Studies. There have been three major longitudinal studies completed to measure the impact of ECD programs:⁷ the Perry Preschool Project (PPP), the Carolina Abecedarian Study (CAS) and the Chicago Longitudinal Study (CLS). The PPP covered results over a 40 year period, the CAS 21 years and the CLS 20 years. All three studies concentrated on high risk African American students from the inner cities. In all three studies the students were in low income families. In addition, the PPP used exceptionally qualified teachers and a high quality curriculum. For these reasons the results of these studies may not represent what would happen from other programs in different locations.

Haskins⁸ reviewed the results of eleven other longitudinal studies finding support for the results listed above. His findings did show that the early short term effects seemed to be positive, but the long term results are not as convincing. He also reviewed the literature on the Head Start program finding a significant improvement on children's intellectual and socioeconomic skills, but the impact diminished over time. Currie's evaluation of all the literature regarding Head Start agreed that the gains diminished over time, but blamed that on children, particularly minorities, transferring to poor quality schools to finish their education. She found the short-and medium-term benefits of Head Start "compelling" and recommended the program be increased to full day and extended to children other than those in poverty.⁹

This positive assessment of Head Start has not been supported by all.¹⁰ Barnett and Hustedt¹¹ found the short term effects of Head Start to be highly positive, but there was only limited support from the evidence that Head Start improved social behavior of children. A somewhat dissenting view is provided by Gilliam and Ziglar.¹² Their consideration of 13 of the 33 state funded preschool programs discovered only modest effects on children's academic performance, school attendance and grade retention. They also found decreasing benefits over time. In addition, they caution that the methodology used in many of the other studies needed improvement.

⁷ Schweinhart, L.J. (2003) "The High/Scope Perry preschool study through age 40: Summary, conclusions and frequently asked questions" <http://www.highscope.org/Research/PerryProject/Perryage40SumWeb.pdf> (accessed March 5, 2005); Campbell, F.A. et.al. (2002) "Early child education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science*, 6, 42-57; Reynolds, A.J. (1999) "Educational success in high-risk settings: Contributions of the Chicago Longitudinal Study". *Journal of School Psychology*. 37(4), 345-354.

⁸ Haskins, R. (1989) "Beyond metaphor: The efficacy of early child education." *American Psychologist*, 44(2), 274-282.

⁹ Currie, J. (Spring 2001) "Early Childhood Education Programs", *Journal of Economic Perspectives*, 15:2, 235.

¹⁰ Levitt, S.D. and Dubner, S.J. (2005) *Freakonomics*, NY: Harper/Collins. "Head Start does nothing for a child's future test scores . . . it has repeatedly been proven ineffectual. Here's a likely reason: instead of spending the day with his own undereducated, overworked mother, the typical Head Start child spends the day with someone else's undereducated, overworked mother (And a whole roomful of needy children)." 170.

¹¹ Barnett, W.S. and Hustedt, J.T. (2005) Head Start's lasting benefits. *Infants and Young Children*, 18(1), 16-24.

¹² Gilliam and Zigler (2000). "A critical meta-analysis of all evaluations of state-funded preschool from 1977 to 1998: Implications for policy, service delivery and program evaluation." *Early Childhood Education Research Quarterly*, 15(4), 441-473.

The NICHD Studies. The U.S. National Institute of Health (NIH) established the National Institute of Child Health and Human Development (NICHD) to conduct research on ECD. In a series of recent studies, NICHD investigated aspects relating to ECD. Those studies regarding quality of ECD programs are summarized as follows:

- **Quality child care/education is determined by:**
 - **Lower child-adult ratios**
 - **Better education for care givers**
 - **Greater relevant experience of care givers**
 - **Small to medium size of the group**
 - **Physical environments - safe, clean, and stimulating**
 - **Adequate compensation for care givers**
 - **Established standards for care and education**
 - **Consistent monitoring of standards achievement**
 - **Child-directed, developmentally appropriate practices**
 - **High level of parental involvement**
- **The quality of child care is a strong predictor of children’s cognitive and language development and performance.**

The NICHD is the most comprehensive and statistically sound of all studies. It is unique because it examines both the quantity and quality factors of early child care and education. Its early results both enforce and expand conclusions from other research on the positive effects of quality ECD on children’s development. The NICHD’s research is reviewed in the full report.

Returns on Investment in Early Child Development

As indicated in the opening paragraphs, **there is consensus among researchers of ECD concerning the highly positive effects of these programs on economic development.** In addition to these studies, there is a continuing and growing literature confirming the positive short and long term benefits to economic development of quality ECD. **These studies confirm that a substantial commitment of ECD in West Virginia will be a very positive factor influencing the future economic development of the State, probably more important than any other effort currently underway.**

The positive returns to economic development from K-12 education have been well documented.¹³ The results of this report along with the other studies provide evidence indicating that ECD investment may well be the more important expenditure for relating education to economic growth because of the impact pre-k has on subsequent educational success.

¹³ Barro, R.J. (May 2, 2001) “Human capital and growth,” *American Economic Review*, 91, 12-17; Betts, J.R. (1995) “Does school quality matter? Evidence from the national longitudinal survey of youth,” *The Review of Economics and Statistics* 77(2), 231-50; Fisher, R.C. (March/April 1997) “The effects of state and local public services on economic development”, *New England Economic Review*, 53-62; Garcia-Mila, T and McGuire, R.J. (1992) “The contribution of publicly provided inputs to states’ economics,” *Regional Science and Urban Economics*, 22, 708-38. Gradstein, M and Justman, M. (2002) “Education, social cohesion, and economic growth,” *American Economic Review* 92(4), 1192-1204; Kodrzycki, Y. K. (2002) “Educational attainment as a constraint on economic growth and social progress”, in *Education in the 21st Century: Meeting the Challenges of a Changing World*, Boston MA: Federal Reserve Bank; Yitzhaki, S. (2003) “Cost-benefit analysis and the distributional consequences of government projects,” *National Tax Journal* 56, 319-36.

The literature supports the findings that ECD contributes to economic development in a variety of ways.

- **As a major industry, creating jobs and generating incomes**
- **Creating a more productive and qualified workforce**
- **Serving as a major amenity in attracting new industry**
- **Reducing the cost of crime, welfare and social dependency**

The Minneapolis Federal Reserve Bank Study. Rolnick and Grunewald¹⁴ of the Minneapolis Federal Reserve Bank produced a study indicating the high public return on investing in ECD. Using the PPP as the basis for their analysis, they estimated **a real internal rate of return around 12 percent. According to the authors, ECD investment far exceeds the return on other publicly funded economic development initiatives.** Their report raises the issue of how a state or region can build and maintain a viable and growing state economy. Further, their report focuses on state subsidies for economic development, such as tax breaks and grants, and how these subsidies have failed to create sustained economic growth. Even though there has been continued state funding of ECD, the authors suggest that even **more education funding should be directed toward ECD.**

The biggest payoff to society in general for the short run is in the reduced level of juvenile crime and delinquency. A highly influential business group, The Committee for Economic Development¹⁵ agrees, noting that support of ECD should be seen as a profitable investment for a state, not as a cost. A study completed in West Virginia found students who were not enrolled in quality ECD programs were 70 percent more likely to commit violent crimes by age 18.¹⁶

A very recent study by Calman and Tarr-Whelan¹⁷ discusses the economic benefits of quality ECD concluding it yields high public returns. They found **every dollar spent on universally available quality ECD saves the public as much as \$13 in reduced costs for education, criminal justice and welfare as well as increased tax revenues.** This view was supported by work from the National Governor's Association.¹⁸

One of the major means by which ECD contributes to economic growth is by expanding both the quantity and quality of the labor force.¹⁹

- ECD, by improving the cognitive and non-cognitive skills of children, makes them more productive as adults by:
 - Improving the child's lifelong capacity to apply skills and knowledge obtained during secondary and post secondary training
 - Increasing their flexibility to be retrained and to acquire new skills as adults

¹⁴ Rolnick A. and Grunewald, R., (2003) Early child development: Economic development with a high public return.

¹⁵ Committee for Economic Development (2002) *Preschool for all: Investing in a productive and just society.*

¹⁶ Fight Crime: Invest in Kids, (2004) *Preventing crime with pre-kindergarten: A critical investment in West Virginia's safety.* Washington D.C.

¹⁷ Calman, L. J. and Tarr-Whelan, L. (2005) "The economic impacts of child care and early education: Financing solutions for the future" Legal Momentum's Family Initiative and MIT Workplace Center.

¹⁸ National Governors' Association, Task Force on School Readiness (2005) *Building the foundation for bright futures.*

¹⁹ Shellenback, K. (2004) *Childcare and parent productivity: Making the business case.* Cornell University. Retrieved April 2, 2005 from: <http://government.cce.cornell.edu/doc/pdf/ChildCareParentProductivity.pdf>.

- Expanding their non-cognitive skills such as dependability, self esteem, individual initiative, motivation and capacity to work with others.
- Creating healthier life styles including reduced likelihood of drug use and criminal activity
- ECD expands the availability and reliability of the labor force by:
 - Reducing absenteeism due to unavailable child care
 - Freeing potential wage earners from single parent households to enter the labor force
 - Allowing second wage earners to enter the labor force
 - Improved mental health of workers (usually mothers)

The Heckman Studies. The most comprehensive studies on the economics of ECD were conducted by Nobel Prize winning economist Heckman and his colleagues.²⁰ They put ECD in the context of the theory of human capital formation. This theory isolates the impact of improving the skills, knowledge, abilities and attitudes of the labor force on economic development. The basic finding is that **investing in those policies that improve the capacity of the labor force to produce and change with new technologies and market conditions are the most important elements in economic development.**

Their work describes how individual productivity can be enhanced and created by investments in young children, particularly children who are at risk and/or living in poverty. The analysis is based on the impact of current workforce conditions and skills as well as the influence of baby boomer retirement, crime and family environments. A principal conclusion is that **the American workforce is not gaining in quality or productivity, but experiencing decline. The fear is that, if this trend continues, the workforce will be poorer educated and less productive than in the current time period or the immediate past.**

Heckman’s study emphasizes “sensitive periods” in the development of skills and abilities over the life cycle of a child’s education. Certain of these skills and abilities should be fostered in “critical periods” when they can best be acquired. Skills and abilities produced at one stage of development support later skills. They term this “self productivity”. Skills acquired in one sensitive period persist into future periods. Therefore, skills are self reinforcing.

A second feature of life cycle skill and ability formation is called “complementarity”. Skills and abilities acquired at one stage raise the productivity of skills and abilities acquired at subsequent stages. Early investment must be followed by later investment in quality further schooling if the early investment is to be fully productive.

The work of Heckman and his colleagues applies data collected through several longitudinal studies of children including the Perry Preschool Program, the Abecedarian Program and the U. S. Census’s National Longitudinal Survey of Youth (NLSY) to model the concepts of self

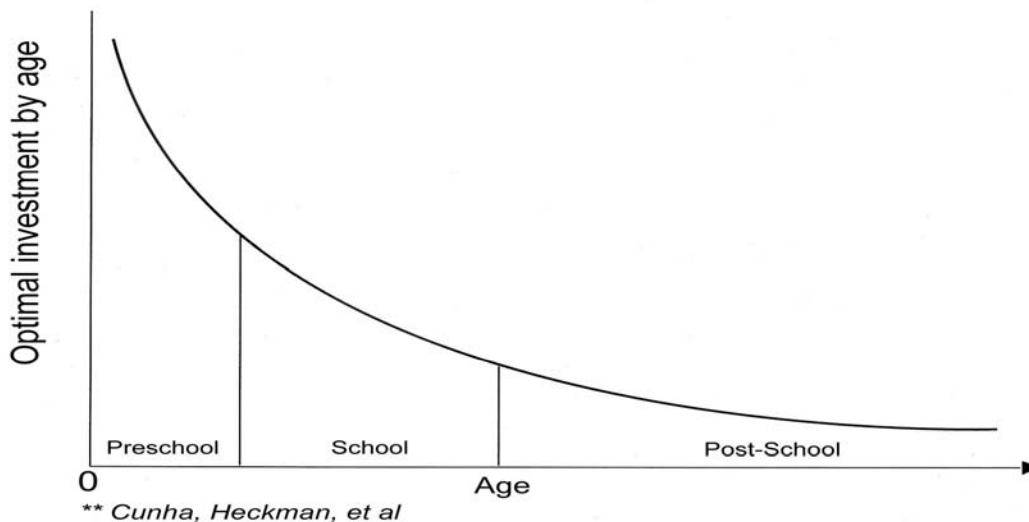
²⁰ Heckman and Masterov, D., op. cit.; Cunha, F., Heckman J. J. Lochner, L. and Masterov, D. (May 2005) “Interpreting the evidence on life cycle skill formation,” Working Paper 11331, National Bureau of Economic Research, Cambridge MA.

productivity and complementarity.²¹ Their **research establishes that returns to later child investment in education and remediation for young adolescents are significantly lower than returns to investments in ECD.** Simply stated, the failure to develop the cognitive and non-cognitive skills early on retards the ability to develop these at later stages in the skill development cycle. “Abilities and skills are formed over time and the early periods in a child’s life cycle are crucial for development”.²²

In summary of their findings:

- Cognitive and non-cognitive skills are important for a productive workforce.
- These skills emerge early and if not developed create a “gap” which becomes increasingly difficult to fill.
- Skills and abilities are cumulative starting early and are accumulated over time, so investing in ECD is a high return investment in both worker productivity and public safety.
- Family environments are important in establishing skills and abilities, yet an increasing number of children face adverse environments that restrict development of these.
- ECD supplemented by home visits and other forms of parental involvement can mitigate the effects of these poor home environments.
- Key workforce skills, those most desired in the new economy, such as motivation, persistence, and self-control can be developed early in a child’s life cycle.
- Beginning school at the kindergarten level is too late for maximum returns.
- Later remedies for the deficiencies in skills and abilities such as job training and “second chance” programs are less efficient and very costly compared to ECD.

To illustrate the point, Heckman and his co-authors describe these diminishing returns through illustration in the following figure.



²¹ The study evaluated a number of economic indicators for program and survey participants and cross-referenced these statistics with IQ scores and scores from the Air Force Qualifying Test for NLSY participants. Cognitive skills were evaluated separately from non-cognitive skills, as were gender-specific results.

²² Cunha and Hickman, 6

What the figure indicates is that dollars spent on preschool have very high rates of return. The returns on investments at other stages of the life cycle, K-12 schooling and job training, produce dramatically lower returns for each dollar spent. **The most efficient and effective public policy is to emphasize ECD spending as a way to spur economic development.**

ECD as a Business and its Impact on the West Virginia Economy

ECD also contributes to economic growth by being a major industry creating jobs and income for the region. ECD is a major industry in West Virginia. Considering both the direct and indirect effects of the formal expenditures made for child development, the ECD industry provides:

- **\$152 million in State output**
- **\$79 million in State income and**
- **7,798 jobs in West Virginia**

These impacts were determined by employment of the IMPLAN model.²³ IMPLAN is the most widely used econometric tool for making these types of estimates and is used in virtually every other state or regional study regarding the economic impact of ECD²⁴. Use of IMPLAN was suggested by the Cornell Manual outlining how regional impacts of child development providers are to be conducted.²⁵

Child development's importance as an economic agent in a state comes not only from its direct employment and output in a region, but also from its linkages to other sectors of the region's economy. The first step in an analysis of ECD as an industry consists of determining the direct expenditures. This report provides data for payments made to registered and licensed establishments in 2002; the latest available, indicating 4,072 licensed facilities in West Virginia employed 7,153 full and part-time workers, paid wages of \$65 million and received \$101.6 million in gross receipts. The impact of demand for child development services in the informal, or underground economy, is not evaluated here.

But there are additional steps which must be taken to grasp the full economic impact of ECD in the State. As is the case with any other industry, child development has "linkages" to the larger state and regional economy. Firms in a regional economy buy and sell to each other. Spending in child development stimulates spending in the other sectors with which it interacts. This spending in turn creates spending in the sectors with which those firms interact. Evaluating this process is called input/output analysis and is the impact that IMPLAN measures.

There are two types of linkages that input/output analysis considers:

- Indirect effects count the multiple rounds of spending with other businesses created by child development spending on food, supplies and other items that are purchased.

²³ IMPLAN Professional Version 2.0 (1999) Minnesota IMPLAN Group, Stillwater MN.

²⁴ The results for the studies completed in other states and localities are presented in the full report.

²⁵ Ribeiro, R and Warner, M. (January 2004) *Measuring the regional economic importance of early care and education: The Cornell methodology guide*, Department of City and Regional Planning, Cornell University, <http://government.cce.cornell.edu/doc/pdf/methodologyguide.pdf>.

- Induced effects count the results of spending by those who receive wages from working in child development. These wages are spent on goods and services in the regional economy stimulating demand for food, housing and services.

For purposes of the analysis in this report, indirect and induced effects are combined.²⁶

These linkages create what are called multiplier effects that measure the indirect and induced spending impacts on output and employment. The employment multiplier estimates the total number of jobs that child development direct spending creates in the State. The employment multiplier for ECD was determined to be 1.26 that means for each person employed in child development 0.26 new jobs are created. The output multiplier estimates the total sales that child development direct spending creates.²⁷ For West Virginia, the output multiplier was 1.49 which says that for each dollar spent in child development another 49 cents in output is generated in the state.²⁸

There is one additional way in which child development contributes to the economic development of any state including West Virginia. By allowing single parents and second spouses to join the labor force, the pool of workers is expanded. The effect is not trivial.

It was estimated that some 28,325 families in West Virginia would not have one or more workers in the labor force if daycare were not available. **Because child development services allow these adults to participate in the West Virginia economy, the corresponding income received by these workers of between \$1.17 billion and \$900 million is directly attributable to availability of child development services. This income amounts to 2- 2.5 percent of the 2003 state gross product.** This is income that could have been lost if ECD had not been available in the State. By increasing the availability of child development in West Virginia to more families, there would be an even greater positive effect on the State's economy.

ECD Providers in West Virginia

The full report conveys a detailed picture of ECD providers in West Virginia. In order to garner a better understanding of the establishments providing child development, a survey of 460 providers was conducted. The survey participants were drawn from a list of 2,800 furnished by the West Virginia Department of Health and Human Services. Usable returns were received from 145 responders.²⁹ Results of the survey are in the full report. The survey did indicate the following regarding ECD establishments in West Virginia:

²⁶ Not all induced and indirect spending occurs within the region. Some is spent outside the region and these "leakages" represent output and employment in the regions where they are spent and not where they originate. For example, supplies bought from suppliers in other states do not impact the West Virginia economy. But supplies bought from West Virginia business by out-of-state buyers do stimulate the West Virginia economy.

²⁷ The larger the economy or region the greater these multipliers are as less spending is "leaked out" to other regions. For rural states like West Virginia, the multipliers will be lower than for more urbanized and densely populated states.

²⁸ These multipliers compare favorably with those found in studies for other states.

²⁹ This represents a 31.5 percent return which is sufficient to report with 95 percent confidence that the results represent the ECD industry in the state.

- Average salaries were low and averaged \$28 thousand for directors, \$18.6 thousand for teachers and \$15 thousand for aides, well below the national average.
- While the majority of ECD establishments provided paid vacations and paid sick/personal days, only 28 percent provided health insurance for employees and less than 20 percent extended health insurance to spouses and families.
- Of those responding, about half found employee turnover to be a problem with over half of those leaving, doing so for better pay or to go to a new job.

The “typical” child development facility in West Virginia according to the survey:

- Had been in operation for 10 years
- Was privately owned and likely run for profit
- Charged from \$22 per day for infants to \$18 for school age children
- Had increased charges in the last two years by more than \$5 a week
- Relied on charges to parents as their major source of income
- Employed 5 teachers and 3 aids on both a full and part time basis
- Paid relatively low wages for all classes of employees
- Experienced problems with staff turnover

The comparison of salaries and benefits paid to teachers and administrators in childcare and ECD revealed a **significant difference between West Virginia salaries and the national average**. In addition, for West Virginia and the nation as a whole, **salaries in this field have been declining relative to comparable occupations with similar qualifications leading to a decline in the educational preparation of those in the field.**³⁰ This creates a **significant problem in attracting and maintaining the skills and abilities of workers needed to provide quality ECD programs**. The problem will intensify as the more educated and qualified teachers retire in the near future.

Benefit-Cost Ratios for ECD in West Virginia

To illustrate the benefit to employers, one very recent study³¹ saw cost reductions of \$136 for absenteeism, \$1,229 for turnover and productivity increase of \$1,269 for a total benefit of \$2,634 for each employee with a child in ECD. The average cost to the employer was \$261 which means **each business received almost ten times their investment in ECD in benefits to the company**. For this study, only the benefits to employers were included as it was difficult to quantify benefits to children and society.

Other studies have found very high benefit-cost ratios for ECD.³² The Rolnick and Grunewald study found a **return greater than \$7 to the public for each dollar spent** on the Perry Preschool Program (PPP). Due to the high quality of the PPP, select teachers, low teacher to

³⁰ Herzenberg, S., Price, M and Bradley, D. (2005) *Losing ground in early childhood education: Declining workforce qualifications in an expanding industry, 1979-2004*, Economic Policy Institute: Washington, D.C.

³¹ Oregon Commission for Child Care (2005) *Child care and education: Investment in a strong economy*. Report to the Governor and the Legislature.

³² Masse, L.N. and Barnett W.S. (2002) “A benefit-cost analysis of the Abecedarian early child intervention,” National Institute for Early Education Research; Rolnick A. and Grunewald, R. op. cit.; Currie, J. op. cit.

student ratios, and high quality facilities, it can not be expected that this high a return will result from all ECD programs.

A preliminary benefit-cost analysis was completed for West Virginia ECD. This analysis provides strong support for the contention that **investing in ECD provides a very substantial “payoff” for West Virginia.** Following the path breaking work of Heckman and others on the economics of human capital, a simple model was constructed. The model looked at potential increases in worker education and productivity that are possible results from ECD.

This analysis produced a discounted cost estimate of \$1.8 billion as the amount needed to achieve the desired result with the resulting benefits discounted over the 40 years to be \$9.5 billion. The result is a **benefit cost ratio of 5.2:1.** This can be interpreted to mean that **every dollar invested in ECD in West Virginia is estimated to produce an approximately \$5.20 in benefits.**

This return is very conservative and the full return is likely to be much greater. The “secondary benefits” of ECD in West Virginia were not included. These would include lower public sector costs for welfare, health and crime as well as reduced costs for remediation of students in later grades. The benefits of increased productivity of firms whose employees had children in ECD were also not included. A more comprehensive study including these secondary benefits would have significantly increased the payoff from ECD. Such a study should be undertaken.

Conclusions

The evidence is in and it is overwhelming: early child development (ECD) programs are a major tool to be used in economic development for a state or region. The payoff for investing in ECD is probably higher than for any other economic development expenditure.

Time and again research has established the benefits to participants from ECD. It is fact that ECD raises the educational attainment above what it would have been absent the programs. This results in higher graduation rates, more college completion, higher incomes and generally better lifestyles. Two conclusions are clear:

- First, expenditures on children early in their lifecycles produce much greater results than waiting until they are already in school to begin their education.
- Second, quality ECD should be followed by quality K-12 education if the gains from ECD are to be fully captured.

The business community also benefits significantly from ECD. Not only do they have a more qualified workforce available (which means greater firm productivity), but the employees with children in the program are more productive. There is less absenteeism and a more stable workforce. Employers who provided ECD either on site or by subsidizing their employee’s participation earn a significant return that covers the cost many times.

Not to be overlooked are the benefits ECD provides to society in general. Workers with higher incomes pay more in taxes. They also are much less likely to be found in jail, using drugs, being

retained in school or on welfare roles. All these benefits reduce the drain on the public treasury and allow either for reduced taxes or increased expenditures on other worthy public programs.

West Virginia has legislation requiring the provision by all local school districts of pre-k programs for four year olds by 2012-13. The West Virginia program is more ambitious than those in other states. **Proper support by both the public and private sectors of this and other ECD projects will make West Virginia a more prosperous and growing state.**