

**Economic Impact Analysis of the Publicly Funded Pre-K-12 Education on the Eastern
Shore of Maryland**

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Executive Summary

The Public School Systems (grades Pre-K through 12) of the Eastern Shore of Maryland provide a wide array of benefits to the residents of each of the counties. In addition to the educational services provided to the students of the county, the expenditures of the school system provide a significant economic impact in the county and region. The average return on investment (economic impact compared to taxpayer investment) of the county public school systems on the Eastern Shore of Maryland was approximately 35% for FY 2013. However, the return on investment differs greatly between counties due to the distinct spending patterns of each county. When examined as a region the return on investment of the county public school systems is approximately 92%. The public school systems also provide value beyond what can be quantified including quality of life benefits. To estimate the economic impact of the public school systems, the IMPLAN software package (produced by the Minnesota IMPLAN Group, Inc) is utilized. The economic impact of the public school systems manifests itself through two channels: 1) the annual impact from operations of the school systems and 2) the impact generated by the percentage of the employees' payroll spent locally. The public school systems in each of the nine counties impact both their respective county and the larger Eastern Shore region. The analysis provided shows the impacts of the individual public school systems in their respective counties, as well as, the total impact of the nine systems on the Eastern Shore region as a whole¹. The following table shows the annual aggregate estimated economic and employment² of the public school systems³.

	Economic Impact	Employment Impact
Caroline County	\$136,912,207	2,076
Cecil County	\$561,298,364	6,885
Dorchester County	\$118,420,588	1,838
Kent County	\$71,302,651	1,002
Queen Anne's County	\$323,696,329	4,330
Somerset County	\$45,901,578	867
Talbot County	\$137,646,964	1,787
Wicomico County	\$419,062,880	5,680
Worcester County	\$211,840,762	2,931
Eastern Shore Region	\$2,486,663,846	30,894

¹ The impact on the region is greater than the sum of the impacts in the individual counties due to a portion of the money spent in each county leaking out elsewhere in the nine county region.

² Includes current employees and the additional jobs supported in the local economy by the operations.

³ Economic impact estimation models developed with the IMPLAN software platform use something called the Social Accounting Matrix (SAM) to determine how the economic activity generated by one entity churns in the local economy. The SAM for each county excludes economic activity that "leaks out" to surrounding counties or to the nation. Some of the lower economic impacts in certain counties can be attributed to the fact that more of the economic activity generated in the county leaks out to surrounding counties.

Introduction

Benefits of a good education are evident to most parents with children in publicly provided Pre-K-12 education. Many of these parents tend to be the first to express anger when educational outcomes do not match their expectations of quality. While for most of these parents, spending does not equal quality, they do understand that severe reductions in education spending are bound to result in reductions in the quality of the education outcomes for their children.

Unfortunately, during the past ten years, education spending has become a favorite target of those residents of our counties who are concerned about the overall level of government spending. In many of the discussions about these concerns, the focus seems to be more on the cost of publicly provided Pre-K-12 education and not enough on the benefits derived from it.

A number of national studies have examined the economic and societal benefits of publicly provided Pre-K–12 education beyond the immediate educational outcomes for the students. A meta-analysis of these studies leads us to conclude that the benefits of publicly provided Pre-K-12 education reach well beyond the students and their parents. The scope and magnitude of these economic and societal benefits of publicly provided Pre-K-12 education seem to be significantly greater than what many residents realize. In this report, we will examine three different types of economic and societal benefits:

1. Type 1 Benefits (Obvious and Not-so-Obvious Tangible Benefits);
2. Type 2 Benefits (Intangible Benefits).

Type 1 (Tangible) Benefits:

Obvious-Tangible: These are the clearest, most obvious benefits of publicly provided Pre-K–12 education. Preparing a trained and trainable workforce and improved quality of life outcomes through higher earning potential for residents with a good education top the list. Unfortunately, as clear as these benefits are, they are some of the hardest to quantify. The payoffs tend to be many years beyond the end of the public expenditure, and the

measurements are not Precise. Linking cause and effect for these benefits, while logically easy, tends to be mathematically difficult. In this study, these benefits are quantified through the use of statistical and economic modeling and incorporated into an IMPLAN Economic Impact Estimation model, together with the Not-so-Obvious Tangible benefits described below.

Not-so-Obvious-Tangible

These benefits are sometimes overlooked by the general public, and especially those public policy decision-makers who see publicly provided Pre-K–12 education as a major cost item in the state and local budgets. These are the benefits derived from the public expenditures churning in the local economy through the employment of those involved in the public education enterprise, the expenditures that support the private sector vendors to the education enterprise, and the various induced economic, employment, and fiscal impacts. These benefits alone result in a positive return on the taxpayers’ investment in publicly provided Pre-K–12 education. These benefits are calculated through the use of the “Social Accounting Matrix” data for each county, provided by the Minnesota IMPLAN Group, and a series of Input/Output models using the IMPLAN Software platform for estimating economic and employment impacts.

Type 2 (Intangible) Benefits:

These are societal quality of life benefits that we enjoy due to the Presence of a publicly provided Pre-K–12 education. These benefits go beyond the direct economic and workforce development benefits discussed in Type 1 benefits. These benefits include the impact of the quality of the publicly provided Pre-K–12 education in a jurisdiction on housing values. They include the ability of the jurisdiction to attract and/or retain families with skilled and/or professional workers who are net wealth creators, in part due to the Presence of good quality publicly provided Pre-K–12 education. These benefits are also very difficult to quantify. In this study, they are discussed in narrative form based on a qualitative analysis based on a 2004 monograph authored by Thomas L. Hungerford and Robert W. Wassmer (See

Appendix C). However, for informing policy decisions, estimates of these impacts were calculated using a proprietary algorithm developed by the BEACON team. The results are presented below.

County	Type 2 Benefits
Caroline County	\$3,760,000
Cecil County	\$15,435,705
Dorchester County	\$3,256,566
Kent County	\$1,960,823
Queen Anne’s County	\$8,901,649
Somerset County	\$1,262,293
Talbot County	\$3,785,292
Wicomico County	\$11,524,229
Worcester County	\$5,825,621
Eastern Shore Total	\$68,383,256

Federal, state, and local elected officials understand and value the importance of these societal benefits and have consequently placed maintaining and improving the quality of primary and secondary public education at, or very near, the top of their policy agendas. At the same time, state and local elected officials throughout the United States face current and projected budget deficits. These state and local policymakers are under constant Pressure to reduce the tax “burden” within their jurisdictions. To balance their budgets without raising taxes, or to pursue a more tax-friendly climate, these officials are forced to consider cutting expenditures. Such considerations must not be undertaken without a complete understanding of the intended as well as unintended economic, employment, and fiscal consequences such cuts. It is hope that this study will give elected officials some of the critical information they will need in making these difficult decisions.

Economic Impact Modeling Background

The following software is used to conduct the economic impact and scenario analyses for this study.

IMPLAN

The IMPLAN model includes all economic effects when calculating total output/employment (i.e. this includes “direct” *plus* “indirect” *plus* “induced” (ripple effect) impacts). The IMPLAN model is based on Input-Output (IO) theory, for which Wassily Leontief was awarded the Nobel Prize in Economics in 1973. In IO models, the “jobs supported” estimates are the number of jobs that are needed to produce the current level of local output at the average productivity levels of workers in their respective industries. The IMPLAN model is based on actual Somerset, Wicomico, and Worcester County data from 2011 inflated to 2013 figures. The principle advantage of the IO IMPLAN model is in its utilization of state and county-specific data.

Economic Impact Analysis

Results⁴

To estimate the economic impact of the public school systems of the Eastern Shore region, the IMPLAN software package (produced by the Minnesota IMPLAN Group, Inc) was utilized. The economic impact of the public school systems manifests itself through two channels: 1) the annual impact from operations of the school systems and 2) the impact generated by the percentage of the employees’ payroll spent locally (referred to here as the impact from employment). The public school systems in each of the nine counties impact both their respective counties and the Eastern Shore region. The analysis provided shows the impacts of the individual public school systems in their respective county, as well as, the total impact of the nine systems to the Eastern Shore region as a whole.

⁴ More detailed data tables of the IMPLAN results can be found in Appendix A- IMPLAN Results Tables.

Assumptions

The results of this economic impact analysis are based on the data provided by each of the Financial Officers of the public school system in Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester Counties in Maryland. The data provided is the FY 2012-2013 actual financial expenditures by school district.

All of the impact estimates are reported in 2013 dollars.

County Impacts:

The estimated, aggregated annual economic impact of the Caroline County Public School System in FY 2012-2013 is approximately \$136,912,207, and supports an additional 1,242 jobs⁵ in the local economy. This includes \$104,133,063 in direct impacts, \$20,283,357 in indirect impacts, and \$12,495,784 in induced impacts⁶.

The estimated, aggregated annual economic impact of the Cecil County Public School System in FY 2013 is approximately \$561,298,364, and supports an additional 4,851 jobs in the local economy. This includes \$419,287,025 in direct impacts, \$76,441,331 in indirect impacts, and \$65,570,005 in induced impacts.

The estimated, aggregated annual economic impact of the Dorchester County Public School System in FY 2013 is approximately \$118,420,588, and supports an additional 1,117 jobs in the local economy. This includes \$92,306,775 in direct impacts, \$14,344,274 in indirect impacts, and \$11,769,542 in induced impacts.

The estimated, aggregated annual economic impact of the Kent County Public School System in FY 2013 is approximately \$71,302,651, and supports an additional 647 jobs in the local

⁵ Jobs as reported by IMPLAN include all full-time, part time, and temporary positions. The total number of local jobs supported includes the employees that are actually currently employed by the school systems. To see the conversion to Full-Time Equivalent jobs please see Appendix B-FTE Conversions.

⁶ Direct impacts are the impacts of spending by the institutions, indirect impacts are the impacts of spending by the vendors paid by the institution, and induced impacts are the impacts of portions of incomes spent locally by the institutions' and the vendors' employees.

economy. This includes \$50,275,436 in direct impacts, \$11,151,946 in indirect impacts, and \$9,875,270 in induced impacts.

The estimated, aggregated annual economic impact of the Queen Anne's County Public School System in FY 2013 is approximately \$323,696,329, and supports an additional 2,961 jobs in the local economy. This includes \$229,838,124 in direct impacts, \$61,047,912 in indirect impacts, and \$32,810,296 in induced impacts.

The estimated, aggregated annual economic impact of the Somerset County Public School System in FY 2013 is approximately \$45,901,578, and supports an additional 406 jobs in the local economy. This includes \$40,811,499 in direct impacts, \$2,649,074 in indirect impacts, and \$2,441,005 in induced impacts.

The estimated, aggregated annual economic impact of the Talbot County Public School System in FY 2013 is approximately \$137,646,964, and supports an additional 1,130 jobs in the local economy. This includes \$109,682,668 in direct impacts, \$14,769,742 in indirect impacts, and \$13,194,555 in induced impacts.

The estimated, aggregated annual economic impact of the Wicomico County Public School System in FY 2013 is approximately \$419,062,880, and supports an additional 3,456 jobs in the local economy. This includes \$315,923,928 in direct impacts, \$48,166,445 in indirect impacts, and \$54,972,523 in induced impacts.

The estimated, aggregated annual economic impact of the Worcester County Public School System in FY 2013 is approximately \$211,840,762, and supports an additional 1,744 jobs in the local economy. This includes \$171,188,471 in direct impacts, \$20,765,493 in indirect impacts, and \$19,886,797 in induced impacts.

Regional Impact:

The estimated, aggregate annual economic impact of the Caroline, Cecil, Dorchester, Kent, Queen Anne’s, Somerset, Talbot, Wicomico, and Worcester county public school systems on the nine county region as a whole in FY 2012-2013 is approximately \$2,486,663,846 and supports an additional 21,052 jobs in the regional economy. This includes \$1,823,289,187 in direct impacts, \$355,773,093 in indirect impacts, and \$307,631,566 in induced impacts.

Conclusion

The public school systems of Caroline, Cecil, Dorchester, Kent, Queen Anne’s, Somerset, Talbot, Wicomico, and Worcester Counties in Maryland generate an estimated economic impact in the counties and region much greater than the cost of operations. Beyond the services and programs whose impacts can be quantified are those services that impact the quality of life of county residents. The quantitative economic and employment impacts of the nine public school systems is summarized in the following table but the total value of the public school systems goes beyond just the economic impact bottom line.

	Economic Impact	Employment Impact
Caroline County	\$136,912,207	2,076
Cecil County	\$561,298,364	6,885
Dorchester County	\$118,420,588	1,838
Kent County	\$71,302,651	1,002
Queen Anne’s County	\$323,696,329	4,330
Somerset County	\$45,901,578	867
Talbot County	\$137,646,964	1,787
Wicomico County	\$419,062,880	5,680
Worcester County	\$211,840,762	2,931
Eastern Shore Region	\$2,486,663,846	30,984

Type 1 (Tangible) Benefits:

The most obvious Type 1 benefit is the impact of publicly provided Pre-K-12 education is the income boost graduates receive as they improve their level of education and their education outcomes. Using the Eastern Shore Average Median Income and Educational Attainment Statistics in a statistical model, we estimate that the Shore counties operate at an aggregate 28% deficit compared to the Maryland average. This means that at current levels of spending, Shore graduates will enjoy 28% less on average in lifetime earnings that the “Average” Maryland graduate will. Further, using a simple economic model, we can state that for every 2% increase in annual spending (within an additional spending range of 0-25%), the Shore graduates’ average lifetime earnings will increase by 1%. Conversely, for each 2% decrease in annual spending the average lifetime earnings will decrease by 1%. These increases/decreases will, over time, lead to increases/decreases in the total tax base of each jurisdiction because of the direct correlation between total income and property values. Both total jurisdictional income and property taxes can be expressed as a function of the total jurisdictional income.

Type 2 (Intangible) Benefits:

The Type 2 (Intangible) Benefits that go beyond the direct and obvious benefits of publicly provided Pre-K-12 education include the ability of the jurisdiction to attract and/or retain families with skilled and/or professional workers who are net wealth creators.

On the Shore, some of these benefits include:

- Quality-of-Life measures that push parents to use school quality as a residential location factor;
- Quality-of-Life issues that transcend location and extend into a “Sense of Well Being” for parents who believe high quality public education is essential to the success of their child’s transition from high school to higher education or the labor market;
- Property value enhancements attributable to the Presence of good local public schools;

- Productivity enhancements in local businesses due to quality Pre-K-12 education;
- Business, economic, workforce, and community enhancements due to increases in the number of post-secondary institution graduates in a jurisdiction due to quality Pre-K-12 education.

These benefits assume the presence of good quality education in each jurisdiction. However, it is also clear that if spending levels drop precipitously, each and every one of these benefits would decline, equally precipitously.

Appendix A-IMPLAN Results Tables

The economic and employment impact of the school systems was examined in two parts. The first part was the impact from the operations of the school system that is the financial expenditures of each school system. The second part was the impact from employment that is the impact from the expenditures of those employed by each school system. The economic and employment impact estimates are reported in the tables below for each county and the region as a whole. Note: The employment impacts estimated here only include those additional jobs support in the local economy, not those that who are currently employed in the school systems. Also, numbers may not sum due to rounding.

Caroline County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$10,421,762	\$11,872,813	\$81,838,488	\$104,133,063
Indirect Effect	\$2,734,107	\$2,193,185	\$15,356,065	\$20,283,357
Induced Effect	\$1,149,204	\$1,439,265	\$9,907,315	\$12,495,784
Total Effect	\$14,305,073	\$15,505,262	\$81,838,488	\$136,912,207

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	144	103	720	966
Indirect Effect	22	18	130	170
Induced Effect	10	12	84	106
Total Effect	176	133	933	1242

Cecil County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$35,937,587	\$52,243,262	\$331,106,176	\$419,287,025
Indirect Effect	\$6,700,888	\$9,373,227	\$60,367,216	\$76,441,331
Induced Effect	\$7,071,652	\$8,041,253	\$50,457,100	\$65,570,005
Total Effect	\$49,710,127	\$69,657,741	\$441,930,496	\$561,298,364

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	548	409	2,633	3,590
Indirect Effect	58	85	549	693
Induced Effect	61	70	438	569
Total Effect	668	564	3,619	4,851

Dorchester County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$11,797,587	\$16,999,768	\$63,509,420	\$92,306,775
Indirect Effect	\$3,015,325	\$2,364,115	\$8,964,834	\$14,344,274
Induced Effect	\$1,503,696	\$2,177,554	\$8,088,292	\$11,769,542
Total Effect	\$16,316,607	\$21,541,437	\$80,562,544	\$118,420,588

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	170	146	545	861
Indirect Effect	28	24	91	144
Induced Effect	14	21	77	112
Total Effect	213	191	713	1,117

Kent County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$7,783,143	\$8,108,969	\$34,383,324	\$50,275,436
Indirect Effect	\$2,244,643	\$1,687,716	\$7,219,587	\$11,151,946
Induced Effect	\$1,889,706	\$1,524,649	\$6,460,915	\$9,875,270
Total Effect	\$11,917,492	\$11,321,335	\$48,063,824	\$71,302,651

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	100	69	292	461
Indirect Effect	18	14	61	94
Induced Effect	18	14	60	92
Total Effect	136	98	413	647

Queen Anne's County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$25,345,969	\$21,066,907	\$183,425,248	\$229,838,124
Indirect Effect	\$10,525,604	\$5,101,088	\$45,421,220	\$61,047,912
Induced Effect	\$3,825,819	\$2,985,149	\$25,999,328	\$32,810,296
Total Effect	\$39,697,392	\$29,153,145	\$254,845,792	\$323,696,329

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	401	181	1,548	2,130
Indirect Effect	92	45	398	535
Induced Effect	35	27	234	296
Total Effect	528	252	2,181	2,961

Somerset County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$1,475,404	\$8,408,355	\$30,927,740	\$40,811,499
Indirect Effect	\$114,322	\$539,687	\$1,995,065	\$2,649,074
Induced Effect	\$87,753	\$502,186	\$1,851,066	\$2,441,005
Total Effect	\$1,677,478	\$9,450,228	\$34,773,872	\$45,901,578

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	17	76	276	369
Indirect Effect	1	5	17	22
Induced Effect	1	3	11	15
Total Effect	18	84	304	406

Talbot County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$11,705,244	\$12,661,776	\$85,315,648	\$109,682,668
Indirect Effect	\$2,612,898	\$1,528,868	\$10,627,976	\$14,769,742
Induced Effect	\$1,747,665	\$1,486,008	\$9,960,882	\$13,194,555
Total Effect	\$16,065,807	\$15,676,653	\$105,904,504	\$137,646,964

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	112	99	670	881
Indirect Effect	22	14	97	134
Induced Effect	15	13	87	115
Total Effect	150	126	855	1,130

Wicomico County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$26,720,064	\$61,002,136	\$228,201,728	\$315,923,928
Indirect Effect	\$4,538,403	\$9,139,842	\$34,488,200	\$48,166,445
Induced Effect	\$6,520,973	\$10,304,342	\$38,147,208	\$54,972,523
Total Effect	\$37,779,440	\$80,446,320	\$300,837,120	\$419,062,880

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	385	475	1,793	2,653
Indirect Effect	35	70	263	368
Induced Effect	52	82	302	436
Total Effect	472	626	2,358	3,456

Worcester County

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$10,129,633	\$29,247,814	\$131,811,024	\$171,188,471
Indirect Effect	\$1,572,745	\$3,451,276	\$15,741,472	\$20,765,493
Induced Effect	\$1,436,332	\$3,347,043	\$15,103,422	\$19,886,797
Total Effect	\$13,138,709	\$36,046,133	\$162,655,920	\$211,840,762

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	150	229	1,037	1,416
Indirect Effect	12	27	125	164
Induced Effect	12	28	125	165
Total Effect	174	284	1,287	1,744

Eastern Shore Region

Economic Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	\$226,825,353	\$306,580,033	\$1,289,853,801	\$1,823,259,187
Indirect Effect	\$55,607,502	\$57,305,057	\$242,860,534	\$355,773,093
Induced Effect	\$43,916,755	\$50,851,346	\$212,863,465	\$307,631,566
Total Effect	\$326,349,610	\$414,736,436	\$1,745,577,800	\$2,486,663,846

Employment Impact

	Operations	Employment	Higher Earning Potential of Graduates	Total
Direct Effect	3,266	2,355	9,960	15,582
Indirect Effect	437	460	1,955	2,852
Induced Effect	374	433	1,812	2,619
Total Effect	4,077	3,248	13,727	21,052

Appendix B- FTE Conversions

Employment Impact Conversion to Full-Time Equivalent Jobs

	IMPLAN Report Jobs & Current Jobs	FTE
Caroline County	1,242	1,180
Cecil County	4,851	4,609
Dorchester County	1,117	1,049
Kent County	647	581
Queen Anne's County	2,961	2,340
Somerset County	406	381
Talbot County	1,130	1,047
Wicomico County	3,456	2,771
Worcester County	1,744	1,620
Eastern Shore Region⁷	21,052	19,191

⁷ The nine individual counties do not sum to the Eastern Shore Region figures due to the fact that a portion of the impacts leak out of the counties in which the expenditures occur. This is due to both spending money outside their respective county and a trickling effect of the money churning in the economy. Therefore, the total number of jobs support by the schools' operations on the Eastern Shore will be larger than the sum of the jobs supported individually in each county.

Appendix C- “PRE--K-12 Education in the U.S. Economy”

**Summary and Excerpts from
“K–12 Education in the U.S. Economy”
A Monograph by Thomas L. Hungerford *and* Robert W. Wassmer (2004)**

This appendix summarizes/excerpts a 2004 monograph titled “K–12 Education in the U.S. Economy: Its Impact on Economic Development, Earnings, and Housing Values” by Thomas L. Hungerford and Robert W. Wassmer. The complete text of the monograph can be found at: <http://www.nea.org/assets/docs/HE/economy.pdf>.

Parents worry over the quality of the schools their children attend because a good primary and secondary education is essential to the success of their child’s transition from high school to higher education or the labor market.

Homeowners, even if they do not have children in public schools, are anxious about the quality of local public schools because they know the direct positive effect it has on the resale value of their property.

Finally, business owners recognize that a quality K–12 education makes the workers they employ more productive.

When faced with budget deficits, lobbyists claiming to represent the state’s business and economic interests have argued that revenue enhancement to balance a government budget is a less-Preferred option than cutting state expenditures, including support for primary and secondary education. They cite the possible detrimental effects a tax increase would have on the state’s economic development.

The argument, which is theoretically correct, is that higher taxes will discourage businesses and entrepreneurs from locating in the state and, consequently, reduce the amount of income and employment generated there.

Often left out of this lobbying cry is the fact that a reduction in the quality of K–12 public education will also induce a decline in a state’s long-term economic vitality.

The question, then, is whether the negative economic effects of raising taxes to support quality K–12 public education are greater or less than the alternative of cutting statewide public support for primary and secondary education.

This monograph offers evidence on the economic benefits of a quality K–12 public education.

Overall, the authors conclude that if faced with the choice of (1) increasing revenue statewide to continue supporting the provision of quality public K–12 education or (2) cutting support statewide to public K–12 education to forestall a tax increase, a state’s long-term economic interests are better served by increasing revenue.

In support of this conclusion, the authors examine the evidence on the large spillover benefits of a quality public education beyond the direct benefit to those who receive it, the direct data-based evidence of the influence that various taxes and fees and K–12 education expenditures have on economic development, and the empirical evidence on how a quality public education influences an individual’s lifetime earnings and the value of homes in the school district where it is provided.

The provision of a quality K–12 public education plays a crucial role in the individual and economy-wide acquisition of “human capital.” The economic payoff to individuals of increased schooling is higher earnings throughout their lifetime—a market-based individual benefit.

In addition, a considerable number of benefits from a quality K–12 public education (the spillover effects) extend beyond individuals. Respected economists noted for their efforts to put a monetary value on some of education’s spillover effects argue that the value of these spillovers for individuals and the economy is significant and that it may be as large as education’s market-based individual benefits.

Economic Development, as used in this report, is any dollar-based increase in economic activity within a state. Such increased economic activity can occur through two channels:

First, a given economy (with a fixed number of workers, land, raw materials, machinery, and other physical inputs) is able to produce a greater dollar value of output because of the increased productivity of one or more of the existing inputs.

Second, an economy produces a greater dollar value of total output by adding more inputs to its production processes. Improving the quality of a state’s public K–12 education can result in greater economic development through both of these channels.

Improving public education costs money and often results in increasing taxes which depresses economic development.

The authors’ review of the research indicates that in most circumstances the negative influence of cutting K–12 public education expenditure by an amount that forestalls a statewide revenue increase of an equivalent amount exerts a greater negative influence on the state’s economic development than if the revenue increase were put in place to maintain educational expenditures.

The authors conclude that school resources can lead to improved student outcomes and higher-quality schools.

Additional funding for public primary and secondary schools, however, will not generate greater student achievement unless the funds are used wisely.

Furthermore, it must be recognized that other factors—such as student, parent, and neighborhood characteristics—also influence student outcomes and, hence, school quality. Many of these factors are outside the control of teachers, school administrators, and school boards.

The Preponderance of statistical evidence shows a positive correlation between the quality of local public K–12 education and the value of homes in that neighborhood.

This finding is important because it demonstrates yet another way that the provision of a quality elementary, middle, or high school education yields a tangible economic impact that would be lost with a decline in the quality of this service.

The empirical findings in this literature reinforce the notion that spending per student is not how parents identify a quality public K–12 education. But the findings Presented here do not dismiss the possibility that higher spending is necessary for the provision of quality education.

Most states have had to deal with projected budget deficits for a number of yares now. Many states have wisely addressed this revenue shortfall by avoiding significant decreases in public K–12 education spending that could compromise educational quality. Even so, the authors believe that Pressure to deal with projected budget deficits through decreases in state expenditures, which could include K–12 education, will continue.

Furthermore, the Pressure to cut taxes in good times could cause state and local politicians to question the merits of increasing or even maintaining primary and secondary education spending at current levels. The authors provide evidence that suggests that reduced public spending on primary and secondary education could have an array of

consequences in several economic areas. Here are some examples of the type and magnitude of the effects, as derived from the studies reviewed:

- Economic development decline caused by a decrease in in-migration of potential laborers (short run), loss of productivity of future laborers (long run), or both. Cutting statewide public K–12 expenditure by \$1 per \$1,000 state’s personal income would (1) reduce the state’s personal income by about 0.3 percent in the short run and 3.2 percent in the long run; (2) reduce the state’s manufacturing investment in the long run by 0.9 percent and manufacturing employment by 0.4 percent. Cutting statewide public K–12 education per student by \$1 would reduce small business starts by 0.4 percent in the long run. Cutting statewide public K–12 expenditure by one percentage point of the state’s personal income would reduce the state’s employment by 0.7 percent in the short run and by 1.4 percent in the long run.
- Reduction in a state’s aggregate home values if a reduction in statewide public school spending yields a decline in standardized public school test scores, if in the long run people leave or do not enter the state because of test-score declines. A 10 percent reduction in various standardized test scores would yield between a 2 percent and a 10 percent reduction in aggregate home values in the long run.
- Reduction in a state’s aggregate personal income, if a reduction in statewide public school spending yields a decline in “quality” of public education produced and a long-run decrease in earning potential of the state’s residents. A 10 percent reduction in school expenditures could yield a 1 to 2 percent decrease in post-school annual earnings in the long run. A 10 percent increase in the student–teacher ratio would lead to a 1 to 2 percent decrease in high school graduation rates and to a decrease in standardized test scores.