

# 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 2011. 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 whole<sup>1</sup>. The following table shows the annual aggregate estimated economic and employment<sup>2</sup> of the public school systems<sup>3</sup>.

<sup>&</sup>lt;sup>1</sup> 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.

<sup>&</sup>lt;sup>2</sup> Includes current employees and the additional jobs supported in the local economy by the operations.

<sup>&</sup>lt;sup>3</sup> 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.

|                             | Economic<br>Impact | Employment<br>Impact |
|-----------------------------|--------------------|----------------------|
| <b>Caroline County</b>      | \$ 72,691,475      | 1,259                |
| Cecil County                | \$ 160,746,094     | 3,254                |
| <b>Dorchester County</b>    | \$ 54,069,555      | 984                  |
| Kent County                 | \$ 36,321,291      | 559                  |
| Queen Anne's County         | \$ 120,562,169     | 2,093                |
| Somerset County             | \$ 39,602,654      | 753                  |
| <b>Talbot County</b>        | \$ 85,272,660      | 984                  |
| Wicomico County             | \$ 348,850,730     | 4,464                |
| Worcester County            | \$ 185,994,410     | 2,097                |
| <b>Eastern Shore Region</b> | \$ 1,525,917,600   | 17,878               |

#### 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 Tangible Benefits);
- 2. Type 2 Benefits (Not-So-Obvious Tangible Benefits);
- 3. Type 3 Benefits (Intangible Benefits).

#### Type 1 Benefits:

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.

#### Type 2 Benefits:

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 3 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).

Federal, state, and local elected officials appreciate most, if not all, of these 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.

| County                   | Type 1 Benefits | Type 3 Benefits |
|--------------------------|-----------------|-----------------|
| <b>Caroline County</b>   | \$9.2M          | \$17.1M         |
| Cecil County             | \$12.2M         | \$47.3M         |
| <b>Dorchester County</b> | \$6.5M          | \$21.3M         |
| Kent County              | \$1.8M          | \$30.2M         |
| Queen Anne's County      | \$1.5M          | \$17.9M         |
| Somerset County          | \$9.5M          | \$22.4M         |
| Talbot County            | \$4.8M          | \$13.2M         |
| Wicomico County          | \$16.3M         | \$109.9M        |
| Worcester County         | \$3.7M          | \$16.9M         |
| Eastern Shore Total      | \$65.5          | \$279.3M        |

## **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 2008 inflated to 2010 figures. The principle advantage of the IO IMPLAN model is in its utilization of state and county-specific data.

## **Economic Impact Analysis**

## **Results**<sup>4</sup>

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.

<sup>&</sup>lt;sup>4</sup> 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 2010-2011 actual financial expenditures by school district.

All of the impact estimates are reported in 2011 dollars.

## **County Impacts**

The estimated, aggregated annual economic impact of the Caroline County Public School System in FY 2010-2011 is approximately \$72,691,475, and supports an additional 1,259 jobs<sup>5</sup> in the local economy. This includes \$53,779,257 in direct impacts, \$11,097,770 in indirect impacts, and \$7,814,445 in induced impacts<sup>6</sup>.

The estimated, aggregated annual economic impact of the Cecil County Public School System in FY 2011 is approximately \$160,746,094, and supports an additional 3,254 jobs in the local economy. This includes \$128,325,074 in direct impacts, \$17,601,656 in indirect impacts, and \$14,819,357 in induced impacts.

The estimated, aggregated annual economic impact of the Dorchester County Public School System in FY 2011 is approximately \$54,069,555, and supports an additional 984 jobs in the local economy. This includes \$47,547,142 in direct impacts, \$3,638,595 in indirect impacts, and \$2,883,820 in induced impacts.

The estimated, aggregated annual economic impact of the Kent County Public School System in FY 2011 is approximately \$36,621,291, and supports an additional 559 jobs in the local

<sup>&</sup>lt;sup>5</sup> 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.

<sup>&</sup>lt;sup>6</sup> 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 \$28,354,222 in direct impacts, \$4,228,033 in indirect impacts, and \$3,739,032 in induced impacts.

The estimated, aggregated annual economic impact of the Queen Anne's County Public School System in FY 2011 is approximately \$120,562,169, and supports an additional 2,093 jobs in the local economy. This includes \$88,437,041 in direct impacts, \$20,543,494 in indirect impacts, and \$11,581,637 in induced impacts.

The estimated, aggregated annual economic impact of the Somerset County Public School System in FY 2011 is approximately \$39,602,654, and supports an additional 753 jobs in the local economy. This includes \$28,755,959 in direct impacts, \$6,663,378 in indirect impacts, and \$4,183,320 in induced impacts.

The estimated, aggregated annual economic impact of the Talbot County Public School System in FY 2011 is approximately \$85,272,660, and supports an additional 984 jobs in the local economy. This includes \$11,333,632 in direct impacts, \$61,298,381 in indirect impacts, and \$12,640,659 in induced impacts.

The estimated, aggregated annual economic impact of the Wicomico County Public School System in FY 2011 is approximately \$348,850,730, and supports an additional 4,464 jobs in the local economy. This includes \$214,148,170 in direct impacts, \$73,027,171 in indirect impacts, and \$61,675,454 in induced impacts.

The estimated, aggregated annual economic impact of the Worcester County Public School System in FY 2011 is approximately \$185,994,410, and supports an additional 2,097 jobs in the local economy. This includes \$128,046,024 in direct impacts, \$28,832,750 in indirect impacts, and \$29,115,627 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 2010-2011 is approximately \$1,525,917,600, and supports an additional 17,878 jobs in the regional economy. This includes \$1,012,659,420 in direct impacts, \$259,553,460 in indirect impacts, and \$253,704,760 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         | Employment |
|-----------------------------|------------------|------------|
|                             | Impact           | Impact     |
| Caroline County             | \$ 72,691,475    | 1,259      |
| Cecil County                | \$ 160,746,094   | 3,254      |
| <b>Dorchester County</b>    | \$ 54,069,555    | 984        |
| Kent County                 | \$ 36,321,291    | 559        |
| Queen Anne's County         | \$ 120,562,169   | 2,093      |
| Somerset County             | \$ 85,272,660    | 753        |
| Talbot County               | \$ 39,602,654    | 984        |
| Wicomico County             | \$ 348,850,730   | 4,464      |
| Worcester County            | \$ 185,994,410   | 2,097      |
| <b>Eastern Shore Region</b> | \$ 1,525,917,600 | 17,878     |

#### Type 1 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 3 Benefits:

The type 3 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   | Total        |
|-----------------|--------------|--------------|--------------|
| Direct Effect   | \$30,227,763 | \$23,551,494 | \$53,779,257 |
| Indirect Effect | \$4,967,819  | \$6,129,951  | \$11,097,770 |
| Induced Effect  | \$4,138,908  | \$3,675,537  | \$7,814,445  |
| Total Effect    | \$39,334,491 | \$33,356,984 | \$72,691,475 |

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 165        | 168        | 333   |
| Indirect Effect | 21         | 28         | 49    |
| Induced Effect  | 20         | 19         | 39    |
| Total Effect    | 206        | 215        | 421   |

# Cecil County

#### **Economic Impact**

|                 | Operations    | Employment   | Total         |
|-----------------|---------------|--------------|---------------|
| Direct Effect   | \$104,773,580 | \$23,551,494 | \$128,325,074 |
| Indirect Effect | \$11,471,705  | \$6,129,951  | \$17,601,656  |
| Induced Effect  | \$11,143,820  | \$3,675,537  | \$14,819,357  |
| Total Effect    | \$127,389,110 | \$33,356,984 | \$160,746,094 |

# **Employment Impact**

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 458        | 430        | 888   |
| Indirect Effect | 53         | 56         | 108   |
| Induced Effect  | 50         | 38         | 88    |
| Total Effect    | 561        | 524        | 1,084 |

# **Dorchester County**

# **Economic Impact**

|                 | Operations   | Employment   | Total        |
|-----------------|--------------|--------------|--------------|
| Direct Effect   | \$31,583,191 | \$15,963,951 | \$47,547,142 |
| Indirect Effect | \$2,098,221  | \$1,540,374  | \$3,638,595  |
| Induced Effect  | \$1,909,427  | \$974,393    | \$2,883,820  |
| Total Effect    | \$35,590,838 | \$18,478,717 | \$54,069,555 |

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 143        | 95         | 238   |
| Indirect Effect | 9          | 6          | 15    |
| Induced Effect  | 8          | 4          | 12    |
| Total Effect    | 160        | 105        | 264   |

# Kent County

#### **Economic Impact**

|                 | Operations   | Employment   | Total        |
|-----------------|--------------|--------------|--------------|
| Direct Effect   | \$16,822,576 | \$11,531,646 | \$28,354,222 |
| Indirect Effect | \$2,221,183  | \$2,006,850  | \$4,228,033  |
| Induced Effect  | \$1,999,293  | \$1,739,739  | \$3,739,032  |
| Total Effect    | \$21,043,056 | \$15,278,235 | \$36,321,291 |

# **Employment Impact**

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 82         | 70         | 153   |
| Indirect Effect | 11         | 9          | 19    |
| Induced Effect  | 10         | 9          | 19    |
| Total Effect    | 103        | 88         | 191   |

# Queen Anne's County

# **Economic Impact**

|                 | Operations   | Employment   | Total         |
|-----------------|--------------|--------------|---------------|
| Direct Effect   | \$40,172,798 | \$48,264,243 | \$88,437,041  |
| Indirect Effect | \$6,369,889  | \$14,173,605 | \$20,543,494  |
| Induced Effect  | \$4,639,821  | \$6,941,816  | \$11,581,637  |
| Total Effect    | \$51,182,509 | \$69,379,660 | \$120,562,169 |

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 194        | 283        | 478   |
| Indirect Effect | 30         | 61         | 91    |
| Induced Effect  | 22         | 32         | 54    |
| Total Effect    | 246        | 376        | 622   |

# Somerset County

#### **Economic Impact**

|                 | Operations  | Employment   | Total        |
|-----------------|-------------|--------------|--------------|
| Direct Effect   | \$5,249,443 | \$23,506,516 | \$28,755,959 |
| Indirect Effect | \$687,832   | \$5,975,546  | \$6,663,378  |
| Induced Effect  | \$637,467   | \$3,545,853  | \$4,183,320  |
| Total Effect    | \$6,574,741 | \$33,027,913 | \$39,602,654 |

# **Employment Impact**

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 26         | 204        | 230   |
| Indirect Effect | 4          | 28         | 31    |
| Induced Effect  | 3          | 17         | 20    |
| Total Effect    | 32         | 249        | 281   |

# Talbot County

# **Economic Impact**

|                 | Operations   | Employment   | Total        |
|-----------------|--------------|--------------|--------------|
| Direct Effect   | \$26,372,887 | \$34,925,494 | \$61,298,381 |
| Indirect Effect | \$5,016,903  | \$6,316,729  | \$11,333,632 |
| Induced Effect  | \$4,308,060  | \$8,332,599  | \$12,640,659 |
| Total Effect    | \$35,697,840 | \$49,574,820 | \$85,272,660 |

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 116        | 115        | 231   |
| Indirect Effect | 21         | 25         | 46    |
| Induced Effect  | 19         | 36         | 55    |
| Total Effect    | 156        | 176        | 332   |

# Wicomico County

#### **Economic Impact**

|                 | Operations    | Employment    | Total         |
|-----------------|---------------|---------------|---------------|
| Direct Effect   | \$106,022,360 | \$108,125,810 | \$214,148,170 |
| Indirect Effect | \$29,680,416  | \$43,346,755  | \$73,027,171  |
| Induced Effect  | \$27,314,280  | \$34,361,174  | \$61,675,454  |
| Total Effect    | \$163,017,040 | \$185,833,690 | \$348,850,730 |

# **Employment Impact**

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 438        | 574        | 1,012 |
| Indirect Effect | 114        | 166        | 280   |
| Induced Effect  | 118        | 148        | 266   |
| Total Effect    | 669        | 889        | 1,558 |

# Worcester County

# **Economic Impact**

|                 | Operations   | Employment    | Total         |
|-----------------|--------------|---------------|---------------|
| Direct Effect   | \$57,471,564 | \$70,574,460  | \$128,046,024 |
| Indirect Effect | \$12,014,040 | \$16,818,710  | \$28,832,750  |
| Induced Effect  | \$11,408,765 | \$17,706,862  | \$29,115,627  |
| Total Effect    | \$80,894,369 | \$105,100,032 | \$185,994,401 |

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 260        | 364        | 624   |
| Indirect Effect | 54         | 73         | 127   |
| Induced Effect  | 57         | 88         | 145   |
| Total Effect    | 371        | 525        | 896   |

# Eastern Shore Region

## **Economic Impact**

|                 | Operations    | Employment    | Total           |
|-----------------|---------------|---------------|-----------------|
| Direct Effect   | \$593,715,600 | \$418,943,820 | \$1,012,659,420 |
| Indirect Effect | \$139,985,020 | \$119,568,440 | \$259,553,460   |
| Induced Effect  | \$134,331,300 | \$119,373,460 | \$253,704,760   |
| Total Effect    | \$868,031,902 | \$657,885,720 | \$1,525,917,640 |

|                 | Operations | Employment | Total |
|-----------------|------------|------------|-------|
| Direct Effect   | 2,522      | 2,328      | 4,850 |
| Indirect Effect | 583        | 482        | 1,065 |
| Induced Effect  | 617        | 549        | 1,166 |
| Total Effect    | 3,722      | 3,359      | 7,080 |

# **Appendix B- FTE Conversions**

## **Employment Impact Conversion to Full-Time Equivalent Jobs**

|                                   | IMPLAN<br>Report Jobs<br>& Current<br>Jobs | FTE    |
|-----------------------------------|--|--------|
| Caroline County                   | 1,259                                      | 1,196  |
| Cecil County                      | 3,254                                      | 3,092  |
| Dorchester County                 | 984  | 924    |
| Kent County                       | 559  | 502    |
| Queen Anne's County               | 2,093                                      | 1,654  |
| Somerset County                   | 753  | 707    |
| Talbot County                     | 984  | 912    |
| Wicomico County                   | 4,464                                      | 3,579  |
| Worcester County                  | 2,097                                      | 1,948  |
| Eastern Shore Region <sup>7</sup> | 17,878                                     | 16,298 |

<sup>&</sup>lt;sup>7</sup> 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: <u>http://www.nea.org/assets/docs/HE/economy.pdf</u>.

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 higherquality 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.