

An Evaluation of the Economic Benefits of High School Education

This analysis identifies and quantifies the benefits to the local economy and society of high school graduation. The report also makes reference to data available for the center city school districts in Ohio's eight large metropolitan areas—Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Toledo and Youngstown.

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September 2008

Commissioned by:



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This report is intended for Ohio policymakers and all other stakeholders interested in maximizing the potential of all of Ohio's K–12 students and in understanding the significance of high school graduation as it relates to Ohio's economy.

The report was commissioned by the Ohio Alliance for Public Charter Schools and researched and prepared by the Economics Center for Education & Research at the University of Cincinnati.

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Executive Summary

This analysis identifies and quantifies the benefits to the local economy and society of high school graduation. The report also makes reference to data available for the center city school districts in Ohio's eight large metropolitan areas—Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Toledo and Youngstown.

Benefits pertaining to high school graduation can be divided into economic and fiscal benefits. Economic benefits have been identified as higher individual income and consequent increases in economic productivity. Fiscal benefits have been identified as increases in tax receipts, lower government transfers and lower costs of incarceration.

Highlights of the fiscal benefits for taxpayers, as identified in the analysis, are:

- On average, high school graduates pay \$564 more in taxes—\$880—compared to high school dropouts who pay an average of \$316 annually.
- High school graduates receive fewer government assistance payments for housing, food stamps, health care, unemployment and disability compensation, etc. High school graduates receive an average of \$2,851, while high school dropouts receive an average of \$5,091 annually, a net savings of \$2,240 per high school graduate.
- High school dropouts form the majority of jail and prison inmates. The incarceration cost per capita is \$2,806 for high school dropouts and \$1,220 for high school graduates, resulting in a net government savings of \$1,586 per individual who completes high school rather than dropping out.
- These annual fiscal costs associated with dropouts total \$4,390 per dropout, or \$548 per individual Ohio taxpayer (counting Ohio joint tax filers as individual taxpayers).
- After subtracting the cost of schooling, Ohio taxpayers can realize a lifetime net benefit of nearly \$210,000 per high school graduate, a return of \$11.62 for every \$1 invested.

Economic benefits to individuals and to the state economy are even larger. They include:

- As a result of higher wages and higher employment, the per capita median earnings of high school graduates is \$8,459 higher than that of high school dropouts.
- On average, individuals who complete their high school education can realize a lifetime net benefit of over \$470,000.
- With a total of 749,879 high school dropouts in the State of Ohio, the total economic loss to the state economy in terms of lost earnings due to this lack of education amounts to a total of \$7.6 billion annually.

Because the magnitude of some costs and benefits could not be measured, they were omitted from this analysis. The results presented here are, therefore, conservative.

Introduction

High school dropouts in America face a certain future of economic hardship. The direness of their circumstances has only increased, as America has become a more knowledge-based and technological economy. In fact, in 2004, a high school dropout earned only 37 cents for each dollar earned by an individual with at least a high school education, down from 64 cents in 1964 (Rouse, 2005).

Although a high school diploma is less than fully adequate in today's society, it remains the first step towards the American dream of self-sufficiency and independence. Personal income increases at significant rates for each additional year of schooling beginning with high school completion. In fact, the National Education Longitudinal Study concluded that dropouts who returned to high school and graduated earned nearly \$5,000 more a year than those who did not return to school and nearly \$4,000 more than a dropout who earned a GED.

In addition to limited income potential, dropouts are more likely to have trouble finding and maintaining employment. Because of this, they are likely to become discouraged and have lower rates of workforce participation. Consequently, dropouts contribute less in tax revenue, and they require greater levels of public assistance.

More than the benefits to individuals, increased graduation rates result in a net benefit to society at large. In fact, part of the reason for public financing of education in the United States is the direct economic return to the government and the beneficial spillover effects to society. Those with at least a high school education pay more in taxes, require less in government assistance and are less likely to commit crimes and spend time in jail when compared to high school dropouts. In other words, costs associated with keeping youth in school are quickly outweighed by the benefits.

Purpose and Methodology

This report quantifies the economic benefits of high school graduation, defined as the receipt of a high school diploma or general education diploma (GED). Specifically, this report measures the benefits of completing high school education in the eight largest cities in Ohio: Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Toledo and Youngstown. The economic benefits are measured in two ways: first, through the expected increase in earnings, and second, through increased workforce participation, both of which result in increased economic productivity. The fiscal benefits are measured through the expected decrease in public expenditures for governmental services that are more often utilized by those without a high school diploma: public health, public safety, welfare payments and unemployment compensation.

The report will arrive at an estimated net economic benefit after accounting for the per pupil public expenditure on education and the immediate wages foregone by persons pursuing a high school diploma. The results will be an underestimate of the economic returns to a high school diploma because the earnings of dropouts are compared only to the earnings of high school graduates without any college or other postsecondary education. Therefore, the opportunity cost of not being able to pursue postsecondary training is not included.

Section I—Background on Dropouts in Ohio

It is estimated that nearly 750,000 Ohioans age 18–64 were without a high school diploma or GED in 2006. In addition, the National Center for Education Statistics estimates that the proportion of Ohio high school students choosing to drop out has been increasing steadily since 2002. Available state and national data sources provide survey estimates of dropouts from public education institutions. Table 1 quantifies the estimated number of dropouts inclusive of public schools, private schools and home schools in Ohio.

Table 1

2006 Estimates of Educational Attainment, Population 18–64 Years Old¹

	Population		Percentage
	Total	< 12th grade, no diploma	< 12th grade, no diploma
Akron	124,388	14,693	11.80%
Canton	46,713	8,388	18.00%
Cincinnati	200,439	30,171	15.10%
Cleveland	255,710	54,098	21.20%
Columbus	488,005	54,568	11.20%
Dayton	100,222	16,690	16.70%
Toledo	184,861	25,366	13.70%
Youngstown	40,941	7,624	18.60%
State of Ohio	7,130,642	749,879	10.50%

Source: Economics Center for Education & Research

Nearly 1 of every 10 Ohioans is considered a high school dropout. And, 1 of every 4 high school dropouts resides in the eight largest cities in Ohio. Cleveland is home to the largest percentage of dropouts (21.2%), followed by Youngstown (18.6%) and Canton (18.0%). However, Columbus has the largest number of high school dropouts (54,568), followed by Cleveland (54,098) and Cincinnati (30,171). In addition to low educational attainment, these center cities and their school districts are generally characterized by very high poverty.

The average income of a high school dropout is a significant indicator of family financial self-sufficiency or the lack thereof. The annual earnings of a dropout fall significantly below the average earnings of a high school graduate. In the State of Ohio, the average earnings for a high school dropout are \$17,748, nearly \$10,000 less than a high school graduate. The difference in earnings between the two populations is most striking in Toledo, where a high school graduate with no further education earns nearly \$12,000 more annually than a dropout.

¹Estimates are adjusted for expected graduations of 18- & 19-year-olds.

Further, women without a high school diploma earn significantly less than their male counterparts. The average female dropout generally earns about 75 percent of the 2006 federal poverty level for a family of three (<\$16,600). This is sharply contrasted by the average male dropout who earns closer to 125% of the 2006 federal poverty level for a family of three (<\$20,750).² Nonetheless, the median wages of both male and female dropouts in Ohio generally imply that dropouts with any dependents will necessarily rely on the full range of services for the poor.

Table 2

Median Annual Earnings (2006\$) by Educational Attainment, Population 25 and Over

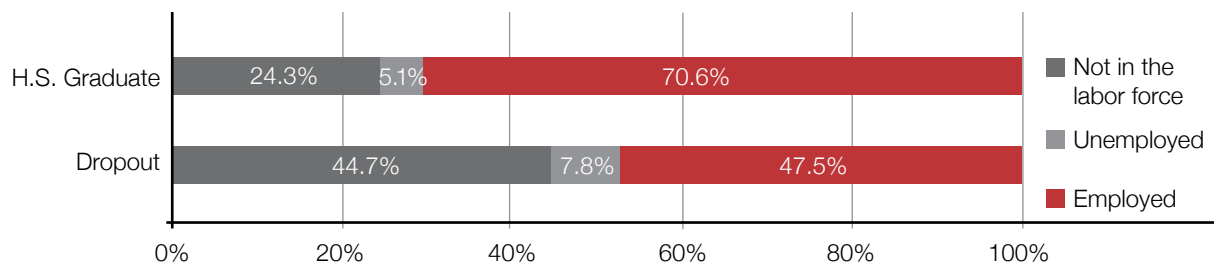
	Dropout	H.S. Graduate
Ohio	\$17,748	\$26,207
Akron	17,008	22,360
Canton	16,946	20,783
Cincinnati	15,993	22,122
Cleveland	15,731	21,566
Columbus	13,047	22,838
Dayton	15,697	21,280
Toledo	13,185	25,134
Youngstown	12,141	20,044

Source: 2006 American Community Survey

In addition to low overall income, dropouts are more likely than high school graduates to have spells of unemployment. Nationally, the rate of unemployment among high school dropouts is higher than for those with a high school diploma.³ Likewise, in Ohio, only 7.8 percent of dropouts are unemployed compared to 5.1 percent of graduates (Figure 1).

Figure 1

Ohio Unemployment by Educational Attainment, Population 25–64 Years Old



Source: 2006 American Community Survey

²Estimates of male and female earnings are from the 2006 American Community Survey.

³Bureau of Labor Statistics

In addition to unemployment, dropouts are much less likely to be participating in the labor force. They may become frustrated at the lack of opportunity available to them and recurring episodes of unemployment causing them to drop out of the labor force altogether. In the state as a whole, those without a high school diploma are nearly twice as likely to be nonparticipants in the labor force (44.7%) than those with a high school diploma (24.3%).

The following two tables detail the labor force participation of dropouts and high school graduates in Ohio's eight largest cities. In the state as a whole, dropouts who are unemployed or not in the labor force account for more than 52.5 percent of the dropout population, compared to less than 29.4 percent of the population with a high school diploma. Further, in all eight of Ohio's largest cities, more than 50 percent of dropouts are not working. In Dayton and Youngstown, 70 percent of dropouts are not working, and most of those have given up trying to find work (Table 3-A).

Table 3-A

Employment by Educational Attainment—Dropouts, Population 25–64 Years Old

	Total Workforce Population	Employed⁴	Unemployed	Not in Labor Force
Ohio	633,256	300,682	49,255	283,319
Akron	12,461	5,210	775	6,476
Canton	7,239	3,080	738	3,421
Cincinnati	24,696	10,899	1,840	11,957
Cleveland	45,037	17,096	6,384	21,557
Columbus	46,262	23,092	4,602	18,568
Dayton	12,872	4,064	1,948	6,860
Toledo	21,391	9,081	2,162	10,148
Youngstown	6,243	1,934	718	3,591

Source: 2006 American Community Survey

Table 3-B

Employment by Educational Attainment—High School Graduates, Population 25–64 Years Old

	Total Workforce Population	Employed⁵	Unemployed	Not in Labor Force
Ohio	2,178,205	1,538,153	111,562	528,490
Akron	37,360	24,967	2,546	9,847
Canton	15,448	11,115	547	3,786
Cincinnati	45,368	27,362	4,399	13,607
Cleveland	77,247	49,003	7,795	20,449
Columbus	111,967	76,152	7,140	28,675
Dayton	27,841	17,297	2,157	8,387
Toledo	53,842	34,133	4,674	15,035
Youngstown	13,066	7,576	1,423	4,067

Source: 2006 American Community Survey

⁴Includes those in the armed forces.

⁵Includes those in the armed forces.

Section II—Economic Benefits

The following section will measure the direct economic benefits, to the individual and society, of Ohio dropouts staying in school and finishing their high school education. Both individuals and society benefit directly from high school education. Individuals benefit most directly through increased earnings, and society benefits from the increase in productivity that expands the overall economic output in the region.

In measuring these direct economic benefits, it is important to account for the difference in workforce participation habits of high school graduates versus dropouts. Dropouts are far more likely

- to have long periods of unemployment,
- to be discouraged workers, and
- to be nonparticipants in the labor force (Rouse, 2005).

Consequently, the national employment rate for dropouts is approximately 20 percentage points lower than the rate for high school graduates with no further education. This is an important factor in the measurement of direct economic returns because not only will individuals and society benefit from higher incomes, they will also benefit from fuller employment.

A. Higher Earnings

In an increasingly technological world, workers without a high school diploma are assumed to lack the basic skills necessary to perform in a complex work environment. Consequently, those without a high school diploma are left to fill diminishing employment opportunities that require a minimum level of skill. In fact, the wage gap between workers with a high school diploma and those without has doubled in the past 25 years (Bernanke, 2007).

In Ohio, the median earning for a high school dropout is \$17,748 per year (Table 4). In contrast to the median earnings of a high school graduate at just over \$26,207 per year, graduates earn 47.7 percent more than dropouts.

Table 4

Income by Employment Rate—State of Ohio, Population 25 and Over

	Dropout	H.S. Graduate
Median Earnings	\$17,748	\$26,207
Employment Rate	47.5%	70.6%
Per Capita Earnings	\$8,427	\$18,506
Earnings Differential per graduate	\$10,079	

Source: 2006 American Community Survey

The difference in the earnings of graduates and dropouts is much larger after accounting for the difference in average employment status. **In Ohio, only 47 of every 100 dropouts are employed, compared to 70 of every 100 high school graduates. When this difference is accounted for, high school graduates make \$10,079 more per capita than dropouts—a 119.6 percent increase in median earnings.**

The benefit of high school education to the individual is then twofold: Individuals with a high school diploma earn more for the work they do, and they are more likely to be employed, further increasing annual earnings.

B. Increased Productivity

Higher individual earnings imply that individuals are employed in higher skilled and more productive fields of work. When employers have access to skilled employees, they are more productive and output increases. In this way, increased earnings in the state are a direct reflection of increased economic output.

Likewise, increased educational attainment of a population is associated with increasing economic development. Firms actively seek regions where they can readily find a skilled workforce to increase productivity and profits. Such development relates directly to increases in the gross state product.

Therefore, the increase in median earnings of high school graduates as compared to dropouts is considered equal to the increase in economic productivity. **In Ohio, the expected increase in economic output for each additional high school graduate is equal to at least \$10,079—the earnings differential between the two populations.**

Section III—Fiscal Benefits

Society benefits in many ways when its citizens are educated. Higher levels of education are associated with better financial decision making, fewer spells of unemployment and better overall health, as well as greater civic participation and values such as tolerance and an appreciation of cultural differences (Glaeser, et.al, 2006; Dee, 2004).

Most notably, society reaps fiscal benefits through increased government revenues and decreased government expenditures. This section quantifies the fiscal benefits that can be measured in dollars: increased tax revenue, less reliance on government assistance programs, and a decreased propensity to commit crime as education increases.

A. Higher Income and Sales Tax Receipts

A high school graduate pays more in state and local taxes than a high school dropout. Graduates pay more earnings taxes simply because their incomes tend to be higher. For the same reason, their disposable incomes are also higher, resulting in more spending and thus higher contribution to the state and local sales tax revenue.

A high school graduate pays 132 percent more in state earnings taxes than a high school dropout.

Similarly, a graduate pays 47.5 percent more in local earnings taxes than the same individual who is a high school dropout. Assuming the same number of dependents, this difference is merely a function of the difference in the annual median income between the two populations (Table 5).

Table 5

Estimated Taxes Paid Between Two Populations—State Average

	Dropout	H.S. Graduate
Median Earnings	\$17,748	\$26,207
State Earnings Tax ⁶	\$234	\$543
Local Earnings Tax	\$204	\$301
Estimated Annual Sales Tax	\$227	\$402
Total Estimated Tax	\$665	\$1,246
Employment Rate	47.5%	70.6%
Per Capita State Taxes	\$316	\$880
Differential per Graduate	\$564	

⁶Calculations using two exemptions at \$1450 each and the Ohio Income Tax Rates: 2004–2009; Ohio Department of Taxation. Tax rates for 2006 used in the calculation.

Likewise, a high school graduate pays almost twice the amount of sales tax as a high school dropout.

The average annual sales tax paid in Ohio by a high school dropout with one dependent is \$227, contrasted by the annual sales tax paid by a high school graduate with one dependent at \$402.

Based on level of income, it is estimated that a high school graduate has the ability to spend, and therefore be taxed on, nearly 50 percent more income than a high school dropout.

Upon summing all estimated taxes paid and adjusting for the employment rate of the two populations, we find that an employed graduate pays 178.4 percent more in combined taxes to the state than an employed dropout does. **The estimated increase in per capita taxes to the state for each additional graduate is \$564 annually** (Table 6).

B. Less Reliance on Government Assistance

High school graduates are less likely to need government assistance to sustain their families. In fact, government transfer programs are explicitly geared towards those with the lowest incomes, generally implying that dropouts will require more public assistance than graduates.

To accurately measure the level of government transfer payments to dropouts as compared to high school graduates, we include public cash assistance, housing subsidy, food stamps, unemployment insurance, disability insurance, Medicare and Medicaid. **For each would-be dropout that finishes high school, the government would save an estimated \$2,240 annually in government transfers** (Table 6).

Table 6

Government Transfers Received by Ohio Adults by Educational Attainment, 2006

	Dropout	H.S. Graduate
Public Cash Assistance	\$ 46	\$ 27
Housing Subsidy	13	5
Food Stamps (Market Value)	358	143
Unemployment Insurance	60	88
Disability Insurance	128	163
Medicare (Market Value) ⁷	2,542	1,497
Medicaid (Market Value)	1,945	929
TOTAL	5,091	2,851
Differential	\$2,240	

Source: Current Population Survey, March Supplement 2006

In 2006, high school dropouts used nearly twice the amount of public cash assistance, required nearly three times the amount of housing subsidy, two-and-a-half times the amount of food stamps, and more than two times the amount of Medicaid. Absent local data, this estimate does not include local spending on health care, either through the health department or uncompensated care by local hospitals, and therefore underestimates the true public cost of health-related government transfers.

⁷Food Stamps, Medicare, and Medicaid are all non-cash transfers; as such, they are measured in market value that is equivalent to the cash value of the transfer.

Unemployment insurance has a lower per capita average for dropouts than for high school graduates. High school graduates received nearly twice the amount of unemployment compensation as dropouts. This seems counterintuitive since dropouts have a higher unemployment rate, but there are two reasons that dropouts have a smaller per capita value of unemployment insurance: Their earnings are lower, leading to smaller unemployment compensation; and, they are less likely to meet the requirements necessary to receive unemployment insurance.⁸ As a result, fewer high school dropouts claim unemployment insurance relative to high school graduates (Rouse, 2005).

Like unemployment compensation, the value of disability insurance is lower for dropouts than for graduates in Ohio. However, per capita disability insurance payments are increasing for both dropouts and high school graduates. This may be a reflection of the declining demand for less skilled workers that leads to an increase in disability claims, particularly among displaced workers without a high school education. Researchers are finding evidence to suggest that disability income is replacing unemployment compensation (Autor & Duggan, 2003).

A rise in disability insurance naturally leads to a rise in Medicare payments. A person who is determined medically eligible for Social Security Disability Insurance is also eligible for Medicare. Therefore, receipt of Medicare by the population age 16–64 will be correlated with the receipt of disability insurance. The level of Medicare payments in Ohio's largest cities is increasing steadily in both populations. Nationally, the cost of Medicare is 60 percent higher for dropouts when compared to high school graduates, but has been steadily increasing for both populations (Autor & Duggan, 2003).

The level of per capita Medicaid is the second-highest government transfer in both of the two populations, second only to Medicare. Often low-paying jobs do not come with health insurance benefits; therefore, the income-eligible rely on Medicaid. High school dropouts are about one-half as likely to have health insurance through their job as those whose level of education is a high school diploma (Rouse, 2005).

C. Lower Crime Costs

High school graduates are less likely to commit crimes and spend time in jail. In fact, a 1 percent increase in high school graduation rates nationally is estimated to save \$1.4 billion in government costs (Lochner & Moretti, 2003). Higher educational attainment may be associated with lower criminal activity simply because it raises earnings or because the consequences of spending time in jail are too severe when compared with the higher quality of life that generally accompanies higher levels of education.

The association between education and crime is clearest when examining rates of incarceration. High school dropouts are disproportionately incarcerated: Although less than 20 percent of the population, nationally they represent 37 percent of federal prison inmates, 54 percent of state prison inmates and 38 percent of local jail inmates (Wolf Harlow, 2003).

⁸To be eligible for unemployment compensation in Ohio, workers must have worked in covered employment for 20 weeks during a base period (generally a year), and they must not have been fired for cause or quit without just cause.

According to the Ohio Department of Rehabilitation and Corrections, the average cost of a year in jail or prison was \$24,400 in 2006. Ohio spends more than twice as much on the incarceration of dropouts when compared to the incarceration of high school graduates (Table 7). **One estimate suggests that Ohio would save more than \$126 million annually by increasing the graduation rate by 5 percent** (Justice Policy Institute, 2007).

Table 7
Per Capita Costs of Incarceration, FY 2006

	Dropout	H.S. Graduate
Incarceration Rate ⁹	11.5%	5%
Avg. Per Prisoner Cost	\$24,400	\$24,400
Per Capita Inmate Cost	\$2,806	\$1,220
Differential	\$1,586	

The per capita incarceration cost underestimates the true cost of crime between the two populations. National estimates suggest that incarceration is roughly one-half of the cost of public safety as it relates to crime. State and local estimates for the operation of the criminal justice system, parole, restitution for victims and crime prevention would likely add an additional \$1,500 to the differential cost between dropouts and graduates. In other words, it is likely that the cost of crime is reduced by \$3,000 per high school graduate.

Section IV—Costs of Achieving Higher Graduation Rates

To accurately measure the benefits of decreasing the dropout rate, the costs associated with keeping youth in school must also be calculated. This section identifies and measures two costs associated with a lower dropout rate: per pupil expenditures and foregone wages.

A. Per Pupil Expenditure

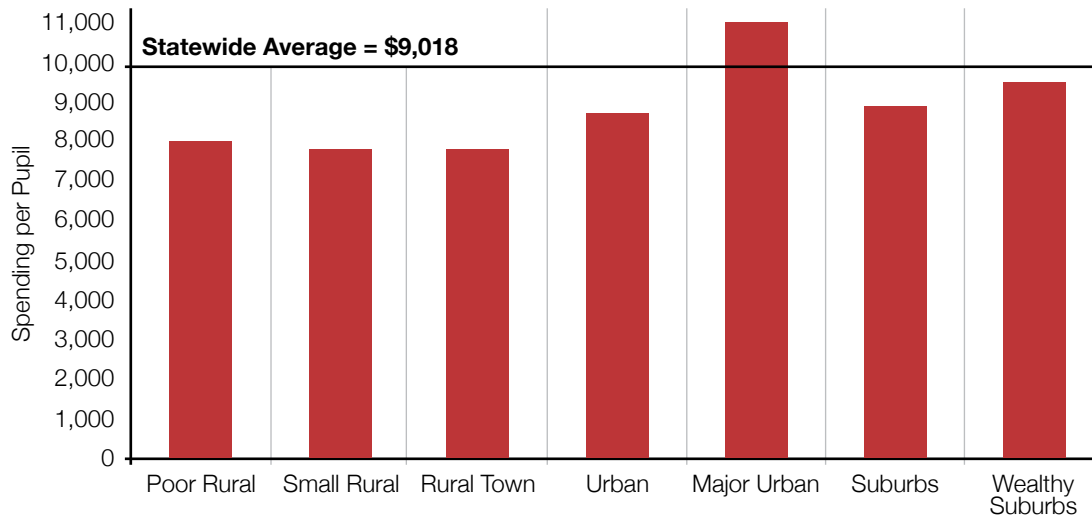
Per pupil expenditure on education increases as the cost of the inputs to education increase: textbooks, personnel, transportation and so on. Per pupil expenditure in Ohio has increased annually to exceed the national average. In the 2005–06 school year, the average per pupil expenditure was \$9,018.

The Ohio Department of Education places districts into comparison groups by similar socioeconomic status. In major urban districts across the state, characterized by very high poverty and more than 50 percent minority populations, per pupil spending was \$11,166 (Figure 2).

⁹The incarceration rate in 2000 for black high school dropouts was 19% and 4% for white dropouts. Likewise the rate for high school graduates was 8% (black) and 2% (white). Finding that the racial division of the student population in the eight Ohio districts combined is roughly equal, the incarceration rate used in this research is an average of the two rates (Raphael, 2004).

Figure 2

Cost of Achieving Higher Graduation Rates



Source: Ohio Legislative Service Commission

B. Foregone Wages

For prospective graduates who forego employment until they obtain their diplomas, the wages that they could have received are counted as an economic cost. Students who drop out and go to work presumably have more income for consumption and contribute more in taxes than their peers who are still in school. Such foregone costs are short-lived benefits to society because they will be quickly surpassed, in earnings and taxes, by the contributions of those who graduate from high school and earn higher wages.

Dropouts leave school for a variety of reasons, and not all dropouts will seek or maintain employment. In 2001, the National Center on Adult Learning and Literacy surveyed participants about their reason for leaving school. Many left because they felt detached or because they were having problems at school. Relatively few left because of employment opportunities (Table 8).

Table 8

Reasons for Leaving School

Reason	Percentage
Bored, didn't like, didn't belong	29
Problems with school performance	26
Job-related	17
Relationship problems	15
Family issues	10
Pregnancy or health problems	9

*Percentages do not add up to 100 because respondents may have selected more than one reason. n=940

Source: National Center for the Study of Adult Learning and Literacy

In estimating foregone wages, it is again important to consider the labor force participation rate. The average employment rate for dropouts 16–19 years of age in Ohio is 32 percent. This is slightly lower than the employment rate for students still in school. For the purpose of this analysis, the student per capita earnings are figured for part-time employment while the dropout earnings are figured for full-time employment.

Absent data on the average income of 16–19 year olds, and finding that most dropouts don't leave because of a good full-time job offer, we assume the per capita average annual wage for 16–19 year olds is \$10,400 (Table 9).¹⁰

Table 9

Foregone Earnings by Employment Participation

	Dropout	H.S. Graduate
Average Wage	\$10,400	\$10,400
Labor Force Participation Rate	32%	37%
Per Capita Average Wage	\$3,286	\$1,443
Differential	\$1,843	

Source: 2006 American Community Survey

Section V—Net Benefits of High School Education

The benefits of completing high school are realized both in the short term and the long term. Individuals benefit from higher wages, and society benefits from increased tax receipts, less reliance on government transfers and decreased incidence of crime and the costs incurred thereof.

The following tables show both the annual and lifetime per capita costs and benefits differential between high school graduates and high school dropouts. Lifetime estimates are derived from the annual benefits discussed in the previous sections and are figured using an average 47-year work career (Khatiwada, et al., 2007).

Net Economic and Fiscal Benefits

In Ohio, economic benefits of high school education that accrue to the individual through increased earnings equal \$10,079 annually per high school graduate when compared to a high school dropout. As mentioned earlier, this is also a benefit to the state economy as it is a reflection of increased economic output. The cost associated with keeping a youth in school is only the lost earnings potential during the years the student should be in school. We estimate these foregone earnings to be equal to \$1,843 annually per would-be

¹⁰This assumes full-time year round work at \$5.00/hr—slightly above the 2006 minimum wage of \$4.25.

dropout (Table 9). Therefore, the net economic benefit of completing high school, compared to dropping out, is equal to an additional \$470,027 over the course of a work career. Moreover, for each dollar lost in foregone earnings, there is a gain of \$128.52 in direct lifetime economic benefit (Table 10).

Table 10

Economic Benefits and Costs (to an individual and the regional economy)

	Years 1 & 2	Years 3–49	Total
Benefits			
Earnings Differential	\$0	\$10,079	\$473,713
Costs			
Foregone Earnings ¹¹	\$1,843	\$0	\$3,686
Net (Benefits minus Costs)	\$-1,843	\$10,079	\$470,027
Benefit-Cost Ratio			128.52

Likewise, benefits accrue to the government when students complete high school (Table 11). Sales and income taxes increase by \$564 annually per graduate, government transfers decrease by \$2,240 per graduate, and incarceration costs decrease by \$1,586. Total benefits to the government in increased tax receipts and decreased government expenditures in a lifetime are equal to \$209,502 per high school graduate with no additional schooling. Costs to the government include only the per pupil costs of maintaining a youth in school to graduation: an average of \$18,036 for two additional years of school. Therefore, lifetime net benefits to the State of Ohio equal \$191,466 per high school graduate. In other words, for every \$1 invested in high school education, \$11.62 is returned to the state in increased taxes paid and decreased public expenditures.

Table 11

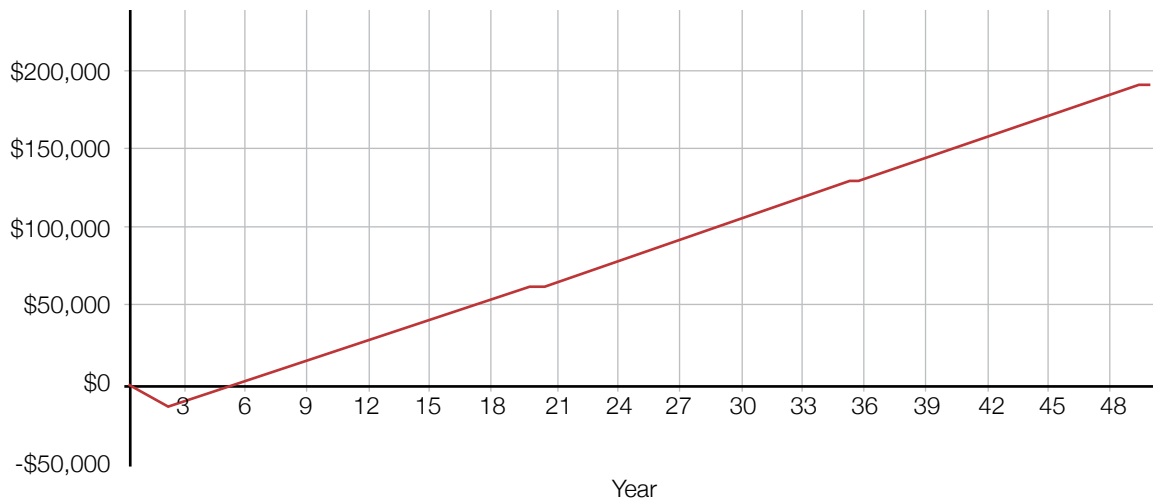
Fiscal Benefits and Costs (to the government)

	Years 1 & 2	Years 3–49	Total
Benefits			
Sales and income tax increase	\$0	\$564	\$26,508
Government transfer savings	\$0	\$2,240	\$105,280
Incarceration cost savings	\$1,586	\$1,586	\$77,714
Total Benefits	\$1,586	\$4,390	\$209,502
Costs			
Per Pupil Expenditure	\$9,018	\$0	\$18,036
Net (Benefits minus Costs)	-\$7,432	\$4,390	\$191,466
Benefit-Cost Ratio			11.62

¹¹Foregone sales and income taxes are not included in the calculation because the tax differential between the two populations is figured with two deductions for dependents. Using these assumptions with the estimated earnings above, sales and income taxes would be minimal at best.

Given that the government must invest in each year of high school education to realize the full fiscal benefit of graduation, the net benefit to maintaining a student in school is initially negative as the state is investing in human capital before the investment pays off. Therefore, the break-even point for the state, the point where the benefits exceed the initial investment, is 3.4 years (Figure 3). This assumes an average additional per pupil expenditure of two years.

Figure 3
Net Fiscal Benefit to the State from a High School Graduate



The cumulative benefit for individuals and society is a combination of the economic and fiscal benefits.

Upon combining all costs and benefits to the individual and to the state, for every \$1 invested in high school education, the people of Ohio can expect a return of more than \$31 (Table 12). Total

lifetime benefits that accrue to the individual, the economy and to state taxpayers equal \$661,493 for every student who completes high school and pursues no other forms of education or training. (Of course for those who choose to further their education after high school, the lifetime benefits increase exponentially.)

The costs to the Ohio economy in foregone individual earnings and per pupil tax expenditures are minimal at \$21,722 per student. Therefore, the full net lifetime benefit is \$661,493.

Table 12
Net Benefit of High School Education

	Years 1 & 2	Years 3–49	Total
Benefits			
Economic Benefits	\$0	\$10,079	\$473,713
Fiscal Benefits	\$1,586	\$4,390	\$209,502
Total Benefits	\$1,586	\$14,469	\$683,215
Costs			
Economic Costs	\$1,843	\$0	\$3,686
Fiscal Costs	\$9,018	\$0	\$18,036
Total Costs	\$10,861	\$0	\$21,722
Net (Benefits minus Costs)	-\$9,275	\$14,469	\$661,493
Benefit-Cost Ratio			31.45

Full Economic Benefit to the State

The State of Ohio has an estimated 749,879 high school dropouts age 16–64. We can estimate the economic gain to the state economy of full graduation by multiplying the number of high school dropouts by the income differential between the two populations. Estimates developed earlier in the report suggest that a dropout earns \$10,079 less than a high school graduate with no further education or training (Table 4). Therefore, the total net economic gain to the state over a lifetime in terms of expected increases in individual earnings and productivity is more than \$352 billion given full graduation. In other words, the Ohio economy currently loses \$7.6 billion dollars annually in decreased earnings by dropouts (Table 13).

Table 13

Economic Benefits of Full Graduation

	Dropouts 18–64 Years Old (=749,879)
x Annual Increase in Earnings (= \$10,079)	\$ 7,558,030,000
x Net Lifetime Economic Benefit(=\$470,027 lifetime earnings)	\$ 352,463,380,000

As noted in Section II, although these benefits accrue directly to individuals, the State of Ohio also benefits from higher individual earnings. This occurs in two ways. First, it results in an overall higher standard of living and quality of life for residents. Second, a stronger and more productive workforce will result in a stronger economy because the state will be viewed as a more attractive location for business investment.

Fiscal Cost to Taxpayers

Finally, all public expenditures, from public education to public assistance and incarceration costs, are borne by taxpayers. This analysis allocates these fiscal costs to the individual taxpayer. **On average, the annual costs associated with dropouts total more than \$548 per individual taxpayer** during the 49-year period that includes two years of school and 47 years of work thereafter (Table 14). The cost to the taxpayer is even higher when this allocation is done for the large cities (see Appendix). The reality is that the cost to the average Ohio taxpayer is somewhere between the state average and the individual city figures. Ultimately, increased graduation rates would prove to decrease these costs.

Table 14

Fiscal Costs Associated with Dropouts

	x Net Fiscal Costs (=\$191,466 lifetime costs avoided)	Lifetime Cost per Taxpayer (=5,348,729 taxpayers)¹²	Annual Cost per Taxpayer
Total Dropouts 18–64 Years Old (=749,879)	\$ 143,576,330,000	\$26,843	\$548

¹²Joint tax return filers are counted as individual taxpayers for purposes of this analysis.

Section VI—Conclusion

The costs associated with dropping out of school are not merely borne by the individual. In fact, all of society incurs costs as a result of inadequate individual levels of education. This analysis shows that dropouts earn substantially less compared to high school graduates, and they are far more likely to be out of work. Because of their limited incomes and decreased workforce participation, dropouts contribute much less in tax revenue to the state but require more government assistance.

In the 21st century, the completion of high school is the first step toward self-sufficiency, opening the door to further education and advanced workforce training. For those without this vital diploma, the future is certainly one of financial hardship and necessary reliance on others to sustain family life. It is, without a doubt, in the best interest of individuals to complete high school.

Furthermore, it is also in the best interest of society to ensure that all students take that all-important first step toward self-reliance and graduate from high school. Increasing the graduation rate in the state will result in increased personal income and regional productivity, as well as decreased reliance on public programs.

- Over the course of a lifetime, Ohio residents can expect to recover \$31.45, in economic and fiscal benefits, for every public and private dollar invested in a student completing his or her education.
- In a lifetime, a high school graduate will earn an additional \$473,713, contribute an additional \$26,508 in income and sales tax, and require \$105,280 less in government assistance. In addition, a would-be dropout turned high school graduate would save society \$77,714 in incarceration costs.
- The state economy would likely grow by \$7.6 billion as a result of increased individual earnings and the resulting increases in productivity.
- Currently, the annual costs associated with dropouts total more than \$548 per individual taxpayer. As the graduation rate increases, these costs would decrease over time.

Upon adding all productivity benefits and savings to the government, this analysis concludes that Ohio residents can realize a full lifetime benefit of more than \$661,493 per high school graduate.

Section VII—Methodology

Literature review and preliminary research were conducted to study the benefits of high school education as well as to identify the different types of benefits. The following economic and fiscal benefits of high school graduation with specific measures in Ohio were identified:

- Economic benefits—individual income, increased productivity
- Fiscal benefits—income and sales tax receipts, government transfers and costs of incarceration

Data was collected for each of these measures by educational attainment for the same populations for purposes of making comparisons. The main sources of data were state and federal government reports, the 2006 American Community Survey and 2006 Current Population Survey.

Data analysis was conducted with the gathered data to quantify the benefits of high school education. This was done by adding the economic and fiscal benefits and then subtracting the costs of education. Per pupil expenditure on education and wages foregone during education were identified as the two main costs involved in high school education. The benefit-cost ratio was then estimated by dividing all benefits by the costs associated with high school education.

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Appendix—Benefit-Cost Summaries for Ohio & Eight Major Cities

Ohio Benefit-Cost Summary

State of Ohio Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	47.5%	70.6%	23.1%
Unemployed	7.8%	5.1%	-2.7%
Not in Labor Force	44.7%	24.3%	-20.5%
Median Earnings	\$17,748	\$26,207	\$8,459
Per Capita Earnings	\$8,427	\$18,506	\$10,079

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
State and Local Income and Sales Tax Receipts	\$316	\$880	\$564
Payments for hsg, food, health care, unempl, disability, and assistance	\$5,091	\$2,851	(\$2,240)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$10,079	\$473,713
Costs: Foregone Earnings	\$1,843	\$0	\$3,686
Net (Benefits minus Costs)	(\$1,843)	\$10,079	\$470,027
Benefit-Cost Ratio			128.52

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$564	\$26,508
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$1,586	\$1,586	\$77,714
Total Benefits	\$1,586	\$4,390	\$209,502
Costs			
Per Pupil Expenditure	\$9,018	\$0	\$18,036
Net (Benefits minus Costs)	(\$7,432)	\$4,390	\$191,466
Benefit-Cost Ratio			11.62

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	Tax filers
Ohio 18–64 Population (2006 estimates)	749,879	10.5%	5,348,729

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$352,463		
Fiscal Costs Avoided by Govt.	\$157,101	\$29,372	\$599
Fiscal Costs (School Expenditures)	\$13,525	\$2,529	\$52
Net Total Fiscal Costs Avoided	\$143,576	\$26,843	\$548

Akron Benefit-Cost Summary

City of Akron Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	41.8%	66.8%	25.0%
Unemployed	6.2%	6.8%	0.6%
Not in Labor Force	52.0%	26.4%	-25.6%
Median Earnings	\$17,008	\$22,360	\$5,352
Per Capita Earnings	\$7,111	\$14,943	\$7,832

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Akron Earnings Tax receipts	\$160	\$336	\$176
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$7,832	\$368,104
Costs: Foregone Earnings	\$1,843	\$0	\$3,686
Net (Benefits minus Costs)	(\$1,843)	\$7,832	\$364,418
Benefit-Cost Ratio			98.87

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$519	\$24,403
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,345	\$204,225
Costs			
Per Pupil Expenditure	\$10,421	\$0	\$20,842
Net (Benefits minus Costs)	(\$10,421)	\$4,345	\$183,383
Benefit-Cost Ratio			9.80

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Akron 18–64 Population (2006 estimates)	14,693	11.8%	81,801

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$5,354		
Fiscal Costs Avoided by Govt.	\$3,001	\$36,687	\$749
Fiscal Costs (School Expenditures)	\$360	\$4,401	\$90
Net Total Fiscal Costs Avoided	\$2,641	\$32,286	\$659

Canton Benefit-Cost Summary

City of Canton Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	42.5%	72.0%	29.4%
Unemployed	10.2%	3.5%	-6.7%
Not in Labor Force	47.3%	24.5%	-22.7%
Median Earnings	\$16,946	\$20,783	\$3,837
Per Capita Earnings	\$7,210	\$14,954	\$7,744

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Canton Earnings Tax receipts	\$144	\$299	\$155
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$7,744	\$363,968
Costs: Foregone Earnings	\$1,843	\$0	\$3,686
Net (Benefits minus Costs)	(\$1,843)	\$7,744	\$360,282
Benefit-Cost Ratio			97.74

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$498	\$23,400
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,324	\$203,222
Costs			
Per Pupil Expenditure	\$10,434	\$0	\$20,868
Net (Benefits minus Costs)	(\$10,434)	\$4,324	\$182,354
Benefit-Cost Ratio			9.74

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Canton 18–64 Population (2006 estimates)	8,388	18.0%	26,432

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$3,022		
Fiscal Costs Avoided by Govt.	\$1,705	\$64,505	\$1,316
Fiscal Costs (School Expenditures)	\$205	\$7,756	\$158
Net Total Fiscal Costs Avoided	\$1,499	\$56,712	\$1,157

Cincinnati Benefit-Cost Summary

City of Cincinnati Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	44.1%	60.3%	16.2%
Unemployed	7.5%	9.7%	2.2%
Not in Labor Force	48.4%	30.0%	-18.4%
Median Earnings	\$15,993	\$22,122	\$6,129
Per Capita Earnings	\$7,058	\$13,342	\$6,284

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Cincinnati Earnings Tax receipts	\$148	\$280	\$132
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$6,284	\$295,348
Costs: Foregone Earnings	\$2,599	\$0	\$5,198
Net (Benefits minus Costs)	(\$2,599)	\$6,284	\$290,150
Benefit-Cost Ratio			55.82

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$475	\$22,323
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,301	\$202,145
Costs			
Per Pupil Expenditure	\$12,550	\$0	\$25,100
Net (Benefits minus Costs)	(\$12,550)	\$4,301	\$177,045
Benefit-Cost Ratio			8.05

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Cincinnati 18–64 Population (2006 estimates)	30,171	15.1%	146,120

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$8,754		
Fiscal Costs Avoided by Govt.	\$6,099	\$41,740	\$852
Fiscal Costs (School Expenditures)	\$739	\$5,057	\$103
Net Total Fiscal Costs Avoided	\$5,360	\$36,682	\$749

Cleveland Benefit-Cost Summary

City of Cleveland Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	38.0%	63.4%	25.5%
Unemployed	14.2%	10.1%	-4.1%
Not in Labor Force	47.9%	26.5%	-21.4%
Median Earnings	\$15,731	\$21,566	\$5,835
Per Capita Earnings	\$5,971	\$13,681	\$7,709

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Cleveland Earnings Tax receipts	\$119	\$274	\$154
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$7,709	\$362,323
Costs: Foregone Earnings	\$556	\$0	\$1,112
Net (Benefits minus Costs)	(\$556)	\$7,709	\$361,211
Benefit-Cost Ratio			324.83

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$497	\$23,368
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,323	\$203,190
Costs			
Per Pupil Expenditure	\$12,213	\$0	\$24,426
Net (Benefits minus Costs)	(\$12,213)	\$4,323	\$178,764
Benefit-Cost Ratio			8.32

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Cleveland 18–64 Population (2006 estimates)	54,098	21.2%	161,817

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$19,541		
Fiscal Costs Avoided by Govt.	\$10,992	\$67,929	\$1,386
Fiscal Costs (School Expenditures)	\$1,325	\$8,188	\$167
Net Total Fiscal Costs Avoided	\$9,667	\$59,740	\$1,219

Columbus Benefit-Cost Summary

City of Columbus Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	49.9%	68.0%	18.1%
Unemployed	9.9%	6.4%	-3.6%
Not in Labor Force	40.1%	25.6%	-14.5%
Median Earnings	\$13,047	\$22,838	\$9,791
Per Capita Earnings	\$6,513	\$15,533	\$9,020

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Columbus Earnings Tax receipts	\$130	\$311	\$180
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$9,020	\$423,940
Costs: Foregone Earnings	\$2,873	\$0	\$5,746
Net (Benefits minus Costs)	(\$2,873)	\$9,020	\$418,194
Benefit-Cost Ratio			72.78

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$523	\$24,600
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,349	\$204,422
Costs			
Per Pupil Expenditure	\$12,653	\$0	\$25,306
Net (Benefits minus Costs)	(\$12,653)	\$4,349	\$179,116
Benefit-Cost Ratio			8.08

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Columbus 18–64 Population (2006 estimates)	54,568	11.2%	221,535

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$22,820		
Fiscal Costs Avoided by Govt.	\$11,155	\$50,353	\$1,028
Fiscal Costs (School Expenditures)	\$1,337	\$6,035	\$123
Net Total Fiscal Costs Avoided	\$9,818	\$44,318	\$904

Dayton Benefit-Cost Summary

City of Dayton Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	31.6%	62.1%	30.6%
Unemployed	15.1%	7.7%	-7.4%
Not in Labor Force	53.3%	30.1%	-23.2%
Median Earnings	\$15,697	\$21,280	\$5,583
Per Capita Earnings	\$4,956	\$13,221	\$8,265

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Dayton Earnings Tax receipts	\$112	\$297	\$186
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$8,265	\$388,455
Costs: Foregone Earnings	\$1,843	\$0	\$3,686
Net (Benefits minus Costs)	(\$1,843)	\$8,265	\$384,769
Benefit-Cost Ratio			104.39

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$529	\$24,861
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,355	\$204,683
Costs			
Per Pupil Expenditure	\$13,531	\$0	\$27,062
Net (Benefits minus Costs)	(\$13,531)	\$4,355	\$177,621
Benefit-Cost Ratio			7.56

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Dayton 18–64 Population (2006 estimates)	16,690	16.7%	62,569

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$6,422		
Fiscal Costs Avoided by Govt.	\$3,416	\$54,596	\$1,114
Fiscal Costs (School Expenditures)	\$409	\$6,537	\$133
Net Total Fiscal Costs Avoided	\$3,007	\$48,059	\$981

Toledo Benefit-Cost Summary

City of Toledo Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	42.5%	63.4%	20.9%
Unemployed	10.1%	8.7%	-1.4%
Not in Labor Force	47.4%	27.9%	-19.5%
Median Earnings	\$13,185	\$25,134	\$11,949
Per Capita Earnings	\$5,597	\$15,934	\$10,336

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Toledo Earnings Tax receipts	\$126	\$359	\$233
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$10,336	\$485,792
Costs: Foregone Earnings	\$602	\$0	\$1,204
Net (Benefits minus Costs)	(\$602)	\$10,336	\$484,588
Benefit-Cost Ratio			402.48

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$576	\$27,052
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,402	\$206,874
Costs			
Per Pupil Expenditure	\$11,320	\$0	\$22,640
Net (Benefits minus Costs)	(\$11,320)	\$4,402	\$184,234
Benefit-Cost Ratio			9.14

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Toledo 18–64 Population (2006 estimates)	25,366	13.7%	95,872

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$12,292		
Fiscal Costs Avoided by Govt.	\$5,248	\$54,740	\$1,117
Fiscal Costs (School Expenditures)	\$621	\$6,477	\$132
Net Total Fiscal Costs Avoided	\$4,626	\$48,252	\$985

Youngstown Benefit-Cost Summary

City of Youngstown Employment and Annual Earnings by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
Employed	31.0%	58.0%	27.0%
Unemployed	11.5%	10.9%	-0.6%
Not in Labor Force	57.5%	31.1%	-26.4%
Median Earnings	\$12,141	\$20,044	\$7,903
Per Capita Earnings	\$3,761	\$11,622	\$7,861

Local and State of Ohio Annual Per Capita Fiscal Costs & Benefits by Educational Attainment, Ages 25–64

	Dropout	H.S. Grad	Difference
City of Youngstown Earnings Tax receipts	\$103	\$320	\$216
Income and Sales Tax receipts (excludes local earnings taxes)	\$157	\$500	\$343
Payments for hsg, food, health care, unempl, disability, and assistance	\$3,642	\$2,136	(\$1,506)
Payments for incarceration (excludes police, courts, victims)	\$2,806	\$1,220	(\$1,586)

Annual Per Capita Economic Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits: Earnings Differential	\$0	\$7,861	\$369,467
Costs: Foregone Earnings	\$1,843	\$0	\$3,686
Net (Benefits minus Costs)	(\$1,843)	\$7,861	\$365,781
Benefit-Cost Ratio			99.24

Annual Per Capita Fiscal Benefits and Costs

	Years 1 & 2	Years 3–49	Total
Benefits (positive differences)			
Government tax receipts	\$0	\$559	\$26,281
Government assistance payments	\$0	\$2,240	\$105,280
Government incarceration payments	\$0	\$1,586	\$74,542
Total Benefits	\$0	\$4,385	\$206,103
Costs			
Per Pupil Expenditure	\$14,862	\$0	\$29,724
Net (Benefits minus Costs)	(\$14,862)	\$4,385	\$176,379
Benefit-Cost Ratio			6.93

Demographic Information

	< 12th grade, no diploma	< 12th grade, no diploma	School District Tax filers
Youngstown 18–64 Population (2006 estimates)	7,624	18.6%	26,089

Total Benefits of Graduation

	Total (\$Mil.)	Per Taxpayer	Annual Taxpayer
Total Economic Benefits Gained	\$2,789		
Fiscal Costs Avoided by Govt.	\$1,571	\$60,217	\$1,229
Fiscal Costs (School Expenditures)	\$187	\$7,168	\$146
Net Total Fiscal Costs Avoided	\$1,385	\$53,088	\$1,083