



## Investing in Maine Head Start Pre-kindergarten Saves Money

A Report from FIGHT CRIME: INVEST IN KIDS MAINE

## ACKNOWLEDGEMENTS

FIGHT CRIME: INVEST IN KIDS MAINE is part of FIGHT CRIME: INVEST IN KIDS, a national, bipartisan, nonprofit, anti-crime organization. The national organization has a membership of more than 3,000 police chiefs, sheriffs, prosecutors, other law enforcement leaders and violence survivors. The members take a hard-nosed look at what works -- and what doesn't work -- to prevent crime and violence. They then recommend effective strategies to state and national policy-makers.

FIGHT CRIME: INVEST IN KIDS is supported by tax-deductible contributions from foundations, individuals, and corporations. FIGHT CRIME: INVEST IN KIDS accepts no funds from federal, state, or local governments.

Major funding is provided by: The Atlantic Philanthropies • The Buffett Early Childhood Fund • The Butler Family Fund • The Annie E. Casey Foundation • Marguerite Casey Foundation • Naomi & Nehemiah Cohen Foundation • Freddie Mac Foundation • Bill & Melinda Gates Foundation • The Horace Hagedorn Foundation • JEHT Foundation • The Joyce Foundation • The Charles Stewart Mott Foundation • Northwest Area Foundation • The David and Lucile Packard Foundation • The William Penn Foundation • The Pew Charitable Trusts - Advancing Quality Pre-K for All.

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On the cover: Hancock County Sheriff William Clark visited the Ellsworth Early Care and Education Center, toured the program, read to the kids and said that Head Start is one of the most effective ways of cutting later crime.

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## **Executive Summary**

The police chiefs, sheriffs, and prosecutors who are members of FIGHT CRIME: INVEST IN KIDS *MAINE* know that providing quality pre-kindergarten programs like Head Start is one of the best ways to get kids on the right track in life and prevent crime. Head Start, the nation's premier federal early education program for 3- and 4-year-olds, has given millions of America's low-income children the opportunity to succeed in school and later in life. Research shows that Head Start has narrowed the educational achievement gap between low- and upper-income kids, increased high school graduation rates, and reduced crime.

In addition to the crime prevention and educational benefits, pre-kindergarten programs have dramatic economic benefits. Law enforcement, business, and civic leaders recognize that investing in quality pre-kindergarten programs such as Head Start promotes economic development by preparing a skilled workforce. That is why the business community and leading economists are focusing on high-quality early education as a sound investment that will strengthen the economy. Investing in high-quality Head Start helps at-risk kids, and it makes good business sense.

When the nation invests in Head Start, children's success literally pays back the costs of the program, through increased economic productivity of, and decreased human services expenses for, the Head Start graduates. Providing high-quality Head Start services to the estimated 5,000 eligible children per year in Maine could return as much as \$10 for every dollar spent. This is an estimated \$400 million in benefits per year to taxpayers, program participants, and crime victims in Maine. An estimated \$250 million of these benefits would go to the public in reduced government spending for services like remedial education or juvenile detention, and increased tax revenue because there will be more better-paid workers.

The public benefit generated by providing high-quality Head Start to the 5,000 eligible children per year translates into an estimated tax savings of approximately \$400 per Maine taxpaying household.

That is why the 76 police chiefs, sheriffs, district attorneys, and violence survivors who are members of FIGHT CRIME: INVEST IN KIDS *MAINE*, and the more than 3,000 members nationally, are committed to the increased investments needed to provide Head Start to all eligible children in Maine and make Head Start even stronger by raising teacher qualifications. America should invest more in Head Start to save taxpayers' money, save lives, and make us all safer.

# Investing in Maine Head Start Pre-kindergarten Saves Money

## INTRODUCTION

The police chiefs, sheriffs, district attorneys, and other law enforcement leaders who are members of FIGHT CRIME: INVEST IN KIDS are determined to put dangerous criminals behind bars. They know that locking up criminals is not enough to win the fight against crime. Law enforcement leaders recognize that among the most powerful weapons to prevent crime and violence are quality pre-kindergarten programs, like Head Start, that help kids get the right start in life

In this report, we will first describe the Head Start program both nationally and as it operates in Maine. Next, we will review the research showing the economic development benefits of early education programs like Head Start. Third, we will describe how Maine can actually save money in the long run by providing quality Head Start services to eligible children. Fourth, we will illustrate how these cost savings are returned to Maine, and provide an estimate of the financial benefits Maine could accrue with high-quality Head Start. Finally, we call for increased investments in Maine Head Start to enable Mainers to realize these financial benefits while helping at-risk children.

## HEAD START IN MAINE

Head Start is the federally-funded national pre-kindergarten program for low-income families that provides early education services

for children ages three to five. Children in Head Start receive a comprehensive range of services: preschool education, child health, nutrition, social and emotional development, parent education, and family involvement. Head Start equips children with the necessary tools and services to enter kindergarten better prepared, helping them to avoid falling behind other students and starting down a path leading too often to juvenile delinquency and future crime. Over 40 years, Head Start has given a literal “head start” to more than 20 million of the country’s most needy children, helping them to become responsible, productive adults.

Maine, like several other states, has opted to expand the federal Head Start program by providing additional state funding. Maine Head Start’s state funding is provided through two funding streams: \$2,259,611 in Fiscal Year 2006 from the state general fund, and \$1,321,407 from the Fund for Healthy Maine, derived from tobacco settlement monies in 2006.<sup>1</sup> Maine Head Start meets the same rigorous federal program performance standards that help ensure quality services for children and families. Maine Head Start uses the federal eligibility requirements, requiring 90 percent of children served to have family incomes at or below the federal poverty guidelines (for example, \$16,090 for a family of three).<sup>2</sup> Maine modifies this requirement somewhat for state-funded Head Start children, allowing as

many as 35 percent of children enrolled to have family incomes above the federal poverty guidelines.

In addition to Head Start, Maine provides pre-kindergarten through the Two-Year Kindergarten Program, a state-funded program which allows school districts to provide kindergarten to 4-year-olds in addition to 5-year-olds.<sup>3</sup> Maine also operates 18 collaborative Head Start and public pre-kindergarten programs. These collaborations between Head Start and pre-kindergarten work together to serve Maine's needy children.

Head Start services in rural Maine have unique challenges. The nature of rural areas, with dispersed families throughout the region, makes it particularly challenging to provide services through a center-based Head Start program since some families would have to travel long distances to attend the program. Maine Head Start works to address the needs of families in rural areas through two alternative program models: Home Base and Home Start. The Home Base program uses an in-home parent coaching approach in which staff leaders visit the families' homes once a week for a one-and-a-half hour session with parent and child. The Home Base program serves 309 children, although many of these children are infants and toddlers receiving Early Head Start services (see below).<sup>4</sup> In Home Start, the Head Start educational program is provided in family child care homes, which are required to meet Head Start program standards. Currently, 128 children in Maine participate in the Home Start model.<sup>5</sup>

Like other Head Start programs, Maine Head Start specializes in serving children with disabilities. Federal program rules require that at least 10 percent of the total enrollment be reserved for children with disabilities. Maine exceeds this requirement and dedicates approximately 30 percent of its enrollment for children with disabilities, serving 1,225 children with disabilities.

Maine also provides Early Head Start (EHS), a proven program that extends the benefits of Head Start to children under three. Early Head Start was created in response to research suggesting the importance of the first three years in a child's life. Established in 1994, EHS serves both pregnant women and children ages birth to 3, providing guidance, information, parenting support, and direct services. Families are served by centers and/or home visits. Mathematica Policy Research and Columbia University conducted a national evaluation of EHS. Families randomly assigned to receive the combined center/home visit approach were 62 percent more likely to read to their children daily than families that did not receive the program. Children left out of these EHS programs were 34 percent more likely to score in the low range on a test of cognitive, social, and emotional development than those enrolled in EHS.<sup>6</sup>

### **Head Start cuts crime and helps kids learn**

Research proves that Head Start and other high-quality pre-kindergarten programs help cut crime and prepare children for school success. By providing quality preschool education and comprehensive services, Head Start helps kids succeed and avoid lives of crime.

Research shows that adults who attended Head Start as children were less likely to commit crimes than adults from similar backgrounds who did not attend Head Start. A large national survey of Head Start graduates found that graduates were 8.5 percent less likely to be later arrested or charged with a crime than their siblings who attended other preschool programs.<sup>7</sup>

Other high-quality pre-kindergarten programs have also provided strong evidence of dramatic reductions in crime. Chicago's federally funded Child-Parent Centers have served 100,000 3- and 4-year-olds from low-income neighborhoods since 1967. Research shows

that similar at-risk children left out of the program were 70 percent more likely to have been arrested for a violent crime by age 18 than those who attended the program.<sup>8</sup> Michigan’s High/Scope Perry Preschool program served 3- and 4-year-old children from low-income families. Children randomly assigned to a control group were five times more likely to have become chronic lawbreakers by age 27 than those assigned to attend the program.<sup>9</sup>

Research also shows that Head Start has positive effects on children’s school readiness, helping to level the playing field by preventing disadvantaged children from lagging behind more advantaged children in kindergarten. Head Start narrowed the school readiness gap between children from low-income homes who attended Head Start and children from higher-income homes. A study with a nationally representative sample of 2,800 children showed that Head Start significantly raised average scores of children’s performance.<sup>10</sup> Moreover, the largest gains were made by the lower-performing children,

especially in the areas of vocabulary and early writing. Head Start kids doubled their vocabulary test scores by the end of kindergarten. A separate national impact study utilized the best design possible—a randomized control trial—and found that Head Start cut the achievement gap nearly in half for pre-reading skills between Head Start children and the national average for all 3- and 4-year olds.<sup>11</sup>

### Lack of funds deny Head Start and Early Head Start to 68 percent of eligible children in Maine

Despite the school success and crime prevention benefits of Head Start and Early Head Start for at-risk children, only 32 percent of eligible children in Maine participate in either program. In 2005, 3,973 of Maine’s children were served by Head Start and Early Head Start programs.<sup>12</sup> Of these 12,500 children eligible for Head Start or Early Head Start, approximately 5,000 were 3- and 4-year-olds, and 7,500 were infants and toddlers below three years of age.<sup>13</sup> Of the estimated 12,500 children under age 5 eligible for Head Start and Early Head Start, over 8,500 children—or 68 percent—did not receive the programs.<sup>14</sup>

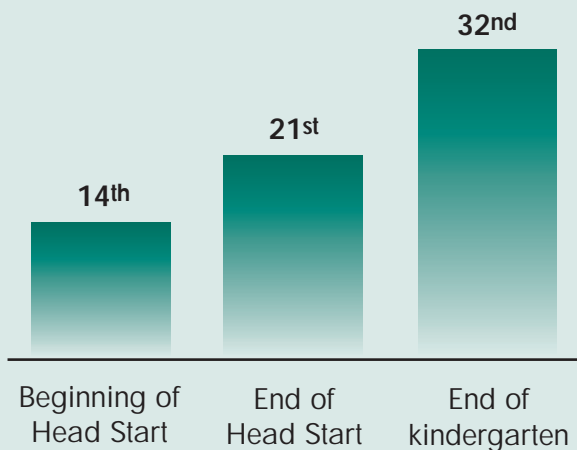
State agency officials report that many local Head Start programs are at full capacity, and programs have waiting lists in some communities. With additional federal funds, Maine Head Start could serve more eligible children.

### ECONOMIC DEVELOPMENT THROUGH EARLY EDUCATION

In addition to cutting crime and helping kids learn, quality pre-kindergarten programs like Head Start also help Maine’s economy. Maine Head Start promotes the state’s long-term economic growth by preparing at-risk kids to succeed in school, graduate from high school, and become economically productive members of society. Better preparing children to be skilled workers will enable Maine to be more

#### Head Start Narrows the Gap between Its Youngsters and Other American Children

Percentile ranking for vocabulary scores of Head Start children\*



\*A 14th percentile rank means that Head Start children scored above 14% of American children (of the same age).

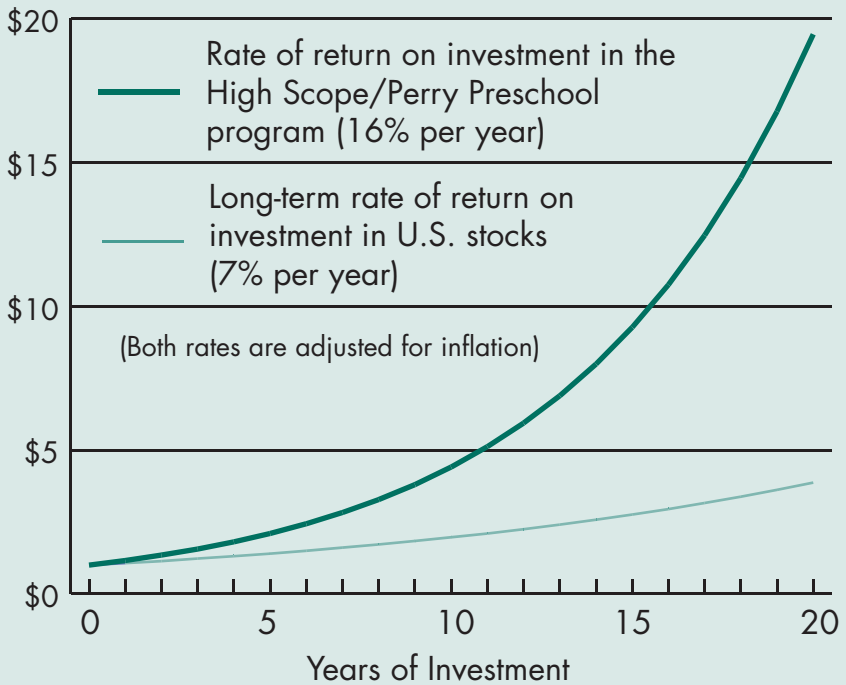
economically competitive nationally and internationally.

With an increasingly global economy, the skill level of U.S. workers has become more important to maintaining our economic competitiveness. Global competition in trade has led many companies to move less-skilled work to other nations with lower wages.<sup>15</sup> Computer automation has also eliminated many routine manual labor jobs once performed by factory workers. U.S. workplaces have remained competitive by creating new knowledge-intensive jobs.<sup>16</sup> Increasingly, U.S. jobs require higher levels of skills and education than in the past. Yet the quality of our labor force has stagnated in recent decades, and over 20 percent of U.S. workers are functionally illiterate and innumerate.<sup>17</sup> This lack of skilled workers constrains U.S. economic competitiveness.

Nobel Prize winning economist James Heckman of the University of Chicago makes the argument for investing in young children's education because of its economic benefits. According to Heckman, "On productivity grounds alone, it appears to make sound business sense to invest in young children from disadvantaged environments. An accumulating body of evidence suggests that early childhood interventions are much more effective than remedies that attempt to compensate later in life for early neglect."<sup>18</sup> The gaps in ability between disadvantaged children and their more-advantaged peers begin early in life. As Heckman has noted, "Learning begets learning and skill begets skill. Early advantages accumulate, so do early disadvantages."<sup>19</sup>

### Pre-Kindergarten is an Excellent Investment

A \$1,000 investment in quality pre-kindergarten returns over \$19,000 in 20 years, while a stock market investment returns less than \$4,000.



Federal Reserve Bank of Minneapolis

Other leading economists agree that funding high quality pre-kindergarten is among the best investments government can make. An analysis by Arthur Rolnick, senior vice president and director of research at the Federal Reserve Bank of Minneapolis, showed that the return on the investment of the Perry Preschool Program, a model early education program for at-risk children, was 16 percent after adjusting for inflation. Seventy-five percent of that return went to the public in the form of decreased special education expenditures, crime costs, and welfare payments. To put this in perspective, the long-term average return on U.S. stocks is seven percent after adjusting for inflation. Thus, an initial investment of \$1,000 in a program like the Perry Preschool is likely to return more than \$19,000 in 20 years, while the same initial investment in the stock market is likely to return less than \$4,000.<sup>20</sup> As William Gale and Isabel Sawhill of the Brookings Institution

assert: investing in early childhood education provides government and society “with estimated rates of return that would make a venture capitalist envious.”<sup>21</sup>

Business leaders nationwide also recognize the benefits of investing in quality early education like Head Start. A 2005 poll of U.S. business leaders commissioned by the Committee for Economic Development found that “more than 80 percent of business leaders agree that investments in effective preschool programs would help the United States remain globally competitive, and improve its long-term economic outlook and the quality of its workforce.”<sup>22</sup>

### Maine’s Economy

Given the economic development benefits of high-quality early education, programs like Head Start are a smart long-term investment to bolster Maine’s economy. Global economic trends and the outsourcing of manufacturing sector jobs have impacted employment in Maine. From 1990 to 2004, Maine lost 30,000 manufacturing jobs.<sup>23</sup> However, Maine has experienced some job growth in the leisure and hospitality sectors.<sup>24</sup> To successfully weather this shift to a more service-oriented economy, Maine needs an educated and skilled workforce.

Maine’s growing aging population also affects the state economy by increasing the number of retirees and decreasing the number of workers. In light of this trend, it is especially important to strengthen the quality of Maine’s future workforce through high-quality early education. In 2004, Maine was the “oldest” state in the nation, having the highest median age.<sup>25</sup> In 2000, approximately 14 percent of Maine’s population was over 65 years old, but by 2030, the number of seniors will more than double, to 22 percent of the population.<sup>26</sup> By creating skilled workers, high-quality pre-kindergarten helps prepare tomorrow’s workforce to earn more, pay taxes, and help create and sustain a vibrant economy as Maine’s seniors retire.

Helping children succeed in school is also important to the economic health of the state. High school completion and higher education are among the most effective paths to higher earnings and economic well-being for individuals and families. In Maine, 85.4 percent of the state’s adults have a high school degree, which is ahead of the national average (80.4 percent).<sup>27</sup> In educational attainment, Maine has a solid foundation but can still do better. Families with parents who have not completed high school are more likely to live in poverty than their more-educated counterparts.<sup>28</sup> Nationally, 82 percent of children whose parents have less than a high school diploma live in low-income families.<sup>29</sup> The average personal annual income in Maine in 2004 was \$30,046, which is slightly lower than the United States average of \$33,041.<sup>30</sup> As in the country as a whole, increased educational attainment levels can improve income levels for Mainers.

The link between education and achievement is clear. Because the experience of high quality early education leads to success in school and higher graduation rates, early childhood education programs secure this education-economic growth link, giving children the tools to achieve success in school and in life.

### HEAD START SAVES MONEY FOR MAINERS

Every year, Head Start helps thousands of Maine’s needy children get ready for school and avoid lives of crime. But beyond helping needy children, Head Start’s benefits accrue to Maine’s citizens statewide.

A series of rigorous longitudinal studies have documented the tremendous positive impact that high-quality pre-kindergarten programs have on children starting in the preschool years and continuing into adulthood. By improving children’s educational performance and earnings, Head Start and other pre-kindergarten programs generate many benefits to society.

## Benefits Per Dollar Invested

The business community has long used economic analyses in a variety of industries to assess the benefits of new investments; in other words, what is the bottom-line return on an investment? These same tools used by the business sector have also been applied to pre-kindergarten programs. One common type of analysis is called a benefit-cost analysis.<sup>31</sup> The purpose of a benefit-cost analysis is to determine the financial benefits of the investment relative to its financial costs.

Benefit-cost analyses have been performed by economists on early education programs for at-risk children. These rigorous analyses monetize the various benefits of programs – that is, state the benefit in terms of its financial value. Using benefit-cost analysis procedures, researchers have calculated the benefit that quality preschool programs for low-income children provide in terms of a financial return on investment. This return on investment is commonly described in these terms: for every dollar invested, some number of dollars are returned through reduced costs and increased benefits to program participants, taxpayers, and crime victims.

While no benefit-cost analyses have been conducted for Head Start, analyses for other comparable programs for low-income preschoolers have been performed. Some of these programs are small-scale model programs, like the High/Scope Perry Preschool program, and some are large-scale, like the Chicago Child-Parent Centers. These results yield a range of benefit-cost ratios, with the benefits ranging from two dollars to 17 dollars for every dollar spent.<sup>32</sup>

A good estimate of the current Head Start program's likely benefit for every dollar invested comes from a meta-analysis by Steve Aos and colleagues at the Washington State Institute for Public Policy. In this meta-analysis, Washington state researchers developed a benefit-cost estimate of \$2.36 per dollar spent

for early education programs for low-income 3- and 4-year-olds. This analysis was based on 53 studies of small-scale and large-scale preschool programs for low-income children (including Head Start).

However, FIGHT CRIME: INVEST IN KIDS estimates that an improved, even higher-quality Head Start program could produce greater benefits for kids and society than \$2 for every dollar spent. While Head Start is a quality program that helps thousands of at-risk children in Maine, some program improvements would improve the quality of this program even further, yielding greater benefits for kids and society. The key program improvement needed to raise the quality even higher is an increase in teacher qualifications, requiring lead teachers to have four-year degrees.<sup>33</sup> Additional quality improvements are enhancing curriculum standards, expanding parent coaching services, and expanding interventions for children with behavioral problems.<sup>34</sup>

With these quality improvements, we can expect that Head Start will have a higher benefit-cost ratio. A higher-quality Head Start could achieve even higher rates of return on the public's investment, comparable to the Chicago Child-Parent Centers program benefit-cost estimate of \$10.15 for every dollar spent.<sup>35</sup>

The Chicago Child-Parent Centers program is a large-scale early intervention that provides comprehensive educational and family-support services to economically disadvantaged children. The CPC program is the second-oldest federally funded preschool program in the U.S. and is among the highest quality early childhood programs available.<sup>36</sup> For example, every CPC program lead teacher has a Bachelor's degree.

The Chicago CPC program is comparable in many ways to Head Start. Both are large-scale federally-funded early education programs serving low-income children, with Head Start being national in scope, and the CPC program

having served over 100,000 children in the Chicago area over 30 years. The program costs of Head Start and CPC are also comparable; the national estimated cost per child to provide Head Start is \$7,287, quite similar to the \$7,384 average cost per child for the Child-Parent Centers program.<sup>37</sup> Even with an increase in Head Start per-child costs of an estimated seven percent to accommodate the major program quality improvement of increased teacher qualifications, the two programs' costs are still generally comparable.<sup>38</sup>

### How Maine Would Realize Head Start's Economic Return

By providing high-quality Head Start to all eligible children in Maine, FIGHT CRIME: INVEST IN KIDS estimates \$10 in benefits for every dollar spent. But what does this \$10 for every dollar spent mean? And how are these dollars returned to Mainers? Here are the ways that our investment in high-quality pre-kindergarten programs like Head Start is returned to society to benefit all Mainers. The following results are based on the benefit-cost analysis of the CPC program conducted when participants were age 21.<sup>39</sup>

**Reduced public school expenses:** When children do better in school, schools save money by reduced need for special education services and reduced rates of children being held back a grade. A benefit-cost analysis of the CPC program at participant age 21 found that this pre-kindergarten program yielded a savings of \$4,872 per participant in reduced education expenses.<sup>40</sup> This educational savings was due to lower rates of grade retention and lower use of special education services.

**Increased earnings and paying taxes:** Children in high-quality pre-kindergarten like Head Start have higher rates of high school completion than similar children without pre-kindergarten programs. The age 21 benefit-cost analysis of the CPC program estimates \$20,517 in increased

lifetime earnings for each pre-kindergarten participant over those without pre-kindergarten, and \$7,243 in taxes on those earnings being returned to the public.<sup>41</sup> This savings is based on the difference in lifetime earnings for completing high school, and the increased tax revenue on those increased earnings.

**Reduced criminal justice system expenses:** Children who received high-quality pre-kindergarten were less likely to be arrested as juveniles than similar children without pre-kindergarten. The age 21 benefit-cost analysis of the CPC program estimates a savings in juvenile justice expenses (juvenile courts, detention facilities, or probation services) of \$4,518 per participant, and savings in adult criminal justice expenses of \$2,612 per participant.<sup>42</sup>

**Reduced expenses for crime victims:** Since children with high-quality pre-kindergarten commit fewer crimes than similar children without high-quality pre-kindergarten, there are fewer victims who suffer the horrible effects of crime. Providing high-quality pre-kindergarten yielded a savings for victims of juvenile and adult crimes totaling \$6,127 per

**Costs and Benefits of Chicago Child-Parent Center preschool program at age 24 (2002 dollars)**

Average program cost per participant	\$7,384
Total benefits (to taxpayers, crime victims, and program participants)	\$74,981
Net benefits (benefits minus costs)	\$67,595
Total benefit per dollar invested	\$10.15
Total benefit to public per dollar invested	\$6.87

Reynolds & Temple, 2006

participant.<sup>43</sup> This savings is based solely on the tangible costs to crime victims, and does not include pain and suffering, which would be a much higher cost.

Reduced child abuse and neglect expenses: Children in high-quality pre-kindergarten experienced lower rates of abuse and neglect than similar children without pre-kindergarten. In addition to avoiding the anguish of abuse and neglect, the financial savings from reduced child welfare system expenses (including court and foster care expenses) and reduced costs to victims of child abuse, total \$770 per pre-kindergarten program participant.

## PROJECTING HEAD START'S TAX SAVINGS FOR MAINE

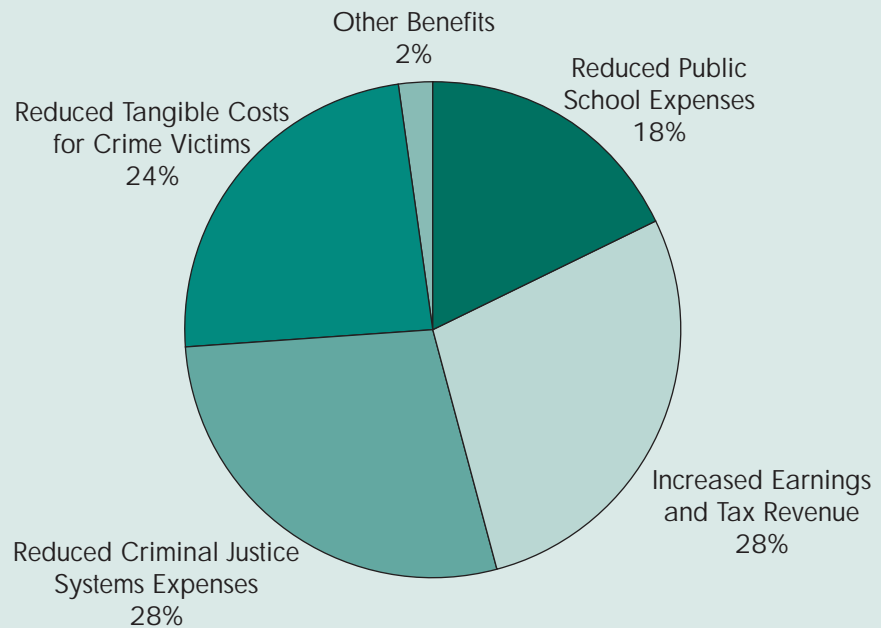
With improvements to Head Start program quality, including increases in the number of teachers with four-year degrees, along with curriculum standards enhancements, expansions of parent coaching, and the inclusion of expanded interventions for children with behavioral problems, Head Start could achieve substantial benefits for each dollar spent, similar to the CPC program.

Therefore, using the CPC benefit-cost figure of \$10.15 for every dollar spent as an estimate of an improved, even higher-quality Head Start, we can expect that providing high-quality Head Start to all eligible children in Maine could yield a return on the program investment of as much as \$10.15 for every dollar spent.

As stated earlier, 68 percent of Maine kids eligible for Head Start and EHS are not

### Crime Victims, the Public, and Program Participants all Gain Economic Benefits from Pre-Kindergarten Programs Like Head Start

Estimated distribution of benefits from the Chicago CPC program.



Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002). Age 21 cost-benefit analysis of the Title I Chicago Child-Parent Centers. *Education Evaluation and Policy Analysis*, 24(4), 267-303.

receiving services due to lack of funds. An estimated 5,000 3- and 4-year olds are eligible for Head Start in Maine. The financial savings that providing Head Start to these eligible children would yield by the time these preschoolers reach young adulthood can be estimated.

If an improved, even higher-quality Head Start is provided to all eligible Maine kids for a year, FIGHT CRIME: INVEST IN KIDS estimates that over the long term an estimated \$400 million in benefits would be returned to taxpayers, program participants, and crime victims in Maine.<sup>44</sup> Maine is not yet realizing the full benefits of Head Start because of the small proportion of children currently served; however, providing an improved, high-quality Head Start to all eligible children results in a total benefit of \$400 million. An estimated \$250 million of these benefits would go to the public

(which includes taxpayers and crime victims) in reduced government spending for services like remedial education or juvenile detention, and increased tax revenue because there will be more better-paid workers.<sup>45</sup>

The \$250 million in estimated public benefits would be realized over the Head Start program participants' lifetimes, with some benefits being returned sooner, such as reduced public education and child welfare spending, and some benefits returned over a generation and throughout the program participant's adult lives, such as the increased tax revenue on the increased lifetime earnings of Head Start participants.

Note that the \$250 million in estimated public benefits is generated by providing high-quality Head Start to one year's worth of eligible children, an estimated 5,000 children.<sup>46</sup> Providing Head Start to 5,000 eligible children per year for 10 years would multiply the benefit ten-fold, yielding \$2.5 billion in public benefits to Maine for 10 years worth of additional Head Start graduates.

The public benefit generated by providing an improved, high-quality Head Start to 5,000 eligible children per year translates into a tax savings of approximately \$400 per Maine taxpaying household.<sup>47</sup>

## CONCLUSION

The evidence is clear: high-quality pre-kindergarten programs like Head Start save money, cut crime, and help children learn. Providing high-quality Head Start services to the estimated 5,000 eligible children per year in Maine could yield as much as \$400 million in benefits per year to taxpayers, program

participants, and crime victims in Maine. An estimated \$250 million of these benefits would go to the public in reduced government spending for services like remedial education or juvenile detention, and increased tax revenue because there will be more better-paid workers. The value of these public benefits translate into approximately \$400 in tax savings for every Maine taxpaying household.

In addition to the impressive tax savings, providing high-quality Head Start will strengthen Maine's economy by helping children succeed and go on to become tomorrow's skilled workers, taxpayers, and productive citizens instead of tomorrow's criminals. Improving the quality of Maine's workforce through high-quality pre-kindergarten is a smart long-term strategy to maintain Maine's economic competitiveness. More than 80 percent of U.S. business leaders agree that investments in effective preschool programs would help the United States remain globally competitive, and improve its long-term economic outlook and the quality of its workforce.

That is why the Maine Chiefs of Police Association and the Maine Sheriffs' Association have both adopted resolutions that support providing all children with affordable access to high-quality early education programs. The members of FIGHT CRIME: INVEST IN KIDS MAINE are calling on Maine's Congressional leaders to ensure that Head Start services are available to all eligible children and that program quality is enhanced by increasing Head Start teacher qualifications and providing increased compensation to retain highly-qualified teachers.

## Endnotes

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- <sup>10</sup> Zill, N. et al. (2003). Head Start FACES 2000: A whole-child perspective on program performance. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Child Outcomes Research and Evaluation & Head Start Bureau.
- <sup>11</sup> Yoshikawa, H., (2005), Placing the first-year findings of the national Head Start Impact Study in context, Washington, DC: Society for Research in Child Development; U.S. Department of Health and Human Services, Administration on Children and Families. (2005, May). Head Start Impact Study: First Year Findings. Washington, DC: Author.
- <sup>12</sup> Carolyn Drugge, Head Start Coordinator, Maine Office of Child Care and Head Start, Augusta, Maine, personal communication, 1/24/06. Data provided from Maine's Head Start Program Information Report.
- <sup>13</sup> These estimates of number of children eligible from birth up to age 3 and aged 3-4 are rough, and based upon a simple proportional division of the total number of eligible children under age 5 (i.e., children below age 3 represent three-fifths of the 12,499 total and ages 3-4 represent two-fifths of the total). The age range from birth up to age 3 includes children up to but not including their third birthday. Three-year olds and 4-year olds are included in the second age category. Based on data from U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE). Retrieved from <http://www.census.gov/hhes/www/saipe/>
- <sup>14</sup> The number of children eligible for Head Start was estimated as the number of children in Maine under age 5 in poverty. U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE). Retrieved from <http://www.census.gov/hhes/www/saipe/>. These estimates of the number of children eligible include income based eligibility criterion based on the federal poverty guidelines. In the federally funded Head Start program, 10 percent of children enrolled may exceed the income eligibility criterion. In Maine's Head Start program, up to 35% of children enrolled may exceed the income eligibility criterion. Data were not available on the number of eligible children not receiving Head Start who were served by other early childhood education programs.
- <sup>15</sup> Committee for Economic Development. (2006). The Economic Promise of Investing in High Quality Preschool. Washington, DC: Committee for Economic Development.
- <sup>16</sup> Committee for Economic Development. (2006). The Economic Promise of Investing in High Quality Preschool. Washington, DC: Committee for Economic Development.
- <sup>17</sup> Heckman, J.J., Masterov, D.V. (2004). The productivity argument for investing in young children. Invest in Kids Working Group, Working Paper 5. Washington, DC: Committee for Economic Development.
- <sup>18</sup> Heckman, J.J., Masterov, D.V. (2004). The productivity argument for investing in young children. Invest in Kids Working Group, Working Paper 5. Washington, DC: Committee for Economic Development.
- <sup>19</sup> Heckman, J.J., Masterov, D.V. (2004). The productivity argument for investing in young children. Invest in Kids Working Group, Working Paper 5. Washington, DC: Committee for Economic Development.
- <sup>20</sup> Rolnick, A., et al. (2003) calculated an investment return of 16 percent by estimating the time periods in which costs and benefits in constant dollars were paid or received by Perry participants and society. For the rate of return on High/Scope Perry Pre-kindergarten, see: Rolnick, A., & Grunewald, R. (2003). Early childhood development: Economic development with a high public return. Retrieved from the Federal Reserve Bank of Minneapolis Web site: <http://www.minneapolisfed.org/pubs/fedgaz/03-03/earlychild.cfm>. For the rate of return on the stock market, see: Farrell, C. (2002, November 22). The best investment: America's kids. Retrieved from the Business Week Web site: [http://www.businessweek.com/bwdaily/dnflash/nov2002/nf20021122\\_0334.htm](http://www.businessweek.com/bwdaily/dnflash/nov2002/nf20021122_0334.htm)
- <sup>21</sup> Gale, W., & Sawhill, I.V. (1999, February 17). The best return on the surplus. *The Washington Post*, p. A17.
- <sup>22</sup> Zogby, J., Bruce, J., Wittman, R., and Peck, C.W. (2005). American Business Leaders Views' on Publicly Funded Pre-Kindergarten and the Advantages to the Economy. Zogby International Poll commissioned by the Committee for Economic Development.
- <sup>23</sup> Maine Development Foundation. (2006). Measures of Growth in Focus 2006. Augusta, ME: Author. Retrieved November 30, 2006 from <http://www.mdf.org/megc/measures/MOG2006.html>
- <sup>24</sup> Maine Development Foundation. (2006). Measures of Growth in Focus 2006. Augusta, ME: Author. Retrieved November 30, 2006 from <http://www.mdf.org/megc/measures/MOG2006.html>
- <sup>25</sup> Colgan, C. S. (2006). Maine's Aging Economy and the Economy of Aging. Portland, Maine: Muskie School of Public Service, University of Southern Maine.
- <sup>26</sup> Colgan, C. S. (2006). Maine's Aging Economy and the Economy of Aging. Portland, Maine: Muskie School of Public Service, University of Southern Maine.
- <sup>27</sup> Bauman, K.J. & Graf, N.L. (2003). Educational attainment: 2000. Washington, D.C.: U.S. Census Bureau. This is based on 2000 Census data of the percent of persons age 25 or older with high school degrees.
- <sup>28</sup> National Center for Children in Poverty. (2006). Parents' Low Education Leads to Low Income, Despite Full-Time Employment. Retrieved October 19, 2006 from <http://www.nccp.org/media/pei06b.pdf>
- <sup>29</sup> National Center for Children in Poverty. (2006). Parents' Low Education Leads to Low Income, Despite Full-Time Employment. Retrieved October 19, 2006 from <http://www.nccp.org/media/pei06b.pdf>
- <sup>30</sup> Bureau of Economic Analysis, U.S. Department of Commerce. (2005). Table SA1-3 - Per capita personal income. Retrieved

February 1, 2006 from <http://www.bea.gov/bea/regional/spi/drill.cfm>

<sup>31</sup> A benefit-cost analysis is sometimes termed a cost-benefit analysis.

<sup>32</sup> A meta-analysis of preschool education programs for low-income 3- and 4-year-olds by Steve Aos and colleagues found a \$2.36 benefit for every dollar invested; the Abecedarian program found a \$3.78 benefit for every dollar invested; the Chicago CPC program found a \$10.15 benefit for every dollar invested; and the High/Scope Perry Preschool program found a \$17 benefit for every dollar invested. Aos, S., Lieb, R., Mayfield, J., Miller, M., & Penucci, A. (2004). Benefits and costs of prevention and early intervention programs for youth. Olympia, WA: Washington State Institute for Public Policy. Masse, L.N., & Barnett, W.S. (2002). A Benefit Cost Analysis of the Abecedarian Early Childhood Intervention. New Brunswick, NJ: National Institute for Early Education Research.

Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). Lifetime Effects: The High/Scope Perry Preschool Study Through Age 40. Ypsilanti, MI: High/Scope Press/ Reynolds, A.J., & Temple, J.A., (January 20, 2006). Prevention and cost-effectiveness in early intervention: A 20-year follow-up of a Child Parent cohort. McEvoy Lecture Series on Early Childhood and Public Policy, Humphrey Institute of Public Affairs, University of Minnesota.

<sup>33</sup> Research shows that the training and education level of teachers are essential for providing the high-quality early education to reduce later crime and help children succeed. Teacher qualifications, specifically their level of education, are key to early childhood program quality. A national study of early childhood teachers and programs (Whitebook, Howes, and Phillips, 1989) found that teachers with B.A. degrees were "more sensitive, less harsh and detached, and more appropriate...than were teachers with less formal education." This study also found that children with sensitive and responsive teachers had higher language scores and demonstrated a higher level of peer play compared to other children.

A comprehensive review by a panel of early childhood experts for the National Research Council found that "both formal education levels and recent, specialized training in child development have been found quite consistently to be associated with high-quality interactions and children's development in center-based, family day care and even in in-home sitter arrangements."

Whitebook, M., Howes, C., & Phillips, D. (1989). Who Cares? Child Care Teachers and the Quality of Care in America: Final Report, National Child Care Staffing Study. Oakland, CA: Child Care Employee Project.

National Research Council and Institute of Medicine. (2000). From Neurons to Neighborhoods: The Science of Early Childhood Development. J. P. Shonkoff and D.A. Phillips (Eds.) Washington, DC: National Academy Press.

<sup>34</sup> For example, to provide interventions for children at risk for later behavioral difficulties, some Head Start centers have used The Incredible Years program. The Incredible Years program trains parents, teachers and family service workers to reinforce problem-solving skills and non-aggressive social skills in children. In Washington State, children in Head Start were randomly assigned to The Incredible Years group or to a control group. Among the children with conduct problems, 96 percent of those who participated in Head Start/Incredible Years showed a significant reduction in aggressive and oppositional behavior, compared to 55 percent of children in the control group. Webster-Stratton, C., Reid, M. J., Hammond, M. (2001). Preventing conduct problems, promoting social competence: A parent and teacher training partnership in Head Start. *Journal of Consulting and Clinical Psychology*, 30(3), 283-302.

<sup>35</sup> Reynolds, A.J., & Temple, J.A., (January 20, 2006). Prevention and cost-effectiveness in early intervention: A 20-year follow-up of a Child Parent cohort. McEvoy Lecture Series on Early Childhood and Public Policy, Humphrey Institute of Public Affairs, University of Minnesota.

<sup>36</sup> Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest. *Journal of the American Medical Association*, 285(12), 2339-2380.

<sup>37</sup> The average per-child cost of the CPC program, reported here in 2002 dollars, is based on the average length of program attendance, approximately 1.5 years, whereas the Head Start program cost figure is an annual figure. However, some Head start children do attend the program for two years; the average length of Head Start program attendance is unknown.

United States Department of Health and Human Services. (2006). Head Start Program Fact Sheet – Fiscal Year 2006. Retrieved October 24, 2006 from

<http://www.acf.hhs.gov/programs/hsb/research/2006.htm>

Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002).

Age 21 cost-benefit analysis of the Title I Chicago Child-Parent

Centers. *Educational Evaluation and Policy Analysis*, 24(4), 267-303.

<sup>38</sup> Making program quality improvements to Head Start would involve additional program costs, most notably for increased teacher qualifications, which are expensive to provide given the need for increased teacher salaries and education expenses. Fight Crime: Invest in Kids estimated the additional per-child costs for increased teacher qualifications based on a recent Center for Law and Social Policy analysis. The CLASP analysis estimated the cost of increased teacher qualifications in 2005 proposed Head Start legislation at \$2.7 billion to \$3.4 billion over six years. Using \$3 billion over six years as an average of these two figures, we calculate an annual total program cost per year of \$500 million. Adding \$500 million to the Head Start 2007 annual funding level of \$6.786 billion yields \$7.286 billion as a rough estimate of total annual costs for Head Start with increased teacher qualifications per year. These increased teacher costs represent 7 percent of the total annual funding level with the added teacher funding increase included. Therefore, we applied this 7 percent increase across the whole program to the per-child program cost: increasing teacher qualifications would involve raising the per child program costs of \$7,287 by 7 percent, a \$510 increase to \$7,797. This \$7,797 estimate (in 2005 dollars) for Head Start is slightly less than the inflation-adjusted per-child program cost of the CPC program, which is \$8,016 in 2005 dollars. (This inflation adjustment for CPC program costs from 2002 dollars (\$7,384) to 2005 dollars was calculated using the Consumer Price Index inflation calculator, available at the Bureau of Labor Statistics website. The CPI inflation calculator uses the average Consumer Price Index for a given calendar year. This data represents changes in prices of all goods and services purchased for consumption by urban households.) Therefore, Fight Crime: Invest in Kids will use the \$7,797 estimate for Head Start program costs with increased teacher qualifications as the basis for benefit-cost calculations in this report.

Center for Law and Social Policy. (2005). Cost of Meeting House and Senate Proposed Head Start Teacher Qualification Requirements.

Retrieved October 23, 2006 from

[http://www.clasp.org/publications/head\\_start\\_memo.pdf](http://www.clasp.org/publications/head_start_memo.pdf)

U.S. Department of Labor, Bureau of Labor Statistics. (2006). Inflation Calculator. Retrieved November 1, 2006 from

<http://www.stats.bls.gov/>

<sup>39</sup> For the dollar figures cited in this section of the report, we used the earlier benefit-cost analysis of CPC program conducted at age 21, which found a benefit cost ratio of \$7 for every dollar spent. The CPC program age 24 benefit-cost analysis results for the specific categories of expenditures such as education or crime are not yet available.

Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002).

Age 21 cost-benefit analysis of the Title I Chicago Child-Parent

Centers. *Educational Evaluation and Policy Analysis*, 24(4), 267-303.

Reynolds, A.J., & Temple, J.A., (January 20, 2006). Prevention and cost-effectiveness in early intervention: A 20-year follow-up of a Child Parent cohort. McEvoy Lecture Series on Early Childhood and Public Policy, Humphrey Institute of Public Affairs, University of Minnesota.

<sup>40</sup> Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002).

Age 21 cost-benefit analysis of the Title I Chicago Child-Parent

Centers. *Educational Evaluation and Policy Analysis*, 24(4), 267-303.

<sup>41</sup> Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002).

Age 21 cost-benefit analysis of the Title I Chicago Child-Parent

Centers. Educational Evaluation and Policy Analysis, 24(4), 267-303.

<sup>42</sup> Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002). Age 21 cost-benefit analysis of the Title I Chicago Child-Parent Centers. Educational Evaluation and Policy Analysis, 24(4), 267-303.

<sup>43</sup> Reynolds, A.J., Temple, J.A., Robertson, D.L., & Mann, E.A. (2002). Age 21 cost-benefit analysis of the Title I Chicago Child-Parent Centers. Educational Evaluation and Policy Analysis, 24(4), 267-303.

<sup>44</sup> This estimate of the benefits of high-quality Head Start was calculated as follows: 5,000 eligible children multiplied by the \$7,797 per child cost of Head Start (which includes a 7% increase for improved teacher qualifications) equals \$38,985,000, the estimated cost to serve these eligible children. Applying the \$10.15 per every dollar spent benefit-cost ratio to the \$38,985,000 estimated cost of serving eligible Head Start children ( $10.15 \times 38,985,000$ ) yields \$395,697,750, which is approximately \$400 million, in total benefits for providing improved, higher-quality Head Start to 5,000 children for one year.

The estimate of 5,000 eligible children not served by Maine Head Start is explained earlier in this report, in the section titled "Lack of funds deny Head Start and Early Head Start to 68 percent of eligible children". The estimate is based on data from the U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE). Retrieved from <http://www.census.gov/hhes/www/saipe/>

United States Department of Health and Human Services. (2006). Head Start Program Fact Sheet – Fiscal Year 2006. Retrieved October 24, 2006 from <http://www.acf.hhs.gov/programs/hsb/research/2006.htm>

Reynolds, A.J., & Temple, J.A., (January 20, 2006). Prevention and cost-effectiveness in early intervention: A 20-year follow-up of a Child Parent cohort. McEvoy Lecture Series on Early Childhood and Public Policy, Humphrey Institute of Public Affairs, University of Minnesota.

<sup>45</sup> The estimate of the public benefits of high-quality Head Start was calculated as follows: Instead of applying the \$10.15 for every dollar spent (which is the total benefit), Fight Crime: Invest in Kids applied the portion of the total benefit that is returned to the public (this includes taxpayers and crime victims), called the public benefit, which is \$6.87 for every dollar spent, calculated for the Chicago CPC program benefit-cost analysis. The difference between these two figures is the amount of the benefit that goes to the program participants directly but that is not returned to the public. Multiplying the \$6.87 public benefit by the \$38,985,000 estimated Head Start program cost (calculated in the preceding endnote) yields \$267,826,950, which is approximately \$250 million, in public benefits for providing high-quality Head Start to 5,000 children for one year.

<sup>46</sup> The Head Start estimates here are based on children's participation in one year of Head Start, although an undetermined number of children participate in Head Start for two years. The CPC program benefits estimates are based on the average number of years of participation in CPC, which is 1.5 years.

<sup>47</sup> The estimate of the public benefit per taxpaying household provided by high-quality Head Start was calculated as follows: The number of Maine federal individual income tax returns (which includes single and joint returns) was 618,852 in 2004. Dividing the estimated public benefit of high-quality Head Start (\$267,826,950, calculated in the preceding endnote) by the number of Maine singly- and jointly-filed federal tax returns (618,852) yields \$432.78, which is approximately \$400 per taxpaying Maine household.

Internal Revenue Service. (2006). Table 2. - Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2004. Retrieved October 23, 2006 from <http://www.irs.gov/taxstats/indtaxstats/article/0,,id=103106,00.html>

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