

OHIO'S INITIATIVE ON
INCREASING THE
GRADUATION RATE:
A COST-BENEFIT ANALYSIS

A REPORT FROM
POLICY MATTERS OHIO

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POLICY MATTERS OHIO, the publisher of this study, is a nonprofit, nonpartisan policy institute dedicated to researching an economy that works for Ohio. Policy Matters seeks to broaden debate about economic policy by doing research on issues that matter to working people and their families. With better information, we can achieve more just and efficient economic policy. Areas of inquiry for Policy Matters include work, wages, education, housing, energy, tax and budget policy, and economic development.

An initial version of this report attributed some increase in federal income tax revenues to the state. This corrected version clarifies that the increased income tax revenue would accrue to both the federal and state government, not just to the state of Ohio.

Executive Summary

Ohio's Initiative on Increasing the Graduation Rate has been in operation for one year at 33 urban schools, providing group programming and individual mentorship focused on ninth grade boys who are at risk of dropping out because they have been held back in school, have missed 36 or more days of eighth grade, have failed two eighth grade classes, or have been suspended for a week or more.

In its first year, the program provided programming for about 5,500 boys at target schools with high numbers of students identified as at risk. Of the 5,500 young men served, 2,796 met some of the criteria outlined above. At the end of the school year, 1,883 (67.3 percent) of the 2,796 at-risk boys were promoted to tenth grade. This reflects an increase in graduation rates from the 2007 levels in nearly all of the schools, and a dramatic increase in some. John Kennedy, Woodward, Lima, and Cleveland's East High School, for instance, each had more than a 40 percent increase in their tenth grade promotion rates in the first year of this program, although some of these schools also had other changes. The initial increase in promotion rates is an extremely promising start.

In 2006, the initiative received \$20 million for two years. This annual \$10 million outlay went to administrative costs, salaries for 33 Linkage Coordinators, and programming for 5,500 ninth graders and additional older students who served as mentors.

The program's initial year showed excellent results, but success varied among participating schools. Other findings include:

- Of the 28 schools with useable data, 24 saw increases in their promotion rates, four schools experienced slight declines in tenth grade promotion rates, while four schools saw jumps of over 40 percent.
- The largest differences between 2006-07 promotion rates and 2007-08 rates occurred in Cleveland and Cincinnati. The rest of the state experienced much more modest gains, with no net promotion increases in Youngstown or Lorain.
- The average school participating in the initiative saw a 16.5 percent increase in tenth grade promotion when compared to the previous year. If tenth grade promotion rates had been the same as in the last year prior to the program, 389 of the promoted tenth graders would not have been promoted.

Until the class of 2011 graduates, we won't know how the initiative affects graduation rates. Until then, we conservatively assume that tenth graders who participated in the initiative will graduate at rates similar to those of previous tenth graders in their school districts. This likely dramatically underestimates actual graduation rates, as the initiative provides ongoing

mentoring for older students, and the support networks that the initiative builds likely endure past a student's freshman year of high school.

With these conservative assumptions, we would find an increase of 310 graduates. If these 310 students graduate instead of dropping out, Ohio would see higher incomes, higher state and federal income tax payments, lower Medicaid costs and lower criminal justice costs. Not considered in our calculations are other benefits from the program – lower Temporary Assistance to Needy Families payments, more college attendance, deferral of parenting, improved outcomes for the next generation of children, and improved outcomes for boys who serve as mentors but are not themselves program participants.

We find an overall savings to the state of Ohio and the federal government of more than 28.45 million dollars, more than a 3.3 to 1 return on the state's initial investment. In short, if the benefits recorded during the first year of the Initiative on Increasing the Graduation Rate are typical, this program stands to increase Ohio's graduation rate, improve the lives of some of the most at-risk boys in Ohio, reduce crime, and save the state and federal government substantial resources. The increase will lead to higher employment, higher income tax payments, lower social welfare costs, lower crime rates, lower court costs, and lower incarceration costs. Over the lifetime of the participants, if promotion and graduation rates remain consistent, the public sector will recoup more than 3.3 dollars for each dollar spent on this program, while also dramatically improving the lives of children who are now at risk.

Education investment brings substantial economic gains in less quantifiable ways, increasing artistic, intellectual and cultural resources of communities. The economic benefits of education that we can calculate are extremely conservative estimates of the long-term return on this spending. We recommend continuation of the Initiative on Increasing the Graduation Rate and expansion if future years continue to demonstrate similarly impressive results.

Introduction

The Initiative on Increasing the Graduation Rate, a new program targeting low-income, high-risk, African-American boys in Ohio is designed to increase graduation rates for boys who currently drop out at alarmingly high rates. The program, begun in the 2007-2008 school year, directs intensive attention to ninth grade boys, seeking to raise their academic skills, increase their engagement with school, and increase the likelihood that they will be promoted to tenth grade and, later, graduate.

This report examines these efforts to slow the ninth grade dropout rate at targeted Ohio schools. We assess schools' levels of tenth grade promotion prior to and after the program's implementation. We then consider how graduation rates are likely to change as a result of the achievements in the program's first year, and what this will mean for state tax revenues and state expenditures. Finally, we compare the costs of this program to the costs and benefits the state faces if participating students graduate from high school at the same rate as other tenth graders in similar schools. As this report goes to press, the state senate is considering removal of funding for this program. We end with a recommendation to restore this funding.

State Education Spending

The state of Ohio devotes about 28 percent of its General Revenue Fund (about \$7 billion) to primary and secondary education.¹ A recent study from the University of Cincinnati Economics Center for Education and Research calculates the lifetime return on education investment to be \$11.62 for each dollar spent on a high school graduate.²

The state recoups its education investment in a number of ways. Graduates earn more, pay more taxes, receive less public assistance, and commit fewer crimes, lowering costs for both court expenses and incarceration.

If the 38,000 high school dropouts from Ohio's 12th grade class of 2008 had graduated, the state's economy would have stood to gain \$10.8 billion extra in lifetime earnings, more than a quarter of a million dollars per high school graduate according to research by Princeton economist Cecilia Rouse.³ Education also reduces the money Ohio spends on healthcare, as non-graduates have far higher rates of state dependence on social services such as Medicaid. Of course, education investment brings substantial economic gains in less quantifiable ways, increasing artistic, intellectual and cultural resources of communities. Therefore, the economic benefits of education that we can calculate are extremely conservative estimates of

¹ <http://www.statehealthfacts.org/profileind.jsp?rgn=37&ind=33&cat=1>

² <http://news.cincinnati.com/article/20090118/NEWS0102/901180385/1058>.

³ <http://www.all4ed.org/files/archive/publications/HighCost.pdf>

the long-term return on this spending. Investment in people generates returns throughout their lives, and even during their children's lifetimes, as children's well-being and performance are affected by parental educational levels.

Initiative on Increasing the Graduation Rate

In 2007, Ohio Governor Ted Strickland formed a committee charged with narrowing Ohio's racial and gender gap in high school achievement. The Committee's Initiative on Increasing the Graduation Rate has since focused on helping at-risk ninth grade males proceed to tenth grade. The program involves a broad combination of group programming and individual mentorship, much of which is directed by a Linkage Coordinator at each school. The initiative includes programming for at-risk students' parents as well. A student is characterized as "at-risk" if he is old for his grade, or if in eighth grade he missed 36 days of class, failed two classes, or was suspended for a week or more.⁴ The initiative has operated in 33 Ohio public schools since the fall of 2007. Seventy-three percent of program participants have been black, six percent have been Latino, and twenty-one percent have been white, according to ninth grade male enrollment data from these schools.

The program is based on research showing that ninth grade is an especially challenging year for young men, due to more difficult curriculum, transition to a high school environment, and more rigid promotion criteria than exists in middle school. Specifically, ninth grade in Ohio usually marks the end of automatic or "social promotion," and the first year in which a student must complete a certain number of credits in order to complete the grade. The Governor's Initiative is based on the idea that if students can make it through this "bottleneck" year, they will have less difficulty passing the tenth, eleventh, and twelfth grades.

Initial results indicate that the program has been an effective means of increasing the number of boys who move from ninth to tenth grade. In its first year, the program provided programming for about 5,500 boys at target schools with high numbers of students identified as at risk. Of the 5,500, 2,796 met some of the criteria outlined above. At the end of the school year, 1,883 (67.3 percent) of the 2,796 at risk boys were promoted to tenth grade. This reflects an increase in graduation rates from the 2007 levels in nearly all of the schools, and a dramatic increase in some. John Kennedy, Woodward, Lima, and Cleveland's East High School, for instance, each had more than a 40 percent increase in their tenth grade promotion rates in the first year of this program. It is too soon to know whether the new initiative was the only cause of improvement (for example, we know there were other changes at East High), whether the initial year had overly promising results due to student or teacher knowledge that they were part of an experiment (this is known as the Hawthorne

⁴ Stephens, Scott. "Freshman dropouts declining; mentors, field trips key." *Cleveland Plain Dealer*, 9-4-2008. http://blog.cleveland.com/metro/2008/09/dropouts_declining_9th_grade_i.html

Effect), or whether the promoted tenth graders will actually graduate at higher rates. However, the initial increase in promotion rates is an extremely promising start.

The following section assesses the quantifiable, long-term effects that the first year results are likely to have on other areas of state spending. We consider regional variation in program effectiveness and crime rates, and draw upon the extensive work that has been done to track the effect of education on wages and general economic growth. Because we don't yet know how the program might contribute to completion of higher education, this report provides only a conservative estimate of the program's probable economic effects.

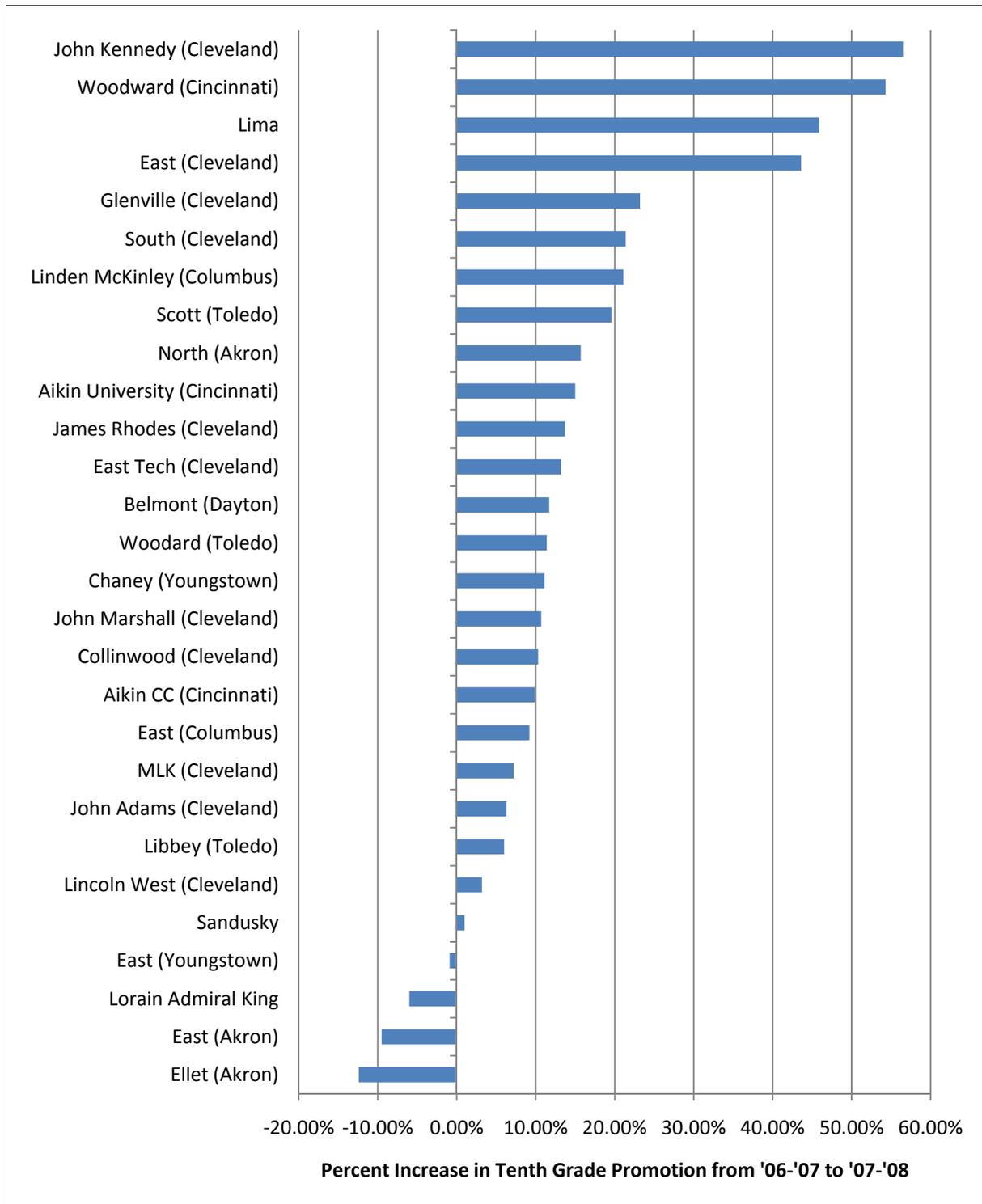
Initial results

After a year and a half of operation, Ohio's Initiative on Increasing the Graduation Rate appears to be responsible for measurable increases in tenth grade promotion. Although results vary among schools, promotion rates have increased in all but a few participating schools. As the program is only in its second year, it is too soon to know what sustained patterns will emerge from these initial gains. Early years of a new program often show a greater effect than can be maintained. At this point, however, the jump in tenth grade promotion rates is substantial. Of the 33 pilot schools, there are five where data on tenth grade promotion rates cannot be compared to promotion rates prior to the initiative.⁵

Figure 1, below, reflects the difference between tenth grade promotion among all black ninth grade males in 2007 and 2008, among the 28 schools that provided comparable before and after data. In addition to the substantial gains at John Kennedy, Woodward, Lima and East High in Cleveland, twenty other schools saw gains, most of well over ten percent, while only four schools saw declines in promotion rates, only one of which slightly exceeded ten percent.

⁵ East Cleveland and the district of South Western do not have previous years' tenth grade promotion data and Canton schools have had a different approach to tenth grade promotion that makes comparisons challenging.

Figure 1: Increase in Tenth Grade Promotion Rates in Ohio High Schools



Source: Ohio Department of Education Report Card Data

Cost of the Initiative

In 2006, Ohio's Initiative on Increasing the Graduation Rate received \$20 million for two years of operation. This annual \$10 million cost went to administrative costs, salaries for 33 Linkage Coordinators, and programming for the 5,500 ninth graders served. Older boys serving as mentors also received some programming.

As noted, tenth grade promotion data for five of the 33 participating schools is not available for the control year, before the program began, so comparisons cannot be made. These five schools represent 15.9 percent of the initiative's target population, and include both pilot schools in Canton City Schools, the only pilot school in East Cleveland, and the only pilot school in the South-Western City Schools. To control for this lack of data, we could either assume tenth grade promotion rates based on averages from all other schools, or subtract 15.9 percent of the program budget. Since program effectiveness varies geographically, we cannot assume that the average effectiveness would hold constant. We instead negate 15.9 percent of the overall budget when we compare the initiative's cost to its estimated benefits later in this report.

Effectiveness of the Initiative

Using the tenth grade promotion rates for both the 2006-07 school year and the 2007-08 school year at the pilot schools, we calculate the number of promotions that are correlated with the implementation of the program. There were substantial changes in tenth grade promotion rates of participating schools, but the changes varied widely from school to school. As Table 1, below, indicates, four schools experienced slight declines in tenth grade promotion rates, while four schools saw jumps of over 40 percent. The largest differences between 2006-07 promotion rates and 2007-08 rates occurred in Cleveland and Cincinnati. The rest of the state experienced much more modest gains, with no net promotion increases in Youngstown or Lorain. Statewide, schools participating in the initiative saw a 16.5 percent increase in tenth grade promotion when compared to the previous year. If tenth grade promotion rates in the first year of the program had been the same as in the last year prior to the program, 389 of the promoted tenth graders would not have been promoted.

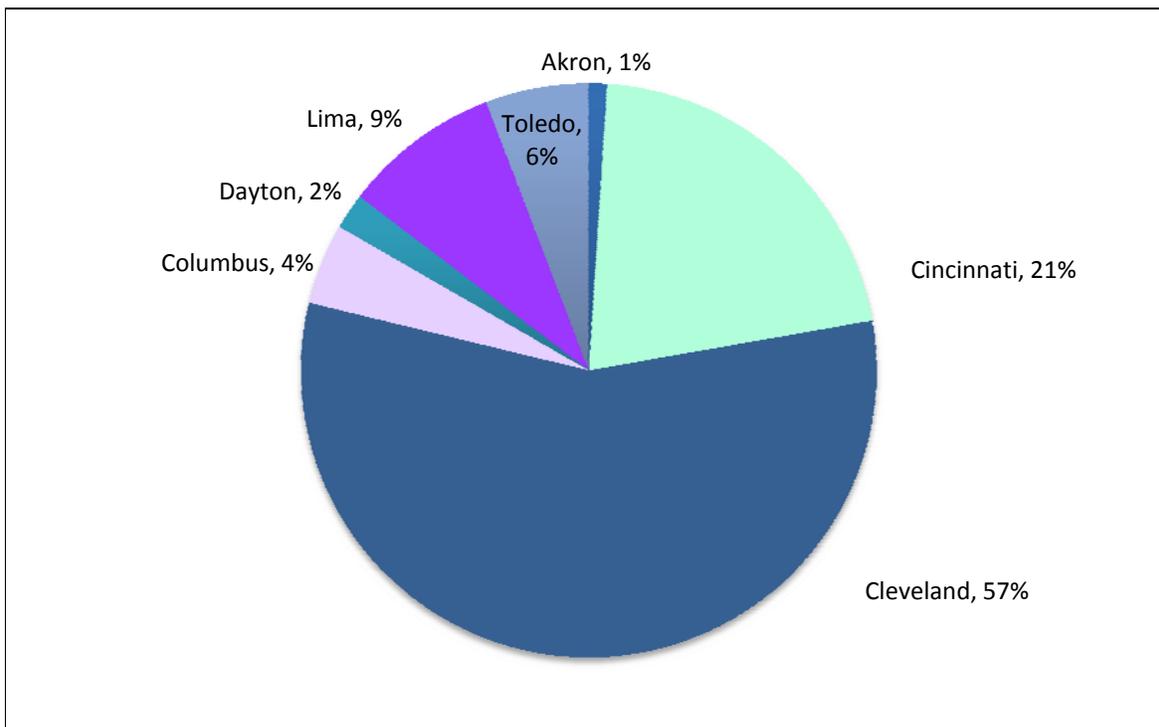
Table 1: Change in number and percent of ninth grade boys promoted to tenth grade, Ohio urban schools participating in retention initiative, 2006-07 school year vs. 2007-08 school year

City	School	Percent of tenth graders promoted 2006-07	Percent of tenth graders promoted 2007-08	Change in number of tenth grade promotions	Percent increase in tenth grade promotions
Akron	East	78.7%	69.2%	-5	-9.5%
	Ellet	73.7%	61.3%	-4	-12.4%
	North	62.1%	77.8%	13	15.7%
Cincinnati	Aikin CC	47.5%	57.4%	6	9.9%
	Aikin University	19.0%	34.0%	7	15.0%
	Woodward	35.0%	89.3%	71	54.3%
Cleveland	Collinwood	62.6%	72.9%	14	10.3%
	East	34.1%	77.7%	45	43.6%
	East Tech	67.6%	80.8%	12	13.2%
	Glenville	34.6%	57.8%	43	23.2%
	James Rhodes	50.8%	64.5%	10	13.7%
	John Adams	68.3%	74.6%	7	6.3%
	John Kennedy	28.6%	85.1%	57	56.5%
	John Marshall	56.2%	66.9%	15	10.7%
	Lincoln West	65.8%	69.0%	1	3.2%
	MLK	79.2%	86.4%	2	7.2%
	South	56.0%	77.4%	18	21.4%
Columbus	East	67.1%	76.3%	5	9.2%
	Linden McKinley	57.2%	78.3%	13	21.1%
Dayton	Belmont	49.5%	61.2%	8	11.7%
Lima	Lima	33.0%	78.9%	35	45.9%
Lorain	Lorain Admiral King	50.8%	44.8%	-4	-6.0%
Sandusky	Sandusky	67.7%	68.7%	1	1.0%
Toledo	Libbey	35.6%	41.6%	5	6.0%
	Scott	41.5%	61.1%	11	19.6%
	Woodard	54.7%	66.1%	7	11.4%
Youngstown	East	50.0%	49.1%	-14	-0.9%
	Chaney	62.8%	73.9%	10	11.1%
Total number of new promotions and average increase				389	16.5%
Schools with incomplete information excluded					

Source: Ohio Department of Education Report Card Data

A majority of these students – 57 percent – come from the 12 participating schools in Cleveland, while another 21 percent come from Cincinnati. The four schools with the largest gains account for more than half of the program's total effect. Figure 2 below reflects a geographic breakdown of the students promoted to tenth grade and correlated with this program (students who would not have been promoted if rates had remained the same as in the previous school year). Based on the first year's data, the results of the initiative appear positive but not consistent across schools.

Figure 2: Percent of additional Tenth Grade Promotions by School District



Source: Ohio Department of Education Report Card Data

Social Costs of Dropping Out

High dropout rates increase public spending related to welfare and public health and reduce earnings, income tax payments, and possibly home ownership and property taxes. Studies on early childhood education programs also sometimes calculate the effect that education has on drug use, special education spending, and future educational success of that student's children.⁶ Some economists have attempted to quantify the social cost of crime to victims as

⁶ Ludwig, Jens and Isabel Sawhill. "Success by Ten: Intervening Early, Often, and Effectively in the Education of Young Children." *The Hamilton Project; Brookings Institute*. Feb 2007 (20).

well. Previous studies can lend perspective on where social savings resulting from educational intervention programs tend to come from.

The Perry Preschool project and the Abecedarian project are two well-known early childhood investment programs that have well-documented long-term savings for participants. We consider just some of the savings that researchers for these programs documented. At the age of 27, savings from increased taxes and decreased expenditures totaled \$105,324 for each participant in the HighScope Educational Research Foundation's Perry Preschool project, while the cost per participant was just \$14,716 (in 2001 dollars).⁷ Those savings originate from less criminal justice spending, more taxes paid, less welfare, and social savings to crime victims.

The Abecedarian project was found to result in savings from higher employment, higher income taxes, higher college entry rates, lower teen pregnancy rates and less dependence on state health care. Although initial research on Abecedarian did not estimate savings from criminal justice spending, the Brookings Institution calculates that the figure is likely between \$20,000 and \$40,000 per child.⁸ Total savings associated with Abecedarian were estimated at around \$177,000 per child.

In addition to the extensive studies of these preschool programs, Clive Belfield and Henry Levin conducted an impressive review of various educational interventions, among them some programs with resemblances to the Ohio initiative, and found positive results.⁹ High school interventions, like Ohio's program, that they found to be cost effective include Minnesota's Check and Connect, summer school, a program targeted toward Latino teens and career academies.

Ohio's ¹⁰ initiative will not bring about the same level of savings as the early intervention programs. The only savings we consider here are those rooted in high school success. Nationally, the difference in lifetime earnings between a high school graduate and a high school dropout is about \$260,000. The additional lifetime tax revenue collected from those earnings is frequently estimated at \$60,000 per graduate.¹¹

⁷ Schweinhart, Lawrence J. "Using Preschool Research to Facilitate Change." High/Scope Educational Research Foundation (2003; 7).

⁸ Ludwig and Sawhill (21).

⁹ Belfield, Clive R and Henry M. Levin, The Return on Investment for Improving California's High School Graduation Rate, California Dropout Research Project Report #2 August 2007, http://www.cbcse.org/media/download_gallery/California%20Dropout%20Study%20Report%20FINAL.pdf

¹⁰ Rouse, C. E. "Labor Market Consequences of an Inadequate Education. *Symposium on the Social Costs of Inadequate Education, Columbia University* (2005).

¹¹ Alliance for Excellent Education. "The High Cost of High School Dropouts: What the Nation Pays for Inadequate High Schools." Oct 2007.

High school graduates are less likely to use state healthcare assistance. A 2007 study from Columbia's Teachers College estimates that over their lifetimes, high school dropouts receive an average of \$40,500 more in Medicaid and Medicare than high school graduates do.¹² The study notes that Medicare and Medicaid use vary by race and gender, meaning the public medical savings associated with each additional black male high school graduation are actually higher; over his lifetime, a male black high school dropout will receive \$52,100 more than a male black high school graduate in state medical assistance.¹³ For white and Hispanic students, the difference associated with high school completion is \$27,900, and \$37,800, respectively. These figures are per-capita, not per-enrollee, meaning that they apply to each dropout and graduate. Adjusted for the racial composition of the targeted students, average public medical savings associated with each Governor's Initiative graduate are \$46,149.

Based solely on these two measures for which the significance of graduation is easily quantifiable, the non-criminal justice cost of each dropout can be estimated at \$106,149. Because this figure represents a far more conservative calculation of costs, it is significantly less than the actual social cost associated with each dropout. Table 2, below, provides some of the changes in spending that we predict as a result of these increased graduation projections.

¹² Levin, Henry et al. "The Costs and Benefits of an Excellent Education for America's Children." Center for Benefit-Cost Studies of Education, Teachers College, Columbia University. January 2007.

¹³ Levin, Henry et al. "The Costs and Benefits of an Excellent Education for America's Children." Center for Benefit-Cost Studies of Education, Teachers College, Columbia University. January 2007.

Table 2: Predicted public revenue increases or public social spending reductions resulting from increased graduation rates as a result of Ohio's initiative

	Public savings per student	Number of participants incurring this saving	Total
Increased state and federal income tax payments	\$60,000	310	\$18,600,000
Reduced Medicaid/Medicare payments	\$46,149	310	\$14,306,190
Reduced TANF payments	Not Included		
Increased College Attendance			
Educational success of program participants' children			
Savings from higher earnings, more taxes, less welfare, more college attendance or other improvements in outcomes for boys whose tenth grade promotion did not change			
Total			\$32,906,190
It is important to note that we have not included many possible forms of savings, some of which are noted in the chart. This chart also does not include the increased educational costs associated with keeping more of these students in school – those costs are quantified later in the paper. Criminal justice savings are also discussed later.			

Source: Author's calculations

Crime and Education

Crime destroys communities but it also hurts the economy. High crime rates force local governments to devote substantial resources to law enforcement, while driving business and investment out of some neighborhoods. Crime detracts from the value of homes and other real estate. More than that, violence and theft hurt individuals, increase fears and suspicion, and prevent residents from fully enjoying their communities.

The country and most states, including Ohio, spend enormous amounts of money reacting to crime that often could have been prevented at a much lower cost. Education investments can dramatically reduce crime. Education and crime are inversely correlated, meaning that an individual becomes less likely to commit a crime with each successive year of school.¹⁴ This relationship is not constant: completing a year of high school has a bigger effect than completing a year of grade school. There are also racial differences: economists Lochner and

¹⁴ Lochner, Lance and Enrico Moretti. "The Effects of Education on Crime: Evidence from Prison Inmates, Arrests, and Self-Reports." *The American Economic Review*, vol 94, no 1. March 2004 (155-189).

Moretti find that a year of education decreases a black student's probability of arrest about three and a half times more than it does for a white student.

Every crime takes an economic toll at multiple points. Citizens, governments, and businesses all pay these costs. Local governments devote significant resources to law enforcement, while prison systems impose large burdens on state budgets. Though we can't quantify fear, anxiety, stress, and pain, we can estimate basic spending associated with crime, such as court costs and incarceration. Even this is complex: costs are spread among levels of government; many expenses are fixed and not affected by fluctuations in crime rates. Thus, the following section provides a conservative estimate of government costs that do vary with crime.

The Cost of Incarceration

Incarceration is expensive for the state. The average term of adult incarceration in Ohio is 2.04 years.¹⁵ At a cost of \$79 per day,¹⁶ it costs \$58,823 to incarcerate the average prisoner in Ohio for the first time. Because a formerly incarcerated individual is more likely than the average citizen to be incarcerated again, preventing an initial incarceration saves more than \$58,823. The adult recidivism rate is 38 percent in Ohio, meaning 38 percent of inmates are recommitted within three years of completing their initial sentences.¹⁷ Thus, the incarceration experience will include two or more terms, to the effect of at least 4.08 years, for 38 percent of inmates in Ohio. Adding this additional time to the \$58,823 figure for 38 percent of inmates, the average lifetime cost of incarcerating an adult in Ohio is over \$81,176. While some of the cost of incarceration is fixed, and does not vary with each additional inmate, these figures do describe the cost of incarcerating one additional inmate. Because this report has an eye on the long-term, and fixed or institutional costs may even contract over time to reflect a smaller prison population, these estimates are again conservative.

Some of the Ohio initiative's effect on incarceration will apply to the juvenile justice system. While the average term of juvenile incarceration is shorter (10.4 months in Ohio),¹⁸ the cost per day of incarcerating juveniles is higher (\$155 per day).¹⁹ Juveniles also experience much higher recidivism rates, with studies indicating that as many as 72.8 percent are re-arrested as adults.²⁰ This produces a cost of \$84,959 per initial juvenile incarceration. Thus, assuming

¹⁵ Fact Sheet, Ohio Department of Rehabilitation and Corrections, March 2009.
<http://www.drc.ohio.gov/web/Reports/FactSheet/March%202009.pdf>

¹⁶ "One in 31: The Long Reach of American Corrections." Pew Center on the States, March 2009.

¹⁷ Ohio Department of Rehabilitation and Corrections, 2007 Annual Report.
<http://www.drc.state.oh.us/web/Reports/Annual/Annual%20Report%202007.pdf>

¹⁸ Ohio Department of Youth Services, Annual Report, 2004.

¹⁹ "A Call to Amend the Ohio Rules of Juvenile Procedure to Protect the Right to Counsel." Briefing paper by the ACLU, the Children's Law Center, and the Ohio State Public Defender. January, 2006.

²⁰ Bradberry, Charles. "Juveniles at Risk: A Cohort Analysis of Juveniles Released From the South Carolina Department of Juvenile Justice." *South Carolina Department of Juvenile Justice*, July 2003.

the cost of adult incarceration when calculating the lifetime effect of education will produce a conservative estimate of cost. We have gone with that more conservative approach.

Court Costs

In 2002, traditional criminal courts in Ohio processed 12,442 cases, while more expensive drug courts²¹ processed 614 cases.²² All told, the average court costs for a criminal case in Ohio is \$4,029.²³ We use this figure to calculate the economic impact of increased high school graduation rates.

The next section outlines the economic inputs of the Governor's Initiative on Raising the Graduation Rate.

Effects of Ohio's Initiative

Education reduces crime by increasing the returns to legitimate work, fostering more rational and long-term thinking, cultivating work ethic, and exposing students to mainstream values.²⁴ As mentioned, education has more of an effect on black male crime than on white male crime and reduces violent crime more than non-violent crime.²⁵ This section considers how the success of the Initiative on Increasing the Graduation Rate could affect crime rates.

Until the class of 2011 graduates, it will be impossible to know the exact effect Ohio's initiative has had on high school graduation rates, which is the most important test of its effectiveness. Until more information becomes available, we conservatively assume that dropout rates among students outside of the ninth grade target groups are unaffected by the initiative, and that tenth graders who participated in the initiative will graduate at rates similar to those of previous tenth graders in their school districts. This likely dramatically underestimates actual graduation rates, as the initiative provides ongoing mentoring for older

²¹ Two important influences on court costs in Ohio are the growing use of drug courts and plea-bargaining. Plea bargaining can reduce both trial lengths and average sentences, thus decreasing the costs associated with incarceration (Iyengar, Radha. "An Analysis of the Performance of the Federal Indigent Defense Counsel." National Bureau of Economic Research, June 2007). There are, however, also valid concerns about the practice ("Justice Cut Short: An Assessment of Access to Council and Quality of Representation in Delinquency Proceedings in Ohio." National Juvenile Defender Center, 2003.) Drug courts typically require larger initial budgets than conventional courts, but research shows that they can cut long term costs by reducing sentence lengths and recidivism rates (Shafer, D.; Bechtel, K. and E. Latessa. "Evaluation of Ohio's Drug Courts: A Cost Benefit Analysis." *Center for Criminal Justice Research*, University of Cincinnati (2005).

²² Latessa, E.; Shafer, D. and Lowencamp, C. "Outcome Evaluation of Ohio's Drug Court Efforts." *Center for Criminal Justice Research*, University of Cincinnati (2002).

²³ Ibid.

²⁴ Lochner, Lance and Enrico Moretti. "The Effects of Education on Crime: Evidence from Prison Inmates, Arrests, and Self-Reports." *The American Economic Review*, vol 94, no 1. March 2004 (155-189).

²⁵ Ibid..

students, and the support networks that the initiative builds likely endure past a student's freshman year of high school.

Graduation rates are difficult to calculate and scholars disagree on the best approach. Different methods yield figures as low as 45 percent, from the right-leaning think tank the Manhattan Institute,²⁶ and as high as 61.9 percent, which is the official 2008 rate from the Ohio Department of Education. It is, however, safe to say that average graduation rates among black males in Ohio's largest cities are consistently below average district-wide graduation rates. Research by Catalyst magazine indicates that 2005 graduation rates among black males lagged behind overall district rates by eight percent in Cleveland, five percent in Columbus, and eight percent in Cincinnati.²⁷ This provides a sense for the graduation rates the boys who have successfully passed through Ohio's Initiative will likely experience. Most importantly, in order to avoid overestimating the role that tenth grade promotion plays in a student's overall chances of graduating, this report will use the lowest graduation rate estimates, which are usually made by right-wing analysts.

Greene and Winters' figures for recent urban graduation rates include 45 percent for Cleveland and 56 percent for Columbus, each of which are a few percentage points lower than recent estimates from Catalyst. According to Catalyst, Cincinnati's graduation rates have been higher, even reaching 78 percent in 2005; we will assume 73 percent to assure the most conservative estimates. Factoring in race, graduation rates among male students in these districts are about 37 percent in Cleveland, 51 percent in Columbus, and 65 percent in Cincinnati. As mentioned in section two, 58 percent of the initiative's success was in Cleveland, 22 percent in Cincinnati and five percent in Columbus. Considering these proportions, it is reasonable to assume that without Ohio's initiative, the specific urban male demographic it targets experiences a graduation rate of no less than 42.3 percent. Again, this figure is lower than most estimates of graduation rates for Ohio's urban black males; a demographic that the Governor's office has said graduates at a rate of 60 percent. We are not arguing that the rate is this low, but by choosing this low rate, we are ensuring an extremely conservative estimate of the positive effects of this program.

In the year before the initiative, the tenth grade promotion rate among the participating schools averaged only 53 percent, weighted for the size of each school. If the typical graduation rate for this population is about 42.3 percent, then we know about 79.8 percent of black males who complete ninth grade go on to graduate from high school. Thus, if the 389 new tenth graders whose promotion is correlated with this initiative perform no better or worse than previous cohorts of tenth graders in their schools, 310 of them will graduate. If

²⁶ Greene, Jay P. and Marcus A. Winters. "Leaving Boys Behind: Public High School Graduation Rates." Manhattan Institute; *Civic Report* no. 48, April 2006.

²⁷ Gray-Kontar, Daniel. "Teaching to save African-American boys." *Catalyst Ohio*; June 2007.

the racial composition of these graduates reflects the racial composition of the total program enrollment, 226 of these new graduates will be black, 65 of them will be white, and 19 of them will be Hispanic.

It is necessary to factor in the cost associated with keeping this many students in school for more years, which requires about \$9,000 per student per year in urban Ohio districts.²⁸ If all 310 additional tenth graders graduate, spending an average of three and a half additional years in school, and the remaining 79 program participants stagger their dropouts between tenth and twelfth grades, Ohio and its cities would pay for an additional 1165.75 years of public education. This would cost just under \$10.5 million.

The last section calculated that the known social cost of a high school dropout, solely from lost income tax (\$60,000 per dropout) and additional Medicaid (\$48,200 per dropout) is \$108,200. For 310 graduates, this amounts to savings of \$33,542,000. This is slightly more than three times the cost of the initiative's first year, before even calculating criminal justice-related savings.

Criminal Justice Savings

Lochner and Moretti's study finds that each additional year of education has a small effect on lifetime probability of incarceration, but high school graduation has a powerful influence on incarceration, especially for young black men. This has much to do with employability and wage-earning potential.²⁹ According to sociologist Bruce Western, 30 percent of black male high school graduates in their mid thirties have spent time in prison; for black male high school dropouts, the rate has reached 60 percent.³⁰ Thus, high school graduation can be estimated to halve an African-American male's probability of experiencing incarceration by the age of 40. Incarceration rates for white graduates and dropouts are 3.21% and 0.57% respectively, and for Hispanics, 6% for dropouts compared to an average incarceration rate of 2.6% for all Hispanics nationwide. Given these figures, 60 percent, or 136 of the 226 black students promoted because of Ohio's initiative would have otherwise spent time in prison. With the initiative, at current rates of incarceration, 68 fewer black males would be incarcerated by the age of 40. The rate of Hispanic male incarceration decreases from 6 percent to 2.6 percent upon high school graduation, meaning that the initiative may prevent the incarceration of one Hispanic male. Similarly, we would expect it to prevent incarceration for two white males, whose lifetime chances of incarceration decrease from 3.21 percent to 0.57 percent upon graduation. Thus, we calculate that the initiative can avert 71 first time incarcerations in all. This would amount to \$5,763,496 less state spending on incarceration, and an additional \$286,059 in averted court costs from those cases, totaling

²⁸ <http://www.city-data.com/us-cities/The-Midwest/Cleveland-Education-and-Research.html>

²⁹ Western, Bruce; Meredith Kleykamp; Jake Rosenfeld. "Economic Inequality and the Rise of U.S. Imprisonment." *Russell Sage Foundation and Department of Sociology, Princeton*; April 2004.

³⁰ Eckholm, Erik. "Plight Deepens for Black Men, Studies Warn." *New York Times*; 3-20-2006.

\$6,049,555. This figure does not include other costs of crime, such as property damage, cost to victims, and averted court cases that would not have resulted in incarceration. Depending on how those values are quantified, the social cost of crime alone could be up to three times as high. This is especially true given that only 60 percent of violent crime is reflected in actual arrest rates, and that the ratio of arrests to actual non-violent crimes is significantly lower.³¹ All told, the social savings from the initiative's impact on crime in its first year, using these very conservative estimates, will likely reach well over \$20 million.

Compiling only the baseline criminal justice savings, the extra income tax, and the state healthcare savings however, a conservative estimate for the monetary impact of the initiative's first year falls in the range of \$39.0 million. Subtracting the \$10.5 million required to educate more students for more years, the total gain is \$28.5 million, if we only consider the gains accruing to the conservatively estimated increase in graduation rates. Recalling that data on promotion rates for 15.9 percent of the initiative's target population is not available, these savings should be compared to 84.1 percent of the program's cost in the first year: about \$8,400,000. This produces an investment return of 1 to 3.39.

To recap, of the 5,500 students who received programming under this initiative, 2,786 were at high risk of not being promoted to tenth grade. Of these 2,796, a total of 1,883 went on to tenth grade. This was an increase of 389 tenth grade promotions in 2008 when compared to students in the same schools in 2007. If we conservatively assume that these tenth graders are no more likely to graduate than other tenth graders at their schools, we would still find an increase of 310 graduates that is associated with this program. Table 3 below looks at the overall cost to the state of Ohio if these 310 students had dropped out instead of graduated, using average incomes, tax payments, Medicaid costs and criminal justice costs. A number of potential savings that could not be calculated are listed without a dollar figure. Not listed in the table or considered in our calculations are other benefits from the program – if the program helped a boy who would still have been promoted to earn better grades, if it made a graduate more likely to complete higher education, if it helped a student defer parenting – these likely benefits are not included in our calculations.

We also include the increased costs to the state that would be incurred as a result of having the students in school for additional years. The 310 additional tenth graders who we predict will graduate will spend an average of three and a half additional years in school. If the 79 additional tenth graders who we expect to drop out stagger their dropouts between tenth and twelfth grades, Ohio and its cities would pay for an additional 1,165.75 years of public education in total. This would cost just under \$10.5 million.

³¹ Lochner and Moretti (181).

Table 3: Predicted changes in public costs and incomes, social and criminal expenses, resulting from increased graduation rates associated with the initiative

Variable	Public Savings per Graduate, Lifetime	Number of Individuals Applied to	Total Savings
Costs of incarceration	\$81,176	71	\$5,763,496
Court costs	\$4,029	71	\$286,059
Increased state and federal income tax payments	\$60,000	310	\$18,600,000
Reduced Medicaid/Medicare payments	\$46,149	310	\$14,306,190
Reduced TANF payments	Not Included		
Reduced costs to victims of crime	Not included, usually estimated at over three times basic criminal justice savings.		
Increased College Attendance	Not Included		
Educational success of program participants' children			
Savings from higher earnings, more taxes, less welfare, more college attendance or other improvements in outcomes for boys whose tenth grade promotion did not change			
Cost of additional years of school	-\$9,000	1,165.75 student years	-\$10,500,000
Total			\$28,455,745
It is important to note that we have substantially underestimated some costs associated with criminal justice. For example, we document court costs of those who are incarcerated but compared to graduates, dropouts are also much more likely to come in contact with the court system, even if they are not ever incarcerated. We did not include the substantial court costs associated with cases that don't end in incarceration. We have also not included many possible forms of savings, some of which are noted in the chart. Finally, we have only considered the benefits to boys who would likely have dropped out between ninth and tenth grade, and have not included any benefits to boys who might still have been promoted but whose grades, performance, or future success improved as a result of the program.			

Source: Author's calculations

In short, if the benefits recorded during the first year of the Initiative on Increasing the Graduation Rate are typical, this program stands to increase Ohio's graduation rate, improve the lives of some of the most at-risk boys in Ohio, reduce crime, and save the public sector substantial resources. If the boys who were retained between ninth and tenth grade only graduate at the rate we would otherwise expect of other tenth grade boys from these troubled communities, we will still see a substantial increase in graduation. That increase will lead to higher employment, higher income tax payments, lower social welfare costs, lower crime rates, lower court costs, and lower incarceration costs. The initial investment is

likely to result in savings of over \$28.45 million. Over the lifetime of the participants, if promotion and graduation rates remain consistent, the public sector will recoup more than 3.3 dollars for each dollar spent on this program, while also dramatically improving the lives of children who are now at risk.

Conclusion

Although Ohio's Initiative on Increasing the Graduation Rate is in its early stages, it seems clear that this approach to expanding graduation has much potential. A policy report cannot capture the full range of benefits that Ohio stands to gain from a more well educated citizenry, financial or otherwise. This analysis shows, however, that the public sector stands to save more than 3.3 dollars for each dollar spent on the ninth grade retention initiative. On that basis, we recommend continued funding of the project and, if results remain promising, expansion of the program. As this report goes to press, the program's funding has been zeroed out in the budget proposal being considered by Ohio's state senate. Given the impressive initial results, improvements in student's lives, and substantial return on investment this program now shows, we strongly recommend that the Senate or the conference committee restore funding for this promising and innovative initiative.

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