

Pre-K Now  
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## An Economic Analysis of Pre-K in Louisiana

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Dear Colleague:

In recent years, economists across the country have begun quantifying the cost benefits that accrue to children, families, schools, and society when young children attend high-quality pre-kindergarten programs. By calculating the actual dollars saved when fewer children repeat grades or require special education services or later, as adults, get involved in crime or depend upon welfare, economists have demonstrated that investing in pre-k is a wise long-term fiscal policy. In keeping with this promising trend, I am pleased to present a new economic analysis by Dr. Clive R. Belfield, which examines the potential financial returns of expanded high-quality pre-k in Louisiana.

Dr. Belfield has conducted similar studies for other states, including Massachusetts and Ohio. His prior work has consistently found estimated returns of as much as \$1.62 for every \$1 invested in pre-k. This new research suggests the benefits to Louisiana could be even more impressive: for every \$1.00 spent, Louisiana will save \$2.25 in future expenditures. The state is already headed in the right direction. Louisiana's LA4 pre-k program is one of the highest-quality programs in the nation. Dr. Belfield's research indicates that, by significantly expanding access to a high-quality pre-k program such as LA4, the state will reap substantial economic returns in the short term and over many years to come.

The cost benefits described in this study are similar to findings by other experts across the country. For example, Art Rolnick, director of research at the Federal Reserve Bank in Minneapolis, has documented a 16% return on pre-k investments, and a 2005 study by the RAND Corporation in California projected a return of \$2.62 for every \$1 that state invests in a high-quality pre-k program for all four year olds. Similarly, Nobel Laureate James Heckman concluded in a recent study that expenditures for quality early education are among the most fiscally worthwhile investments a state can make for its long-term economic viability. He points out that, "Skill begets skill and learning begets more learning. Early advantages cumulate; so do early disadvantages."<sup>1</sup>

Pre-K Now thanks Dr. Belfield for this important work and congratulates Louisiana's governor, chief state school officer, and legislators for proposing increased investments in high-quality pre-k, one of the smartest investments a state can make for its financial future and for the future of its youngest citizens.

Sincerely,



Libby Doggett, Ph.D.  
Executive Director  
Pre-K Now

<sup>1</sup> Heckman and Masterov, 2004, p.3

## An Economic Analysis of Pre-K in Louisiana

**A** number of recent studies have shown that pre-k education is one of the most cost-effective investments that a state can make. This report indicates that Louisiana has much to gain from such an investment.

Overall, for every \$1 invested in pre-k, the state would recoup \$2.25 in benefits. In the Department of Education alone, every dollar invested in pre-k would be offset by a savings of 77 cents over children's 13 years in K-12. These calculations show that pre-k expansion would be a strong investment, yielding high returns to Louisiana.

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## Introduction

Pre-kindergarten programs enhance the lives of children and have widespread benefits for society.<sup>1</sup> By improving educational performance, expanding career opportunities, and raising wage-earning potential among participating children, high-quality pre-k reduces crime, increases tax revenues, decreases dependency on public assistance programs, and raises living standards for entire communities. In several recent studies, economists have analyzed the specific cost benefits of state investments in pre-k, comparing expenditures required to provide pre-k with later savings to other public programs and services. This report provides such an analysis for Louisiana, where pre-k investment has been on the rise over the past few years. Using economic models and new empirical evidence, it is possible to enumerate and quantify resulting returns and cost savings to the state.

Numerous studies of state-funded pre-k programs available to all children have shown the economic benefits of investing in pre-k to greatly exceed the costs. This is true of cost-benefit studies conducted in several states and by various economists, including studies by this author of programs in Massachusetts and Ohio. The results for Louisiana are no different; for every \$1 invested in pre-k, Louisiana would recoup \$2.25 in future savings.

As of 2004, Louisiana enrolls fewer than one quarter of its four year olds in state-funded pre-k programs. These programs serve 13,500 children in a variety of settings, including public and private schools, childcare facilities, and faith-based centers. In addition, 9,940 four year olds are in Head Start, and 3,919 children are enrolled in special education programs.<sup>2</sup> However, approximately 35,000 children, or 55% of four year olds in Louisiana, do not have access to publicly supported pre-k; 6,855 of these are designated 'at-risk'.<sup>3</sup>

**The key question addressed in this report is: What are the overall costs of expanding pre-k in Louisiana? And how much can the state expect to reap in future savings?**

This analysis begins by identifying the current opportunities for Louisiana's children to enroll in pre-k and establishing how much state funding is being invested. That assessment is followed by a proposal to significantly expand pre-k availability in Louisiana. The new policy is then evaluated to determine its possible economic outcomes. Estimates of what such a policy would cost and of the potential fiscal benefits are calculated. To ascertain likely returns, the analysis employs state-level and national data sources as well as evidence from highly regarded research studies. Finally, to establish whether greater pre-k investment, such as that proposed, would better serve the state over the long term, the costs and benefits of the expanded program are compared.

The results of this economic analysis are summarized here. Full details on the calculations that support the findings are reported in the Technical Appendix available from the author.

## Pre-K in Louisiana

State funding for three pre-k programs (described below) has increased over the past few years, currently totaling over \$50 million. Through further expansion of these programs and significant additional funding, the state could save on future expenditures in education and other services and enhance the academic futures of its children.

To begin to understand where and how investments in pre-k generate returns, it is first necessary to identify current state pre-k services. With a clear view of the existing pre-k structure, it becomes possible to imagine an ambitious new pre-k policy for Louisiana that could maximize the value of the state's early-education dollars.

### Current Pre-K Programs

Louisiana has approximately 63,500 four-year-old children, and the state offers three pre-k programs to meet their educational needs before kindergarten<sup>4</sup>: LA4, 8(g), and the Nonpublic Schools Early Childhood Development Program or NSECD. (These programs are outlined in Table 1 below.) Through these programs, Louisiana offers pre-k to approximately 13,500 or 21% of its four-year-old

children with \$51 million in total funding. Another 13,900 children receive services through Head Start or special education programs. The state-funded pre-k programs differ in eligibility requirements, funding levels, and funding sources. The quality of these programs also varies substantially with LA4 having the highest overall quality. For example, the LA4 program meets eight of ten standards for quality as defined by the National Institute for Early Education Research.<sup>5</sup> Table 1, below, lists the Louisiana state pre-k programs, the children they serve, and their funding levels.

Despite growth in both pre-k programs and public support for them throughout the state, 34,732 four year olds currently have no access to pre-k from either state or federal programs. As a result of these limits to pre-k availability, Louisiana is missing an opportunity to intervene early in children's development to prevent later problems and reduce future public expenditures. In order to take full advantage of potential economic benefits, a new policy of full pre-k access for all children in Louisiana should be considered.

**Table 1: Pre-K Programs in Louisiana**

	8(g) Student Enhancement Block Grant Program	LA4 Program	Nonpublic Schools Early Childhood Development Program (NSECD)
Number of Children Served	5,136	8,401	1,400
Eligibility Requirements	At-risk or low-income	Qualify for free or reduced-price lunch/ low income	Family incomes below 200% of poverty
Per-Enrollee Funding	\$ 1,892.	\$ 4,916.	\$ 5,400.

## Pre-K in Louisiana

*continued from page 3*

### **A New Policy for Pre-K**

To examine possible fiscal benefits to Louisiana from investment in pre-k, it is necessary to consider a new, vastly expanded pre-k policy for the state. Such a policy would mandate full public funding for statewide, voluntary, high-quality pre-k for all four year olds and would require the state to fund the program at a level sufficient to serve all families. While a percentage of eligible families may elect to keep their child at home or use a program that does not receive state support, studies have shown that nearly one-third of families are dissatisfied with their current childcare arrangements;<sup>6</sup> so widespread participation is probable. Given the likelihood of significant enrollment, the increase in investment would need to be substantial. At issue is whether such a policy makes economic sense from the state's perspective, given the significant initial costs.

According to state data, Louisiana has a 2004 age cohort of approximately 63,528 four year olds. Cost-benefit estimates yielded by this analysis are based on this figure.

### **Enrollments in Voluntary Pre-K**

The first task in the economic analysis of this proposed policy is to ascertain the number of children who likely would enroll if pre-k were offered to all four year olds in Louisiana. Some children would not be affected by the proposed policy. Some families will choose not to enroll their children. As previously mentioned, 21% of four year olds are served by the current state pre-k system. Others, approximately 14,000 children annually, receive pre-k through the federally funded Head Start program or through special education programs. This proposed policy would increase access to pre-k programs by 17,000 or 27% of four year olds in 2005, bringing total enrollment in state-funded programs to approximately 30,500. These figures reflect estimated enrollments and are based on enrollment figures from Georgia and Oklahoma where approximately 60% of families choose to have their children participate in a similar, state-funded, voluntary pre-k program.<sup>7</sup>

This proposed policy would represent a substantial commitment by the state: it would increase the proportion of four year olds in pre-k (state or federal) from 45% to 72%. This ambitious policy offers comprehensive access, without making such programs compulsory.



### Costs and Total Expenditures for Voluntary Pre-K

For a pre-k program to be effective and lead to future cost savings, the state must commit sufficient resources to ensure high quality. Only high-quality programs generate the long-term benefits discussed in this study.

Calculating the actual cost of high-quality pre-k for all four year olds in Louisiana is a complex proposition. One approach is to assume funding at the level of LA4. However, this amount of funding falls well below per-child costs of Head Start and K-12 as well as what is typically required for high-quality programs.

This study uses two costing models based on Louisiana's current expenditures for similar educational programs. Model #1 assumes that high-quality pre-k would cost the same as Head Start; Model #2 assumes it would cost the same as one year of K-12 education. In both cases, the funding level is considerably more generous than that of the three existing state-funded pre-k programs in Louisiana. According to these models, the state would need to invest an additional \$109-120 million annually per age cohort to support the proposed pre-k program. Table 2, below, shows the unit costs and total costs.

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Louisiana's LA4 program is one of the highest-quality programs in the nation. It meets eight of the ten quality checklist criteria evaluated by the National Institute for Early Education Research. For a pre-k program to be effective and lead to future cost savings, the state must commit sufficient resources to ensure high quality. Only high-quality programs generate the long-term benefits discussed in this study.

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**Table 2: Funding Requirement for Proposed Policy**

Costing Formula	Cost Per Child	Total Program Cost Per Cohort (in millions)
[1] Head Start Funding Level	\$ 6,418	\$ 109.11
[2] Public School Funding Level	\$ 7,056	\$ 119.95

## Economic Benefits of Pre-K for Louisiana

Prior research has identified many fiscal benefits to a state from pre-k programs. They include both cost savings and increased income. Benefits extend across governmental departments and span the life of the children served. These benefits fall, generally, into four categories:

- **Efficiency gains to the school system**  
Special education rates are reduced, and, because students are better prepared, schools can provide education more efficiently (e.g. improved student behavior reduces teacher turnover and absenteeism and increases job satisfaction).
- **Increases in tax revenues**  
Pre-k participants themselves become more productive as they enter the labor force, and during the pre-k period, families' childcare needs are met, reducing their expenses and allowing parents to participate in the labor market. The state gains in higher tax revenues.
- **Budgetary savings in the criminal justice system**  
By enhancing economic opportunities for children, pre-k programs play an important role in reducing crime, both while the children are juveniles and as they enter adulthood. The state gains in that public expenditures on crime prevention, prosecution, and incarceration are reduced.
- **Savings in health and welfare budgets**  
By improving economic conditions for children at an early age, pre-k can reduce public commitments in terms of health and welfare payments.

Using this existing analytical structure, specific fiscal benefits for Louisiana can be computed.<sup>8</sup> This analysis first calculates the impact of the proposed pre-k program on each of the four categories above (e.g. the efficiency gains to the school system) using national data applied to current expenditures in Louisiana. Then, the economic consequences of those impacts are assessed. It is notable that the scale of benefits is unlikely to be as large as has been found for programs such as High/Scope Perry Pre-School and the Abecedarian Project which are intensive programs targeted to at-risk groups of children who make the greatest gains in high-quality pre-k programs. The proposal here is for a statewide program open to all children, regardless of income level.



**Table 3: Fiscal Impacts from Voluntary Pre-K for Louisiana**

Domain	Present Value <sup>b</sup> Cost- Savings for One Age Cohort (in millions)	
	Model #1	Model #2
<b>Efficiency gains to school system (E):</b>		
Reduction in special education	\$ 27.07	\$ 15.47
Learning productivity gains <sup>a</sup>	\$ 65.09	\$ 34.95
<b>Increases in tax revenues (T):</b>		
Participants' earnings	\$ 57.18	\$ 41.42
Family earnings	\$ 3.82	\$ 2.47
<b>Savings to the criminal justice system (J)</b>	\$ 102.00	\$ 88.96
<b>Savings in health and welfare (H)</b>	\$ 14.41	\$ 8.94
<b>Total Cost Savings (E+T+J+H)</b>	<b>\$ 269.56</b>	<b>\$ 192.20</b>

Notes: <sup>a</sup>Learning productivity cost savings arise from reduced grade retention, improved teaching conditions, lower teacher turnover, lower reliance on substitute teachers, improved school safety, and savings in academic support programs.

<sup>b</sup>Present Value figures are discounted over the child's educational span from K–12 at a rate of 3.5%. Economic values are in 2005 dollars.

While many substantial benefits of pre-k are realized during a child's K-12 years in the form of reduced education costs, others extend into adulthood as savings are accrued to the welfare and criminal justice systems and participants' increased earning power generates income. This report considers the fiscal gains attained over both the long and short terms.

Research indicates that all children benefit from participating in pre-k. Studies of statewide programs have found universal gains in academic achievement,<sup>9</sup> and large-scale programs may yield extra benefits in terms of peer learning. However, this study takes a very conservative approach and does not include benefits for which there is no conclusive evidence.

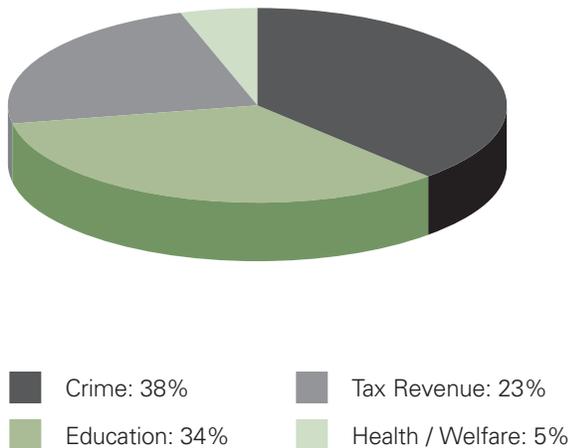
The analysis further assumes that a statewide program would yield smaller per-child gains than a targeted program and uses cautious impact and benefit estimates (see the Technical Appendix available from the author for more information).

Table 3 itemizes the anticipated cost savings from the proposed policy for voluntary pre-k. Both models employed in this study are presented: Model #1 is the 'best estimate,' using evidence from reputable research on pre-k; Model #2 is a particularly cautious estimate, assuming smaller benefits from a large-scale program than have been shown to result from targeted pre-k.

## Economic Benefits of Pre-K for Louisiana

*continued from page 7*

**Chart 1: Cost Savings from Pre-K:  
Total Savings for One Age Cohort  
of Four Year Olds = \$270 Million**



For each cohort of four-year-old children, there would be significant cost savings. These are expressed as “present values,” meaning that savings that do not appear until the children grow older are given a lower weight. There are savings to the education system as children enter school as more proficient learners;<sup>10</sup> to the treasury as tax revenues increase; to the criminal justice system as crime is reduced; and to health and welfare budgets as pre-k programs improve children’s prospects and reduce their dependency on government services.

**The total cost savings to the state from implementing the proposed program would amount to \$270 million. Even using a very cautious model (Model #2), cost savings would exceed \$192 million.**

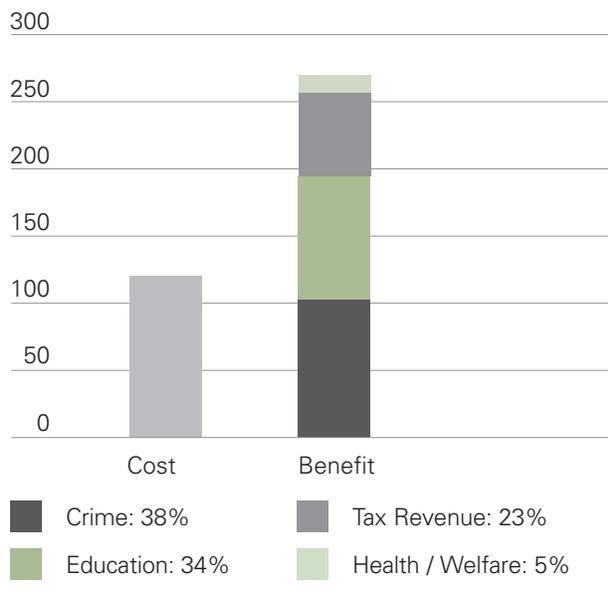
The distribution of benefits over the 13-year period when a child progresses through school is shown in Chart 1 at left. The largest proportion of benefits is in reduced crime costs (38%), and one-third of the benefits accrue in savings to the education system (34%). Tax revenues receive 23% of total benefits, while health/welfare savings are relatively small at 5%.

## Cost-Benefit Analysis of Voluntary Pre-K

To determine whether expanded pre-k is in fact a cost-effective strategy for Louisiana, this section combines the analyses of the investment costs of voluntary pre-k and the anticipated economic benefits to produce a cost-benefit ratio. Crucially, only the fiscal benefits to the state are being considered; gains to individual participants and their families, although significant, are not included. This approach enables a determination of the optimal amount of public support for pre-k, but it is not a complete assessment of the social benefits provided by that investment. Moreover, this analysis does not consider the economic output generated by the pre-k sector. For Louisiana, Nagle and Terrell (2005) find that there is a strong economic multiplier effect from investing in pre-k; that is, the investment generates additional spending (by those who get jobs in pre-schools or by companies that supply services to them). This effect is in addition to those analyzed here.

Chart 2, below, contrasts the present value costs and benefits of the proposed investment in pre-k for the state of Louisiana. With costs of \$120 million and

**Chart 2: Costs and Benefits of Pre-K**



benefits of \$270 million, voluntary pre-k would yield net savings of \$150 million. In other words, for every \$1 invested in pre-k the state would recoup \$2.25 in benefits. Based upon these calculations, pre-k expansion would be a strong investment, yielding high returns to the state.

Multiple state agencies would share the fiscal benefits. In the Louisiana Department of Education, the investment in pre-k would not pay for itself, but every dollar invested would be offset by savings of 77 cents over the 13 years that children spend in K-12. The Louisiana Department of Revenue and the Louisiana Department of Corrections would also gain significantly from the pre-k investment.

Even on the most cautious set of assumptions (Model #2), there is a positive return on this investment.<sup>11</sup> Benefits exceed costs by a factor of 1.76. Also, these results correspond with those from an independent study produced for the state of California<sup>12</sup> as well as similar studies done for Ohio and Massachusetts.<sup>13</sup> In each case, the basic economic models used are similar and are applied to data taken from state-specific sources.

This year, the Louisiana legislature is considering investing an additional \$20 million in the LA4 program. By applying the estimated enrollment given on page four, above, to the figures given in Chart 2, it is possible to estimate the per-child returns of this additional \$20 million investment in high-quality pre-k. With an investment of \$7,056 per child, the state would recoup \$15,857 in subsequent benefits. This return would amount to per-child savings of \$8,801 in public funds. Similarly, a \$20 million injection of funds into pre-k would create 2,830 new available spaces in a very generously funded program. For each such investment, the state should recoup at least the initial \$20 million plus a further \$25 million in cost savings as this investment in children pays off.

## Conclusion

Through the application of fundamental components of investment-appraisal techniques, this economic analysis calculated the cost benefits of high-quality, voluntary pre-k for all four year olds in the state of Louisiana. The findings indicate that investing in such a program will generate returns in reduced expenditures on public health, education, and crime as well as increased tax revenues. These impressive results were reached using very conservative economic models, which did not include the direct private benefits to children and their families, but rather only the considerable cost savings to the state.

Using national and state-specific data, the impacts of pre-k in Louisiana were calculated both for the current state pre-k system in which about 45% of the state's four year olds attend federally or state-funded programs as well as for a proposed, expanded system, which could offer services to every four-year-old child in the state. This analysis calculated that such an extension of pre-k availability would cost Louisiana between \$109 and \$120 million. While this is certainly a significant financial commitment, the state would stand to redeem as much as \$270 million in future cost savings.

Given these findings and those of similar research studies, it is clear that investments early in a child's life yield considerable fiscal benefits to the state in the future. As Art Rolnick and Rob Grunewald point out in their March 2003 study published in the Federal Reserve Bank of Minneapolis's *fedgazette*, "if properly funded and managed, investment in ECD [early-childhood development] yields an extraordinary return, far exceeding the return on most investments, private or public."<sup>14</sup> This analysis indicates that, given current patterns of spending, the educational pathways students follow, and government revenue sources and expenditures, the returns on pre-k investment in Louisiana would likely follow that same, strongly positive trend.

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Given these findings and those of similar research studies, it is clear that investments early in a child's life yield considerable fiscal benefits to the state in the future.

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## Notes

<sup>1</sup> Gilliam and Zigler, 2000; 2004

<sup>2</sup> NIEER, 2004; ECCS, Table I-1. Childcare assistance programs are not included.

<sup>3</sup> ECCS, Table IV-24

<sup>4</sup> ECCS, 2004; NIEER, 2004

<sup>5</sup> For more information, see [www.nieer.org](http://www.nieer.org).

<sup>6</sup> ECCS, 2004, p. 6

<sup>7</sup> NIEER, 2004

<sup>8</sup> Gilliam and Zigler, 2004; LA DoE, 2003; 2005. Evaluations of 8(g), NSECD, and LA4 have been performed. However, these evaluations only looked at developmental competence, comparing pre-test with post-test scores; other outcomes of greater economic consequence were not considered. The evaluations did not compare participants to a control group, and funding is considerably below the amounts proposed here. Therefore, evidence from these evaluations is not applied. That noted, evaluations of NSECD and LA4 show positive achievement gains.

<sup>9</sup> Gormley et al., 2004

<sup>10</sup> Learning-productivity gains arise because school systems with more able students can save; pre-k is associated with more-able and better-behaved students, reducing the need for school-safety measures and remedial programs as well as raising the working conditions for all staff. In particular, teacher job satisfaction, turnover, and absenteeism are strongly correlated with student behavior.

<sup>11</sup> Further sensitivity testing, to see how the results vary according to the assumptions, indicates that the results are robust.

<sup>12</sup> Karoly and Bigelow, 2005

<sup>13</sup> Belfield, 2005a; 2005b

<sup>14</sup> Rolnick and Grunewald, 2003

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