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The Foundation for Educational Choice
STATE RESEARCH

Tax-Credit Scholarships in Maryland

Forecasting the Fiscal Impact

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Executive Summary

This study seeks to inform the debate over a proposal in Maryland to give tax credits to businesses for contributions to organizations that provide scholarships to K-12 private schools or which contribute to innovative educational programs in the public schools. The study constructs a model to determine the fiscal impact of a tax-credit scholarship program on the state and on local school districts. We estimate the impact that the scholarship portion of the tax-credit program will have on the distribution of students between public and private schools in Maryland by estimating the likely transfer of students from public to private schools depending on the average dollar value of scholarships. We use these estimates to determine the impact that tax-credit scholarships will have on state education aid to school districts and to calculate the "break-even" rate of transfer, or the number of public school students who would have to transfer to private schools in response to the scholarship program, in order to make the tax-credit scholarship program (both the scholarship and innovative education program for public schools portions) fiscally neutral from the perspective of Maryland state government. We compare the revenue and expenditure impacts of the scholarship and contributions for innovative educational programs on school districts to determine the net impact of the tax-credit program on school district finances and the resources available to educate each child in Maryland's public schools.

In addition to expanding educational opportunities to Maryland families of limited means (improving the equity of its education system) and providing funding for innovative educational programs in the public schools, the Building Opportunities for All Students and Teachers (BOAST) tax-credit program will generate fiscal benefits for local school districts, increasing the available resources for students who remain in public schools. Because much of their revenue does not vary with enrollment, school districts will retain much of the funding associated with students who use scholarships to transfer from public to private schools. The overall impact on public schools would be to increase the financial resources available per student. Depending on a few key program variables and design elements, the BOAST proposal can also result in large fiscal savings to the state budget.

Key findings include:

- The total fiscal impact of the BOAST proposal depends primarily on the number and percentage of public school students who receive scholarships. This in turn depends on a number of program design factors, including income eligibility levels, the size of the scholarships, and the total

amount of available scholarship funding. The study uses data from the U.S. Census Bureau and other sources to estimate how public school families might respond to a tax-credit scholarship program with various design features.

- The State of Maryland receives a net fiscal benefit, in the form of reduced per-pupil state education aid expenditures, for each public school student who receives a BOAST scholarship, as long as the value of the scholarship is lower than the cost of the tax credit awarded to fund it.
- Under almost all scenarios, the scholarship portion of the BOAST proposal generates large net fiscal benefits for the State of Maryland. Under many, but not all, scenarios, the net fiscal benefits of the scholarship portion of BOAST are large enough to offset or "pay for" the innovative education program for public schools' portion of the BOAST proposal.
- In the first year of the program, 10,546 public school students will have to receive a scholarship for a $50 million tax-credit program to "break even" or to result in no additional expenses for the state. The break-even number of public school students declines in each year of the program.
- The scholarship portion of the BOAST proposal will produce enough savings in per-pupil state education aid to pay for the tax-credit cost of contributions for scholarships and contributions for innovative public school programs. BOAST will generate state savings of more than $133 million over 10 years, if at least two-thirds of the scholarships awarded go to public school students and their average value is between $1,500 and $2,500.
- If 80 percent of scholarships are awarded to public school students, then net state benefits can be as high as $267 million over 10 years, depending on the average value of scholarships. If all scholarships are awarded to public school students, then savings can be as high as $472 million over 10 years.
- In no scenarios does the BOAST proposal adversely affect the fiscal situation of local school districts or the per-student resources available to them. Because only a portion of revenue (state education aid) is reduced when a student receives a scholarship and leaves a local district, while a majority of revenue remains and a portion of the expenses associated with educating that student reduced, the resources available to students who remain in public schools increase. These results are robust even under unrealistic, high assumptions about the percentage of local school district costs that are fixed.

Introduction

Proposals to increase educational opportunities and choices for students of different backgrounds, abilities, needs, and economic circumstances are increasing throughout the country. Today, 15 states and the District of Columbia have 24 school choice programs, serving about 180,000 students who attend private schools. The educational costs of an additional 650,000 students are reduced by personal tax-credit programs. In part, this reflects increasing public sentiment for the concept of school choice; a majority of U.S. citizens now support it.[1]

Over the last decade a number of states, including Arizona, Florida, Iowa, Pennsylvania, and most recently Georgia and Indiana, have implemented programs that grant tax credits for contributions to organizations that provide scholarships for children to attend the private school of their choice. Three other states— Minnesota, Illinois, and Rhode Island—have implemented tax-credit programs with similar tax-code features. In Maryland, a majority favor school choice. A 2008 public opinion poll found that over one-half of likely voters in Maryland support tax-credit funded scholarships for students to attend private schools. A majority of Democrats and Republicans favor tax-credits scholarships. Support for tax-credit funded scholarships was highest among those with family incomes below $25,000, who are least likely to have school choice options without scholarship opportunities.[2]

Maryland families with children in grades K-12 may exercise constrained school choice:

- More than 104,000 K-12 children in Maryland attend private schools.[3]
- More than 24,000 Maryland students are home-schooled.[4]
- About 12,000 students attend charter schools.

Highly constrained school choice exists in Maryland, and the rest of the country, based on family mobility and choosing a place of residence. Because higher-quality schools often are found in communities with higher housing prices, this form of school choice is unaffordable to many families. Throughout the United States, the more affluent a family the greater is their ability to choose the schools they prefer for their children. Maryland families in particular tend to sort themselves among schools and school districts largely on the basis of parents' income and education. If tuition assistance is made available directly to parents, in order to give families more choices among schools, we

would likely see less residential segregation on the basis of parental income and education.

This study uses empirical methods and the tools of economic analysis to examine the fiscal impacts of a tax-credit-funded educational improvement and school choice program in Maryland. Specifically, we examine provisions of the BOAST proposal; however the findings and principles in this analysis are applicable to any proposed tax-credit-funded scholarship and educational improvement program.

Many well-meaning individuals who are deeply concerned about K-12 education may ignore, on principle, how market forces influence the behaviors of families and schools. But K-12 education is influenced by economics, indirect and direct incentives, and market forces, just as are other important policy issues such as health care. School choice occurs even in the absence of official or legislatively enacted school choice policies. Unfortunately, the market for K-12 education without universal school choice contains significant imperfections that prevent many families from being able to send their children to the schools that best meet their needs.

Our analysis begins with a brief discussion of how Maryland funds elementary and secondary education. We examine the demographics of public and private schools in Maryland and estimate the impact on public and private school enrollments of a program that provides tax credits for donations to support private school scholarships. We show how the expenditures and revenues of Maryland school districts vary with changes in student enrollment, and we develop a model to estimate the fiscal impacts of a tax-credit funded educational improvement and scholarship program on Maryland's state budget and those of local school districts. Finally, we demonstrate how a tax-credit-funded scholarship program can produce enough savings in state education aid payments to also pay for a tax-credit program for donations to fund innovative programs in local public schools.

How Maryland Funds Public Schools

The expense of educating children in Maryland's public schools is shared primarily between the state and local governments, with the state providing just over 46 percent, local (county governments) providing about 47 percent, and the federal government just over six percent.[5]

Maryland's school finance system was fundamentally restructured in 2002 with the passage of SB

856, the "Bridge to Excellence Act." The primary changes made by the Bridge to Excellence Act include:

- Establishing a "foundation" of funding for each student in the public schools. This base or "target per-pupil foundation amount" increases each year based on increases in the estimated cost of living.
- Setting state funding for kindergarten students on par with funding for students in grades 1-12.
- Collapsing about 50 school funding programs into eight.
- Resulted in an overall increase in state education aid to school systems and increased the state's cigarette tax to fund the increases.[6]

In addition to establishing and funding the "foundation" portion of Maryland's school funding system—the primary and largest source of state education aid—the Bridge Act provides operating funding to school systems through several other programs:

- Geographical Cost of Education Index funding, which increases allocations to school systems in areas estimated to have higher living costs;
- Transportation funding;
- Compensatory funding based on the number of students eligible for the federal free or reduced-price lunch program (at or below 185 percent of federal poverty guidelines);
- Funding based on the number of students classified as having limited English language proficiency;
- Funding based on the number of students classified as needing special education services;
- Funding for a guaranteed tax base program, providing extra state funding to school systems with relatively low levels of local taxable wealth per student.

Table 1 shows that the total amount of education aid provided by the State of Maryland to local school systems was more than $5.1 billion in fiscal year 2009.[7] The amount of state funding each Maryland school system receives is determined through a complex set of calculations. In exchange for increased school funding, the Bridge Act required the state to hold school systems accountable for meeting student achievement benchmarks, including sanctions for low school performance.

There is a single school district in the City of Baltimore and each of the 23 counties. Each of the 24 school systems is fiscally dependent on its county government (or the City of Baltimore). Financial support from local sources for the operation of public elementary and secondary schools is derived from general fund revenues of the 24 political subdivisions. Local (City of Baltimore and each county) governments derive their

tax revenues from two primary sources – the property tax and the income tax. All subdivisions can levy an income tax surtax on the amount of the Maryland state income tax liability. School revenues are determined by local property values, income, and tax rates. In the short term, enrollment does not affect the amount of local revenue available to school systems. Over time, it is possible that enrollment changes may prompt adjustments to local revenues but more often local revenues do not decline even as enrollments do.

In FY2009, Maryland state government budgeted $5.1 billion for K-12 education. Table 1

Major state funding for K-12 education (FY2009)

Bridge to Excellence	Amount *(thousands)*	Budget Percentage
Foundation Program	$2,794,713	54.6%
Compensatory Education	$914,367	17.8%
Limited English Proficient	$143,946	2.8%
Special Education Formula	$272,742	5.3%
Transportation Aid	$225,078	4.4%
Guaranteed Tax Base	$89,883	1.8%
Supplemental Grants	$36,638	0.7%
Bridge Total	$4,477,367	87.4%
All Other Funds	$645,238	12.6%
Total State Funding	**$5,122,605**	**100.0%**

Source: Maryland State Department of Education, *The Fact Book 2008-2009.*

How Maryland School Funding Varies with Enrollment

The relationship between enrollment levels and school funding is particularly important for determining the fiscal impact of a tax-credit funded educational improvement proposal that includes a scholarship program for students to attend private schools. Funding from different sources responds to changes in enrollment in different ways. While a majority of school funding that comes from the state varies with enrollment, local school funding does not. In fiscal year 2009, more than $3.8 billion, or at least 75 percent of state support for public schools, was calculated on the basis of enrollment. It thus varies as a district adds or loses students, and also according to the weights assigned to each student. The remaining $1.3 billion in state aid may vary indirectly or incompletely with enrollment.[8]

Some revenues from federal sources are affected by enrollment levels but even they are calculated on the basis of complex formulas with provisions that result in funding not varying directly with en-

rollments. Federal funds for special needs students are distributed through the Individuals with Disabilities Education Act (IDEA). This law contains a grant formula that depends on the number of students in a district identified as receiving special education services and the statewide average spending per student. However, districts are guaranteed to receive at least 85 percent of their prior-year allocation, even if the number of eligible students declines. Finally, each state, regardless of size, is guaranteed to receive at least a certain minimum share of the total appropriation. As a result of these hold-harmless and small-state provisions, the amount of money a school district ultimately receives is only very loosely related to the actual number of students in that district identified as having special education needs. For the sake of this analysis, we will assume that 15 percent of a district's per-student IDEA funding will go away when a special education student leaves a Maryland public school to attend a private school. This is a conservative assumption because districts are guaranteed to receive at least 85 percent of their prior-year funding, and Title I funding would only be affected if a scholarship program dramatically altered the demographic composition of a school district (an unlikely scenario). Because federal funding for schools is dispersed across a large number of funding streams, it is difficult to determine the exact percentage of federal funding that varies with enrollment.

Table 2 uses fiscal year 2009 funding levels as reported by the Maryland Department of Education. The table shows that, for each student, the state provides an average of about $6,071 in education aid. Of the $6,071, about 75 percent, or $4,553, is directly responsive to changes in enrollment levels. The Bridge to Excellence Act contains provisions for annual per-pupil increases in the largest source of state aid. Education aid is typically the largest or second largest expense of state governments and because of the fiscal stresses experienced by state governments everywhere as a result of a severe national recession, many states are looking for ways to cut back or curtail growth in state education aid.

For the 2008-09 school year, when a new student entered a school district, the district received on average $4,553 in additional state funding. Conversely, when a student left a district, state per-student funding was reduced by $4,553 on average, with the district retaining $1,518 in state funds. Most of the $831 from federal sources also remains available to school districts. In the long run, all revenue is at least potentially variable with enrollment, with the exact extent dependent upon the decisions of local school systems and those who approve their budgets. However, these figures give an accurate picture of how revenue changes with enrollment in the shorter term.

In 2009, Maryland's state and local governments combined to budget more than $10.3 billion for K-12 education—and more than $12,000 per student. Table 2

Maryland public school revenue (2009)

State State Sources	Amount	Per Student	Percent
Funding Based on Enrollment	$3,841,953,062	$4,553	75%
Categorical Aid	$1,280,651,021	$1,518	25%
Total State Sources	$5,122,604,083	$6,071	46.36%
Local Sources	$5,226,557,761	$6,194	47.30%
Federal Sources	$701,587,013	$831	6.35%
Total	**$11,050,748,857**	**$13,096**	**100%**

Source: Author's calculations. Maryland State Department of Education, *The Fact Book 2008-2009.*

Table 3 further illustrates how school revenues are affected by enrollment declines. The table shows how Maryland's total and per-student school district revenues would have been affected if K-12 enrollment declined by 20,000 students in the 2008-09 school year and had been 823,861 rather than the actual figure of 843,861 reported by the Maryland State Department of Education.

Despite less overall revenue collection, a 20,000 student enrollment decline would lead to more funding per student—more than $80 in additional funds per student. Table 3

Change in Maryland school district revenues resulting from a decline in enrollment (from 843,861 to 823,861)

Revenue Source	Amount	Change from Actual 2007-2008 Revenue	Per Student	Change Per Student
State Funding Based on Enrollment	$3,750,896,524	($91,056,538)	$4,553	$0
State Categorical Aid and Equalization	$1,280,651,021	$0	$1,554	+$37
Total State Sources	$5,031,547,545	($91,056,538)	$6,107	+$37
Local Sources	$5,226,557,761	$0	$6,344	+$150
Federal Sources	$596,348,961	$0	$724	($107)
Total	**$10,854,454,267**	**($91,056,538)**	**$13,175**	**+$80**

The table shows that, compared to actual revenues for the 2008-09 school year, the decline of 20,000 students would lower total district revenues by $91 million, but per-student revenues would actually increase by $80 per student.

The implications of this analysis are:

- Under the current system of Maryland public school funding, a decline in local district student enrollments, while resulting in a decline in total revenues, actually slightly increases, on average,

the a majority available for educating each student who remains in the district.

- Because local school funding does not vary directly with enrollment in the short term, a loss of students cannot reduce per-student revenues available to school districts.
- Smaller public school enrollments can produce large state education aid savings for the state without reducing the per-student revenues available to local school districts.
- Maryland could, as an alternative to realizing savings from enrollment losses, choose to use some or all of the savings in education aid to fund other educational programs or education reform initiatives.

As long as the revenue loss associated with each student who leaves a school district is lower than the amount by which total school district expenditures are reduced when a student leaves, a local school district cannot be made worse off financially by the loss of a student. In Maryland, the loss of $4,553 on average (2007-08) in state funds, along with a small amount of federal funds (estimated at 15 percent for this analysis) is lower than the expenditures attributable to each child. In the next section we will consider the extent to which these expenditures vary with enrollment.

How School District Expenditures Vary with Enrollment

Estimating the fiscal impact of a tax-credit-funded scholarship program that induces enrollment changes in Maryland's public school districts requires not only an understanding of how state education aid to communities is affected, but also some estimate of how the expenditures of school districts change with enrollment changes.

When students leave a school district, the district loses state aid associated with those children, but expenditures associated with educating children also decline. One criticism of school choice is that the loss of students is not accompanied by a decrease in expenses. While that may be true in the very short term (less than one school year) or with very small enrollment changes, the conclusion that expenditures can never decline when enrollments drop produces logically and empirically implausible conclusions. Increasingly, studies have demonstrated that local school district expenditures are sensitive to declines in enrollment.[9]

When estimating the amount that school district expenditures increase or decrease with the gain

or loss of each student (the variable or marginal expenditures costs), we typically employ an econometric that uses detailed school district financial data from all local school districts over a period of 10 or more years. In most states there are hundreds of local school districts for which data can be used to estimate marginal costs and to determine the portion of school district expenditures that are variable and the percentage that are fixed. With just 24 districts, however, the same econometric procedures cannot be used to produce accurate estimates.

The difficulty in estimating marginal costs

In addition to the statistical limitations associated with deriving estimates from a small number (24) of school districts, there are no publicly available data for school districts in Maryland that allow for a true estimation of the variable or marginal cost of educating each additional student. Research on education finance generally uses expenditures or revenues as synonymous with "costs" but these measures do not reflect costs in a traditional economic sense. Instead, we know average costs, or the average amount districts spend per pupil on both variable and fixed (e.g., buildings, supplies, etc.) costs. When average costs decrease as the number of students increases, marginal costs will be lower than average costs. This is because school districts have substantial fixed costs in the short run, which means that average fixed costs decrease as the number of students increases. Therefore, removing a small number of students from a district will not decrease district spending by the full amount of average per-pupil spending.

The amount of the decrease is equal to the district's marginal cost—the cost of educating one fewer student. School officials and others often conclude that the marginal cost of a single student is zero. However, if a district's enrollment shrinks by five percent, the district would certainly have some savings—but how much? Would costs also be reduced by five percent? Although our data do not provide estimates of marginal cost, we do know average costs, or the average amount districts spend per pupil on both variable and fixed costs.

When average costs decrease as the number of students increases, marginal costs will be lower than average costs. But in the long run, districts can consolidate fixed costs (such as buildings and classrooms) and marginal costs will approach average costs, eliminating short-run economies of scale.

Instead of using econometrically derived estimates of marginal expenditures (costs), we use estimates of variable or marginal costs that are very conservative. That is, we assume that a high percent-

age (50 percent) of expenditures in local school districts are fixed, and do not vary with changes in enrollment. The effect of using this conservative estimate of marginal costs is to minimize the estimated cost reductions school districts would realize from a decline in enrollment under a tax-credit-funded tuition scholarship program and to make it more difficult for a tax-credit-funded scholarship program to be fiscally neutral from the perspective of local school districts.

Assuming that 50 percent of the expenditures of educating a public school student in Maryland are variable results in a estimate of the marginal cost associated with one additional or fewer student of $6,255. (Remember, marginal costs initially exceed average costs but over time they become more equivalent.)

Because the change in expenditures associated with each student who enters or leaves Maryland's public schools is greater than the state education aid per student, the loss of students from a school district would have a net positive impact on local school district finances. In the 2008-09 school year, the loss of a student from a district would mean the loss of about 36 percent of revenues associated with that student (about $4,553 in state education aid plus 15 percent or $124 of federal aid = $4,678, divided by $13,096), leaving a majority of the remaining $8,418 in per-student revenues in the district. At the same time, the district would see a decrease in expenditures of $6,255. Thus school districts are financially better off even with the loss of state aid.

Each year thousands of schoolchildren transfer between school districts; individual districts lose and gain students; and local districts regularly adjust their expenditures to accommodate these changes. One-third of Maryland school districts experienced enrollment declines of at least one percent between the 2006-2007 and 2007-2008 school years. The Baltimore City schools saw a decline of 3.8 percent, according to the National Center for Education Statistics.

The net change in public school enrollment due to any recently proposed tax-credit scholarship program is not likely to subject school districts to annual enrollment changes much different than occur annually as a result of normal demographic trends and transfer patterns of families with school aged children. Our analysis shows that concerns over the potential fiscal impacts of school choice on local school districts not only are overstated, but they also fail to understand the fundamental local district fiscal effect from expanding school choice in Maryland: an increase in the resources available for each student who remains in the school district.

Demographics of Maryland's School-Age Children

According to the National Center for Education Statistics, based on data submitted by Maryland's school districts, one-third of students in Maryland's public schools are eligible to participate in the federal free or reduced lunch program (families with incomes at or below 185 percent of federal poverty guidelines). The U.S. Census Bureau's *American Community Survey,* an independent data source, suggests that about 25 percent of public school children in Maryland are eligible for the federal free or reduced lunch program.

Poverty guidelines are based on income in relation to family size, and as Table 4 shows, a family of four can earn up to $40,793 in 2009 and still be at 185 percent of federal poverty guidelines.

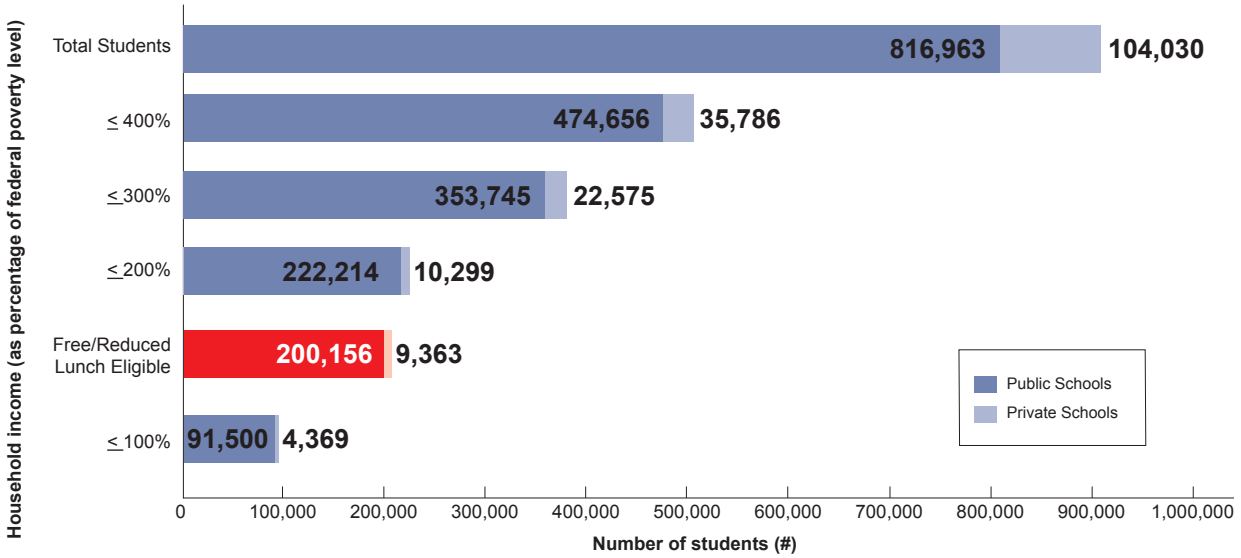
The federal poverty level for a family of four is about $22,000. The same family can earn about $40,000 to qualify for free or reduced lunch. Table 4

Federal poverty income guidelines (2009)

Family Size	Federal Poverty Level, Income	185% x Federal Poverty Level
1	$10,830	$20,036
2	$14,570	$26,955
3	$18,310	$33,874
4	$22,050	$40,793
5	$25,790	$47,712
6	$29,530	$54,631
7	$33,270	$61,550
8	$37,010	$68,469

About 43% of public school students and 22% of private school students meet scholarship eligibility at 300% of federal poverty level. Figure 1

Household income (as percentage of federal poverty level) by number of students (#)



Source: Author's analysis. U.S. Census Bureau, *American Community Survey* (2006-2008), data for Maryland.

We used Maryland data from the U.S. Census Bureau's *American Community Survey* (2006-08) to estimate the number of Maryland schoolchildren in families at or below 185 percent of federal poverty guidelines, as well as other multiples of poverty eligibility. Our results indicate that more than 200,000 students ages 5-17 in K-12 public schools live in families at or below 185 percent of federal poverty guidelines (see Figure 1).

Characteristics of public and private school children in Maryland

According to the Maryland State Department of Education, about 11 percent of Maryland K-12 school-age students attend private schools. In the absence of a universal school choice program, families will largely exercise school choice by living in communities that best match their preferences for educational services or by paying to have their children attend private schools. Without a universal choice program, families and schoolchildren segregate themselves along lines of income, parental educational attainment, and race and ethnicity.

Segregation along income lines is more apparent in Maryland than in many states. An examination of the characteristics of Maryland schoolchildren provides some indications of the tendency to segregate in the absence of school choice.

- The percentage of children from lower- and middle-income families who are attending private schools in Maryland is much lower than the U.S. average, but among higher-income families, the percentage of children in Maryland who are attending private schools is much higher than the U.S. average (see Figure 2).
- Only 5.9 percent of students in Maryland public schools who come from families with an annual income between $35,000 and $50,000 attend private schools compared to 9.9 percent throughout the United States, while 32 percent of children in families making at least $150,000 attend private schools in Maryland compared to 22 percent nationally.
- Figure 3 shows that as income increases, families in Maryland are much more likely to choose private schooling. Lower- and middle-income families are the most constrained in their choice of schooling because they cannot afford to have their children attend private school or to live in communities with the most desirable public schools.

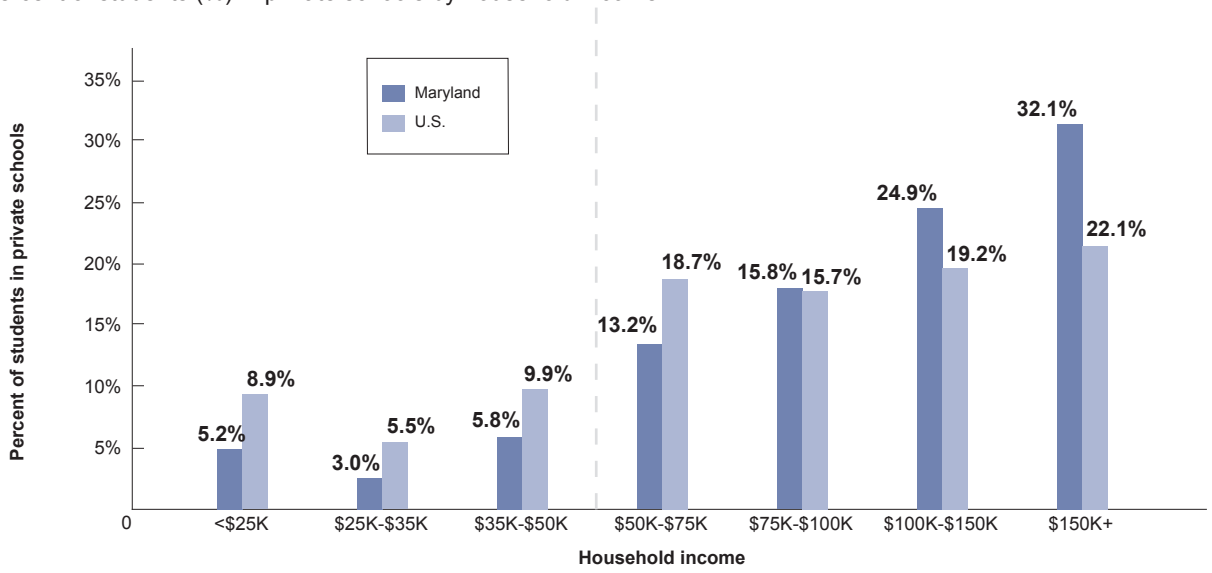
The demand for private schooling in Maryland increases significantly as family income increases (Figure 4), suggesting an income elasticity of demand for private schooling of approximately 1.0 (except at the lowest income level, which may reflect greater scholarship opportunities available for students in the lowest income category). Income elasticity refers to the change in demand for pri-

vate schooling that occurs with each percentage-point change in family income. An elasticity of 1.0 indicates that, if family income doubled (an increase of 100 percent), there would be a corresponding increase in private school attendance of 100 percent. Together, these data suggest:

Maryland students from lower income families are less likely to attend private schools than students from higher income families.

Figure 2

Percent of students (%) in private schools by household income

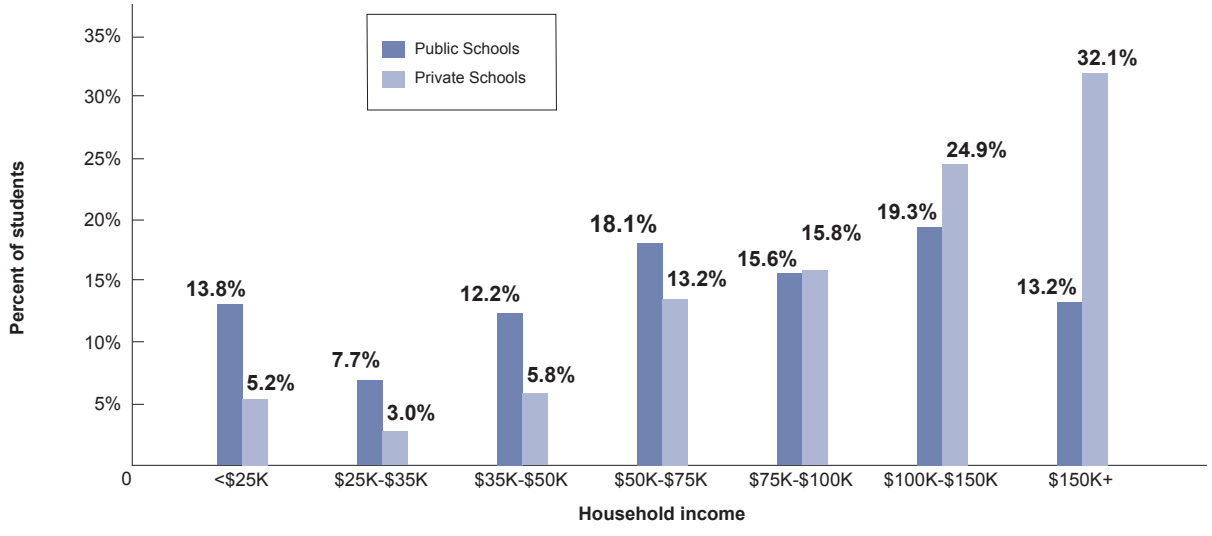


Source: Author's analysis. U.S. Census Bureau, *American Community Survey* (2006-2008), data for Maryland.

In Maryland, household income correlates with type of school attendance.

Figure 3

Percent of students (%) by household income and school type



Source: Author's analysis. U.S. Census Bureau, *American Community Survey* (2006-2008), data for Maryland.

- There are substantial economic differences in the composition of public versus private schools in Maryland, indicating a difference in the ability of parents to choose private schools for their children.
- The rate of private school enrollment among Maryland middle- to higher-income families, compared to enrollment among lower-income families, indicates that a large percentage of Maryland families view the public schools as a less attractive option for educating their children and that family income strongly influences the ability of families to exercise their preference for educational services.
- Without increased efforts to introduce more school choice programs, the significant segregation along income lines that is apparent in Maryland schools will likely continue.

Proposals for Tax-Credit Supported Scholarships

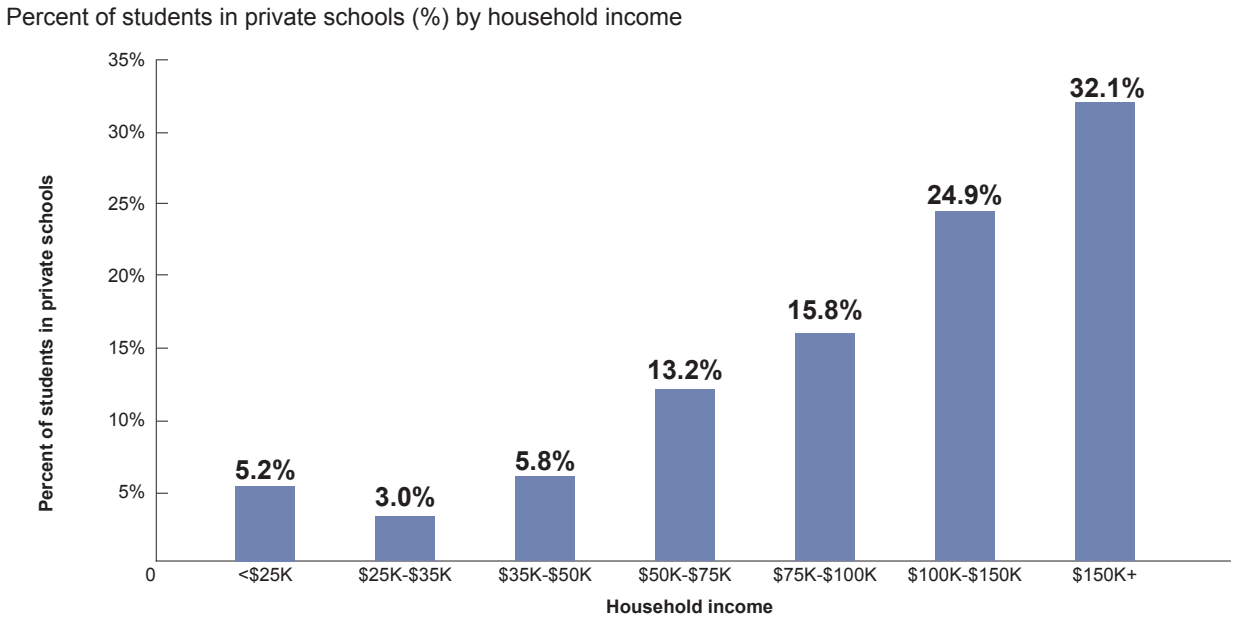
Along with economic, demographic, and other factors, the perceived quality of public schools influences the demand for private schooling in a state and a community. Our review of the demographics of Maryland's public and private schools suggests that like most states, there is dramatic separation of students along income lines in Maryland. At the same time the demand for private schooling by lower-income and minority students likely is not satisfied, largely because of the income constraints their families are more likely to face.

Tax-credit scholarships are one method of increasing parents' options for educating their children. Proposals for tax-credit supported scholarship programs have arisen, in part, responding to concerns about the quality of public schooling and the unequal access to school choices that characterizes K-12 education in Maryland. But there is also recognition that both schools and businesses would benefit from creating a more direct way (tax credits for contributions to innovative programs) for businesses to support efforts to improve public education.

Maryland lawmakers are considering proposals to allow a tax credit to business for contributions made to organizations that provide scholarships to families who want their children to attend a private school, as well as for contributions made to support innovative programs in Maryland's public schools. Under BOAST, tax credits would be given corporate taxpayers equal to 75 percent of the dollar amount of their contribution, with caps on credits.

Total tax credits available to corporate contributors to scholarship granting organizations (SGOs) and innovative educational organizations (IEOs) are not established in the proposed legislation but in its fiscal note and analysis of the BOAST proposal, the State of Maryland Department of Legislative Services looks at comparable programs in other states and assumes a range of $50 million- $75 million in tax credits would be made available, of which 60 percent would be allocated for contributions to SGOs. For illustrative purposes and to demonstrate the fiscal impact that a program such as BOAST will have on the State of Maryland and local school districts, we assume the program would allow total tax credits to reach $50 million.

Household income affects educational choices. Figure 4



Source: Author's analysis. U.S. Census Bureau, *American Community Survey* (2006-2008), data for Maryland.

The current BOAST proposal calls for 60 percent of available tax credits to be awarded to SGOs and 40 percent to IEOs. For this amount of tax credits to be claimed, a total of $66.7 million in contributions to SGOs and IEOs would have to be made.[10] The proposal also allows up to 25 percent of contributions to SGOs to be awarded to scholarships for nonpublic school teachers to continue their training and education. For this analysis we assume that the net amount of contributions available for scholarships will be $32 million.[11]

Another way to describe the proposed tax-credit scholarship program is that it will allow the State of Maryland to leverage the interest and desire of individuals and businesses to improve educational opportunities in Maryland and to pay only 75 cents for every dollar of educational services that the tax credits provide for Maryland's schoolchildren.

Our analysis of tax-credit scholarships considers the extent to which the program will induce children currently in (or planning to attend) Maryland's public schools to transfer to private schools. During the 2008-09 school year the state paid, on average, about $6,071 for every student attending Maryland's public schools. Of that amount, about $4,553 would have been avoided for each student that did not continue in the public schools. For 2010 and beyond that amount will increase based on current provisions codified in the original Bridge to Excellence Act.

BOAST must overcome significant hurdles to achieve fiscal neutrality

For the BOAST tax-credit proposal to be fiscally neutral or better for the state budget it must:

- Induce enough students to transfer from public to private schools so that savings in state per-student education aid equals or exceeds the tax revenue foregone in the form of the tax credits awarded for contributions to SGOs.
- Induce enough students to transfer from public to private schools, at a significant enough savings in state education aid, to pay for the tax credits awarded for contributions to IEOs.

Maryland provides a significant amount (more than $6,100, of which at least 75 percent is avoided when a student leaves the public schools) of state funding for each student in public schools. This makes it relatively easy for a tax-credit scholarship program that awards tax credits at a value of 75 cents for every dollar contributed to SGOs to generate net fiscal benefits (savings in state aid greater than the cost of tax credits). Later in this report we demonstrate how, under nearly all scenarios, the SGO scholarship portion of the BOAST proposal generates from tens to hundreds of millions of dollars of fiscal savings for the State of Maryland over the next decade.

For the total coast of the BOAST proposal to achieve overall fiscal neutrality or better, however, the savings generated by the scholarship program funded by contributions to SGOs must be large enough to also pay for the tax credits awarded for contributions to IEOs. Contributions to IEOs to fund inno-

vative programs outside of the regular instructional programs of public schools represent 40 percent of the cost of the BOAST proposal. But unlike contributions to SGOs, which save state education aid for each public school student that receives a scholarship to attend a private school, IEOs generate no savings in state spending to offset the cost of the tax credits that fund them.

Forecasting the impact of Maryland's proposed BOAST program requires that we predict how parents will respond to the availability of scholarships and to whom and how those scholarships will be awarded. To estimate the number of students who will receive scholarships and attend private schools, we examine the size of the school-age population in public and private schools, the characteristics and differences of the populations, and how those differences likely will affect the demand for scholarships. We analyze the interactive effects between the volume of scholarship funds available; the average dollar value of individual scholarship awards; the total quantity of scholarship awards; the percentage of scholarships that are awarded to public school students and those currently in private schools; and the impact the transfer of public school students to private schools will have on public school enrollments and finances in Maryland.

Estimating Program Participation Levels

With the proposed tax credit, businesses can choose to pay taxes to be used for general state services, or they can contribute to a SGO to provide scholarships for students enrolling in private schools, or they can contribute to an IEO to be used to fund innovative programs in the public schools.

When businesses or individuals make a contribution to the BOAST program, they directly target their tax dollars to support education. Given this option, many businesses and individuals can be expected to contribute to the program. With the proposed BOAST tax-credit program, Maryland increases educational expenditures in a way that does not occur when state education aid is increased. The increase occurs because under the BOAST proposal, the State of Maryland awards tax credits only at a value of 75 cents for each dollar contributed to an SGO or IEO. This means that the state receives $1 of educational services at a cost of just 75 cents for each dollar contributed to SGOs and IEOs. For many businesses, the ability to target their funding to educational expenditures that would directly contribute to the education of Maryland children would be an attractive option.

Several states offer some type of tuition tax credit or deduction to assist families who want to send their children to private schools. Minnesota, Iowa, and Illinois offer a direct tax credit or deduction to parents sending their children to private schools. Arizona, Florida, Pennsylvania, Iowa, Rhode Island, and most recently Georgia and Indiana, offer credits to individuals or corporations that contribute to organizations that provide private school scholarships. The experiences of these states are directly relevant to the Maryland proposal.

Under BOAST, businesses pay to ensure their tax dollars directly support the education of Maryland's children

By donating to SGOs and IEOs and receiving a tax credit in return, businesses contribute to Maryland's public good in an amount essentially equivalent to what they would have paid to the general treasury of the State of Maryland, had they not contributed to the SGOs or IEOs. The difference is that they are able to target 75 percent of their payments to educational programs while 25 percent remains taxable, and the funds are available for all state government purposes.

In states that have enacted corporate tax-credit programs, the opportunity to direct tax payments to scholarship programs is a powerful incentive for businesses to contribute. In states such as Florida and Pennsylvania the initial caps placed on the total amount of business tax credits were reached in the first year of the program. The recent recession has reduced business and individual contributions in all areas but as the economy returns to a more normal growth trend, contributions to scholarship programs in states can be expected to again be strong.

The experience of tax-credit scholarship programs in other states clearly suggests that Maryland can reasonably expect businesses to contribute up to the maximum amount allowed by a cap if a limit of $50 million is placed on available credits, if not in the year enacted, in the first full year of the BOAST program. There are many reasons Maryland may want to provide a tax credit for businesses that contribute directly to educating the state's children. Doing so would:

- Establish a convenient and consistent mechanism and incentive for businesses to contribute directly to educating Maryland's children.
- Scholarship contributions target educational expenditures directly to families and children rather than to institutions that may reduce the amount of resources that go directly to students.

- Provide a pool of funds to initiate new programs in the public schools. Innovative programs are rarely initiated in public schools, especially during challenging fiscal conditions, because of the reluctance to reduce or eliminate spending on older or less successful programs in order to fund the new programs. The new and innovative generally are defeated by the demands of the old and unsuccessful.
- Direct resources, in the form of scholarships to students most in need of educational options and typically the least likely to benefit from general increases in school district budgets.
- Give businesses a meaningful and easy way to address their concerns about the quality of public education and its impact on business and the Maryland economy.

The fiscal impacts of BOAST depend on a number of variables

The impact that the BOAST proposal will have on public and private school demographics in Maryland, as well as on state and local finances, depends on the dollar amount of contributions, the number of available scholarships, the decisions of scholarship organizations, and the response of families of children in public and private schools to the availability of scholarships. These impacts are difficult to forecast. Program design elements and eligibility criteria will combine to influence the participation of Maryland families. In addition, as noted earlier, only the portion of the BOAST proposal directed at providing scholarships for private school attendance generates direct fiscal benefits for the state and these benefits must be large enough to also pay for the cost of tax credits awarded for contributions to the innovative education organizations that will fund public school activities, which do not produce any direct fiscal benefits on their own.

To estimate the response of Maryland families to the availability of tax-credit scholarships, we developed a model of the demand for private schooling that allows the manipulation of key policy variables and program design elements. Some of the variables are:

- Income-eligibility requirements for program participation;
- Average dollar value of tuition scholarships;
- Expected price elasticity of demand for private schooling according to income level;
- Percentage of scholarships that go to public school students versus students currently enrolled in private schools;
- Amount of state, local, and federal school district revenue that is dependent on changes in enrollment levels.

Tuition prices strongly influence the demand for private schooling

Tax-credit scholarships lower the price of private schools for students who receive them. A number of studies have estimated the increase in demand for private schooling as a result of changes in the price of the schools. The most widely cited studies indicate that the demand for private schools increases as the price declines (and the demand decreases as the price rises), a so-called negative price elasticity. The range of estimates between these studies is large. Chiswick and Koutroumanes (1996) estimate a price elasticity of about -0.5, suggesting that a 10 percent decline in the price of private schools would lead to a 5 percent increase in demand, while Gwarntey and Stroup (1997) estimate a price elasticity of -1.1, suggesting that a 10 percent decline in the price of private schools would lead to an increase in demand of 11 percent.[12] In Georgia, a 1994 study estimated the elasticity of demand for private schooling in rural school districts to be -1.07.[13] More recently, Dynarski, Gruber and Li (2009) use a detailed methodology that employed strong controls for nonprice factors that influence the demand for private schooling along with information on multichild discounts offered by Catholic schools to estimate the price elasticity of demand for private schooling. Their results suggest that the price elasticity of demand for private schooling increases among middle- and lower-income families, with the price elasticity of demand among lower-income households at -.59, compared to just -.09 for high-income households, indicating that private school scholarships are most likely to induce lower-income households to switch to private schools:

> "The results....indicate that families with the *highest* predicted probability of private school attendance are the *least* sensitive to price. .... These elasticities are statistically distinguishable from each other. These results suggest that a voucher program would disproportionately induce into private schools those who, along observable dimensions such as race, ethnicity, income and parental education, are *dissimilar* from those who currently attend private school. This is in marked contrast to the assumption made in previous studies (e.g., Figlio and Stone; Lankford and Wyckoff) that the new students that vouchers would induce into private school would look demographically *similar* to current private school students."[14]

Both the participation rate and fiscal impact of a scholarship program will be strongly influenced by the dollar value of the scholarships. To demonstrate the effect of changing the dollar value of scholarships, we consider a range of scholarship values from $1,250 to $4,250. The experience of tax-credit-funded scholarship programs in other states suggests that there is considerable variation in

the average values of scholarships. However, even relatively lower value scholarships awarded by tax-credit scholarships in other states have been shown to induce public school students to opt for private schools. It is likely that the value of scholarships in Maryland will fall within the $1,250 to $4,250 range examined in this report.

- In Pennsylvania, 38,000 students used tax-credit-funded scholarships with an average value of $1,022 to attend private schools in 2009.
- In Arizona, the average scholarship value is $1,908 for the individual tax-credit program and $2,533 for the corporate tax-credit scholarship program.
- In Florida, the maximum allowable scholarship is $3,950, and in Iowa scholarship values average $856.
- In Louisiana, state-provided scholarships to elementary school students in poor-performing schools averaged $3,919 in 2009.
- In Cleveland, a voucher program for students in low-performing schools had a maximum value of $3,105 and an average value of $2,782 for the 6,272 students who used them.
- A state of Ohio voucher program for students in chronically failing public schools had an average value of $3,959 for the 12,685 students who used them at 305 private schools in 2009.
- Tax-credit programs across the country that specifically provide scholarships to special needs children (Florida, Ohio, Georgia, Arizona, Utah) have average scholarship values of $6,000 and higher.[15]

The number of scenarios, program design combinations, and key variables that affect fiscal impacts are nearly infinite. The purpose of this report is to give interested parties a more thorough understanding of how features of the BOAST program will affect program participation and fiscal impacts.

Demand from public school students increases when scholarship values are higher

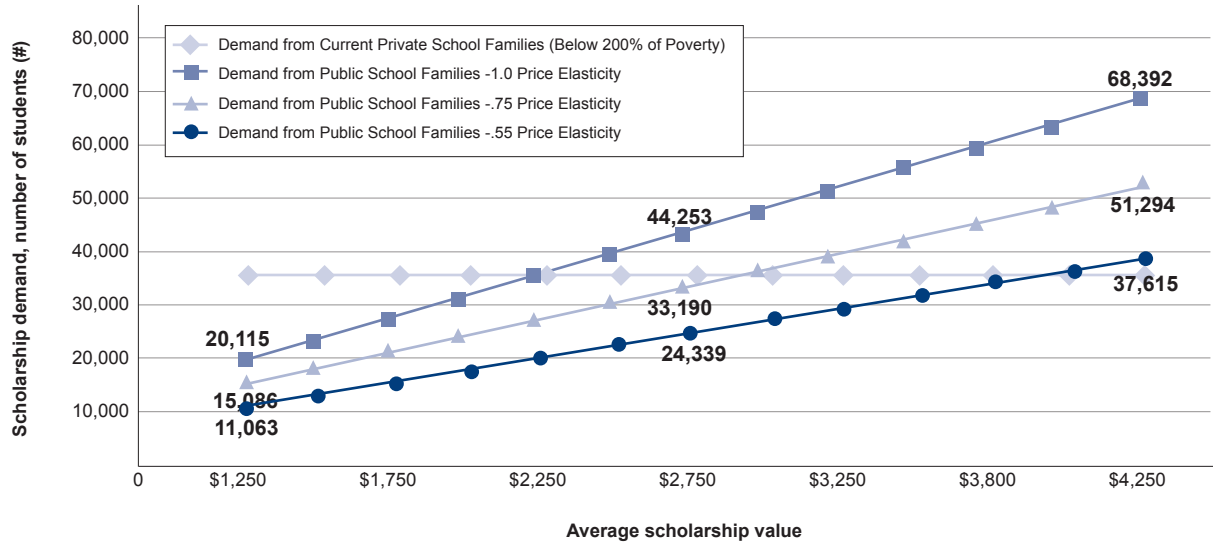
For Maryland families, a scholarship with a value of $1,250 would represent a 20 percent reduction in the estimated average 2010 private school tuition of $6,400.[16] A scholarship with a value of $4,250 represents a 66 percent reduction in the average tuition price of private schooling. To estimate program participation, we calculate the reduction in price that scholarships of various dollar values will have on the average price of tuition and apply different price elasticities of demand to the distribution of school-age children in public and private schools according to their family income and demon-

strated pattern of private and public school attendance in Maryland.

Figure 5 presents our estimate of participation in a scholarship program in Maryland at different scholarship values among Maryland's public and private school families. Using a conservative estimate of the price elasticity of demand for private schooling of -.65 (based on recent research and our review of the patterns of private school attendance by family income in Maryland), the chart shows that about 13,000 (at an average scholarship value of $1,250) to 44,500 (at an average scholarship value of $4,250) K-12 public school students, or 1.6 to 5.4 percent of students, would seek to participate in the BOAST tuition tax-credit-funded scholarship program. Using less conservative estimates of price elasticity (-1.0), similar to those found in other studies, demand would increase to between 28,100 to 68,400 depending on the average value of scholarships.

Demand for scholarships increases with scholarship value. Figure 5

Estimated demand for scholarships by average scholarship value



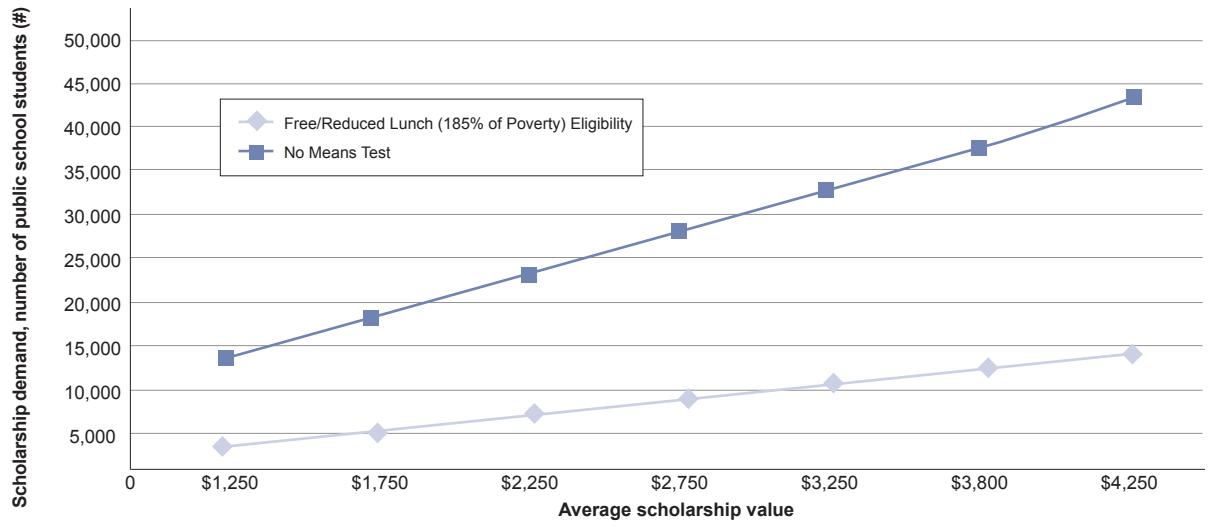
In addition to demand from public school students, current private school students can be expected to apply for scholarships. Without a solid empirical basis for estimating the percentage of eligible private school students who will seek tuition scholarships we assume that demand from current private school students will come primarily from families at or below 400 percent of federal poverty guidelines.

The BOAST proposal calls for giving priority in the awarding of scholarships to students who are eligible for the federal free or reduced school lunch program. For reasons that will be highlighted later in this study, from a fiscal perspective, it is beneficial for the BOAST program to make as many public school children as possible eligible for scholarships to encourage maximum transfer to private schools. Depending on the dollar value of scholarships, means testing or a reduction in the value of scholarships as income rises, can reduce or eliminate the net fiscal benefits of a tax-credit scholarship program.

Figure 6 shows the impact on estimated demand for scholarships among public school students if eligibility is not means tested compared to the estimated demand from public school students at or below 185 percent of federal poverty guidelines (free or reduced school lunch program eligible). The chart shows that demand for scholarships among public school families is increased fourfold if scholarships are made available without means testing for eligibility.

Means-testing for scholarship eligibility dramatically impacts the eligibility and demand for scholarships. Figure 6

Public school student scholarship demand by average scholarship value

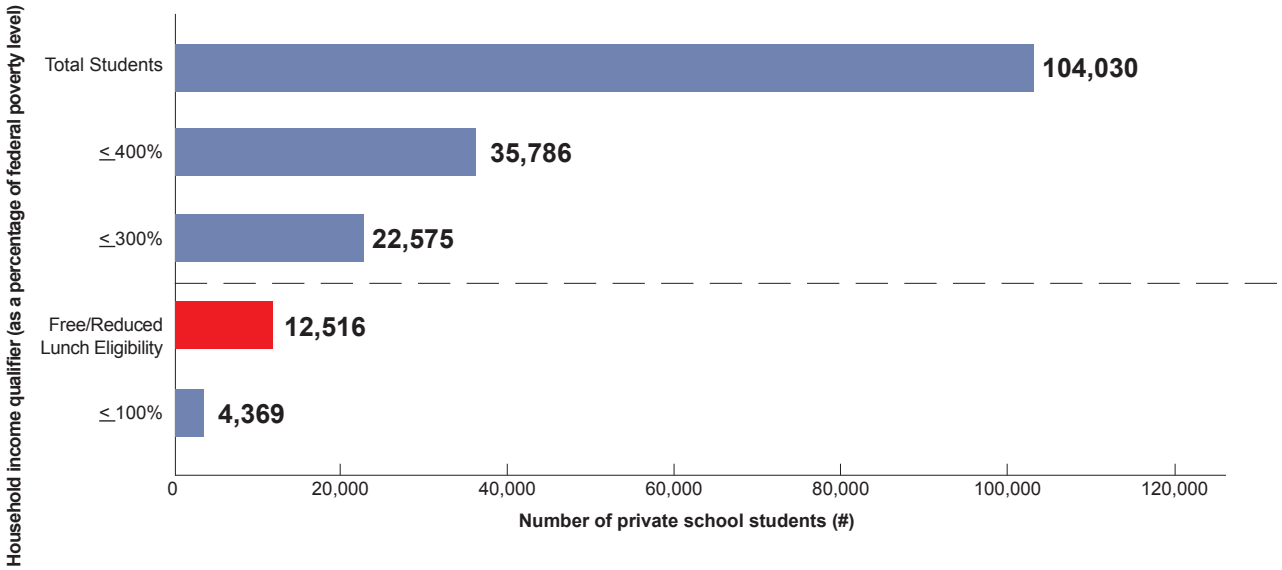


A restrictive means test (say setting income eligibility at or below poverty level) can dramatically reduce program participation because fewer public school families are eligible. In the case of Maryland's school-age children, it is estimated that participation would be further reduced because, as indicated by our demographic analysis of public and private school students, a much smaller percentage of lower-income students attend private schools in Maryland than is characteristic of the United States

as a whole (see Figure 2). As we document in subsequent sections of this report, reducing eligibility among public school families can result in lower fiscal benefits (or even fiscal losses) for a tax-credit-funded scholarship program. Thus, more restrictive means testing does not improve the fiscal impact of a program. On the other hand, restricting eligibility for participation among students currently attending private schools would yield more fiscal benefits to the state than if restrictions were applied to public school families. Because the decision to attend private schools already has been made by those students' families, Maryland would receive no fiscal benefit (in the form of reduced state education aid payments) from increasing their eligibility and providing more scholarships to current private school students. Figure 7 shows that only 12 percent of current private school students would be eligible for scholarships if their eligibility is restricted to children eligible for the free or reduced lunch program. Restricting the eligibility of current private school students would reduce the competition for scholarships and assure that more scholarships are awarded to public school students, increasing the fiscal benefits to the state from a reduction in state per-pupil education aid payments.

Only 12% of current private school students will qualify for scholarships if eligibility requires household income to meet free or reduced lunch guidelines. Figure 7

Household income qualifier (as a percentage of federal poverty level) by number of private school students



Source: Author's analysis. U.S. Census Bureau, *American Community Survey* (2006-2008), data for Maryland.

That said, there is no justification for reducing or denying one group of citizens a benefit that is available to others simply because of where they chose to educate their children. This is especially true

for lower-income families, who may have made tremendous sacrifices by enrolling their children in private schools to obtain the educational services they believe are best for their children. Nevertheless, restricting eligibility via means testing is an option in program design.

Combining supply and demand to estimate the number of scholarships

The current BOAST proposal in Maryland does not specify a dollar amount of tax credits that will be made available. As discussed earlier, using an analysis of BOAST by the State of Maryland Legislative Services Department, we assume that BOAST will make a total of $50 million in tax credits available, and for illustrative purposes, our analysis assumes that a total of $32 million in scholarship funds will be made available.

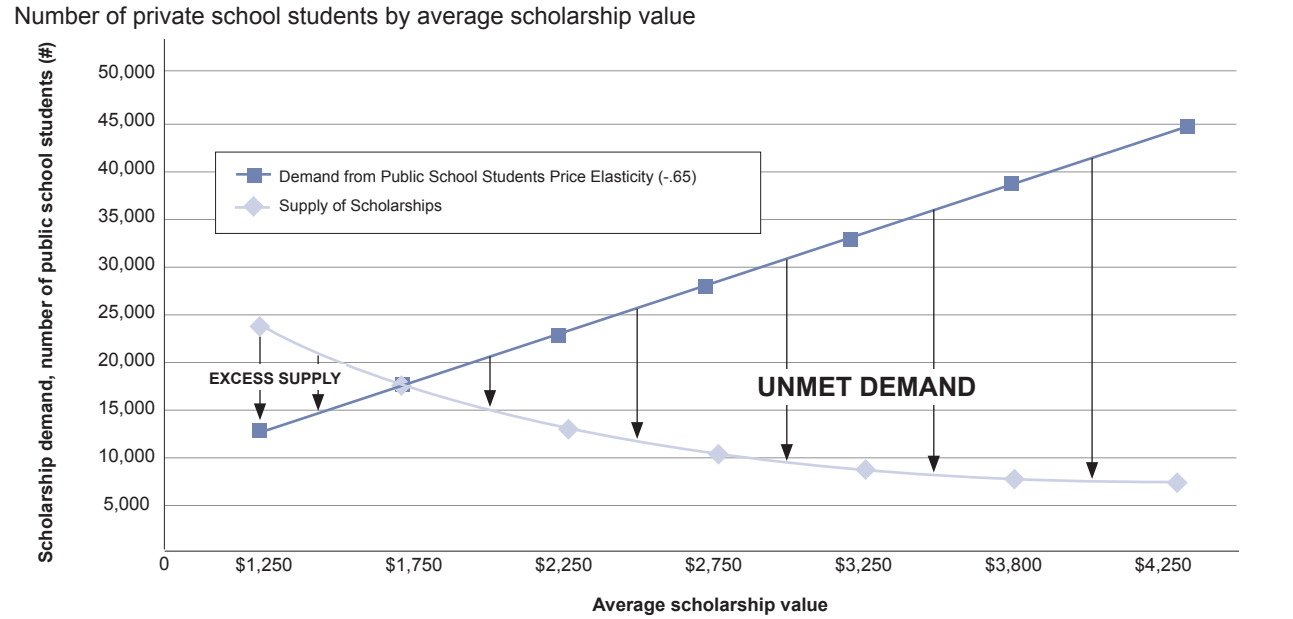
The experience of other states suggests that the number of scholarship applicants (i.e. demand) would be greater than the available number of scholarships. Although demand may not exceed the supply of scholarships in the first year, as it may take some time to develop full public awareness of the program, the proposed Maryland program virtually assures that demand will exceed the supply of available scholarships except where very low value scholarships are offered.

We have estimated that the weighted average private school tuition in Maryland is approximately $6,400, and a scholarship of $3,000 would reduce tuition by 47 percent. Using a modest estimate of price elasticity of -0.65, a 47 percent decline in private school tuition should increase demand for private schools by about 31,380 students currently enrolled in Maryland public schools. At the same time, scholarship funds would be limited to approximately $32 million, meaning that only 10,667 scholarships would be available. Thus with $32 million of scholarship money available, and with an average scholarship value of $3,000, only about 34 percent of the demand for scholarships among public school families could be met, and then only if all scholarships were awarded to public school students and none awarded to current private school students. If the average scholarship award is $2,250, demand for scholarships will be lower and the quantity of available scholarships will be greater. In this scenario, and if all scholarships are awarded to public school students, it will be possible to meet 60 percent of scholarship demand.

Figure 8 highlights the relationship between the demand for scholarships and their supply at scholarship values ranging between $1,250 and $4,250 using conservative price elasticity (-.65). The

chart clearly shows the interaction between the demand for scholarships, scholarship value, and the supply of available scholarships. Demand for scholarships increases with the value of scholarships as the number of available scholarships decreases, raising the "unmet demand," or the demand for scholarships that exceeds their supply.

Among public school families, demand increases as the scholarship value increases, but the supply of scholarships decreases. Figure 8



Understanding the interactions between these variables is the key to estimating program participation and to assure that the fiscal impacts of the program are positive for the State of Maryland. Using the analyses in this report can allow decisions to be made that maximize the fiscal benefits to the state. In the next selection, we discuss how the interactions between the key scholarship supply, scholarship eligibility, and scholarship demand variables affect the fiscal impacts of BOAST.

Program tradeoffs

A tax-credit scholarship program can be constructed in various ways to yield important fiscal, educational, equity, and social goals. A high dollar value scholarship does the most to attract low-income students to participate in a scholarship program but would reduce the number of scholarships available. Conversely,

relatively low dollar values will provide many more scholarships but will reduce participation among the low-income families who need educational options the most. Limiting participation to lower-income public school students would dramatically reduce overall demand for scholarships and reduce fiscal benefits.

These sorts of tradeoffs are inherent in all important public policies, and school choice programs are no exception. The analyses and tools in this study are designed to make clear the impact of key program design variables and to highlight the implied tradeoffs.

Table 5 presents the cumulative distribution of projected scholarship demand by income for scholarship values ranging from $1,750 to $4,250 using a conservative price elasticity of demand (meaning the price reducing impact of tuition scholarships will have a relatively modest effect of demand). As has been noted, our analysis suggests that scholarships would induce a higher rate of public school transfer if the value of scholarships is increased, and means testing for program eligibility is less restrictive.

Scholarship demand, among public school students, is estimated to increase at least eightfold if a 185 percent (federal poverty level) means test is not required. Table 5

Public school student scholarship demand by scholarship value dollar level of eligibility
(low price elasticity of demand scenario, –.65)

Income Eligibility (% of Poverty)	$4,250	$4,000	$3,750	$3,500	$3,250	$3,000	$2,750	$2,500	$2,250	$2,000	$1,750
Up to 185%	5,423	5,104	4,785	4,466	4,147	3,828	3,509	3,190	2,871	2,552	2,233
Above 185% (no Means Test)	44,455	41,840	39,225	36,610	33,995	31,380	28,765	26,150	23,535	20,920	18,305

Table 6 translates the estimates of scholarship demand into the context of the public school population and shows that, at an average scholarship value of $4,250, about 5.5 percent of public school students would seek scholarships if no income limits were established for scholarship eligibility. Lower scholarship values and means testing of eligibility would have substantial impacts on scholarship demand.

Table 7 shows the cumulative percentage of scholarship demand that can be satisfied with tax-credit scholarships if $30 million of tax credits were allocated to scholarship organizations (making a total of $32 million available for scholarships) and all scholarships go to public school students (an unrealistic scenario unless restrictions are placed on private school student eligibility). The table shows that the BOAST tax-credit scholarship program could satisfy demand among public school students only if the average value of

scholarships is relatively low. In this scenario, demand is able to be satisfied because demand for scholarships is much lower at the same time more scholarships are available. At scholarship values of $1,500 and below, the supply of available scholarship money would likely exceed demand if we assume a relatively low price elasticity of demand. In addition, as we demonstrate later, while the supply of scholarships exceeds demand, this scenario does not maximize the net fiscal gain for the State of Maryland.

A tax-credit scholarship program may stimulate demand by as much as a fivefold increase depending on average scholarship values and eligibility requirements. Table 6

Percentage scholarship demand among public school students by income eligibility (low price elasticity of demand scenario, –.65)

Income Eligibility (% of Poverty)	$4,250	$4,000	$3,750	$3,500	$3,250	$3,000	$2,750	$2,500	$2,250	$2,000	$1,750
Up to 185%	0.7%	0.6%	0.6%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%	0.3%	0.3%
Above 185% (no Means Test)	5.5%	5.1%	4.8%	4.5%	4.2%	3.8%	3.5%	3.2%	2.9%	2.6%	2.2%

It is estimated that a $50 million program size will satisfy only a portion of the public school student demand for scholarships. Table 7

Percentage scholarship demand among public school students satisfied by a tax-credit scholarship program capped at $50 million budget and allocations are 60% for scholarships and 40% for innovative public school programs (low price elasticity of demand scenario, –.65)

Income Eligibility (% of Poverty)	$4,250	$4,000	$3,750	$3,500	$3,250	$3,000	$2,750	$2,500	$2,250	$2,000	$1,750
Up to 185%	16.9%	19.1%	21.8%	25.0%	29.0%	34.0%	40.5%	48.9%	60.4%	76.5%	99.9%

Average scholarship values of at least $1,750 increase the demand for scholarships public school students approximately equal to the available supply of scholarships, but only if all available scholarship money is awarded to public school students and none to current private school students.

Our research and prior studies' research on the price elasticity of demand for private schooling highlight several key points about tax-credit scholarship program design:

- Families with higher incomes would participate at rates higher than those of lower income even with lower scholarship values (higher-income families are less price sensitive).
- The demographic mix of participants would shift more to higher-income families in the absence of income-eligibility requirements unless higher value scholarships are offered.

- At the same time, imposing strict income requirements for participation would make it unlikely that public school students would make full use of the scholarships at lower scholarship values, and the full fiscal benefits of the program to the state would not be realized.

These results highlight the need for balance in designing a tax-credit scholarship program and how attending to a single program objective, to the exclusion of other objectives, can preclude a program from realizing its maximum potential educational and fiscal benefits. The final sections of this study turn the projections in the preceding tables and charts into estimates of the fiscal impact of a tax-credit scholarship program on the State of Maryland and on school districts in the state.

Fiscal Impact on the State of Maryland

The most important factor in determining the fiscal impact of a scholarship program is the degree to which scholarships induce students attending or planning to attend Maryland's public schools to transfer to private schools, and at what expense. During the 2008-09 school year, Maryland state government paid about $6,071 in education aid to school districts for every student enrolled in public school (about $4,553 of which is directly tied to enrollment changes). By state law, the amount per-pupil of funding that varies with enrollment will increase over time. Tax-credit-funded scholarships will save money for the state to the extent that they induce students to transfer from public to private schools at a low enough cost (estimated to be about $4,750 in the 2010-2011 school year) in foregone tax revenue to generate savings in state per-student education aid.

The ability to induce enough transfer from public to private schools at a cost lower than the amount of per-pupil state education aid (creating a net fiscal benefit for the SGO portion of the BOAST) is made easier by the fact that tax credits are awarded for just 75 percent of the value of contributions to SGOs. Thus if we found that at scholarship values of $4,750 students would transfer from public to private schools, the program would not be fiscally neutral, but would create a net fiscal benefit for the state because the state would be forgoing only $3,563 in revenue ($4,750 contribution times 75 percent) in order to fund a scholarship that would save the state $4,750.

The fiscal analysis and the ability of the BOAST program to be fiscally neutral is complicated by two factors:

- The need to absorb costs associated with providing scholarships, at a cost of foregone tax revenue (tax credits), to students currently in or planning to attend private schools. These are students for whom the state does not realize a savings in state education aid when they participate in a scholarship program, despite the cost of providing them tax-credit scholarships.
- The need to generate enough fiscal savings from the SGO (scholarship) portion of the BOAST program to offset the cost of the tax credits for contributions to public school programs (IEOs). Unlike contributions to SGOs for scholarships purposes, which reduce state education aid expenditures when awarded to public school students, tax-credit-funded contributions to IEOs in public schools offer no potential savings to the State of Maryland.

Adding these factors to the BOAST program's fiscal impact equation suggests that the program's scholarship portion must generate large fiscal benefits for the state if the overall BOAST program is to be revenue neutral or better. For that to occur, the percentage of scholarships that go to students in the public schools must be high enough, and at a cost low enough, to generate state aid savings for the State of Maryland in amounts that offset the cost of scholarships that go to students who generate no savings for the state and the cost of tax credits that go for contributions to public schools and which may be educationally beneficial, but produce no fiscal benefits for the state to offset their cost.

The scholarship portion of BOAST produces large fiscal benefits to the state of Maryland and can be structured to "pay for" contributions to public school IEOs

Inducing enough public-to-private-school transfers to result in fiscal savings for the scholarship portion of BOAST can be easily accomplished. When scholarships to current private school students are added to the equation, inducing enough transfer from public schools at a low enough cost to the state to offset the cost of scholarships that are provided to current private school students is more complex. Figure 9 shows the number of students who would have to transfer from public to private schools in order for the State of Maryland to "break even," or not see a net cost increase associated with a scholarship program where tax credits are capped at $50 million and where $32 million in contributions are available for scholarships.

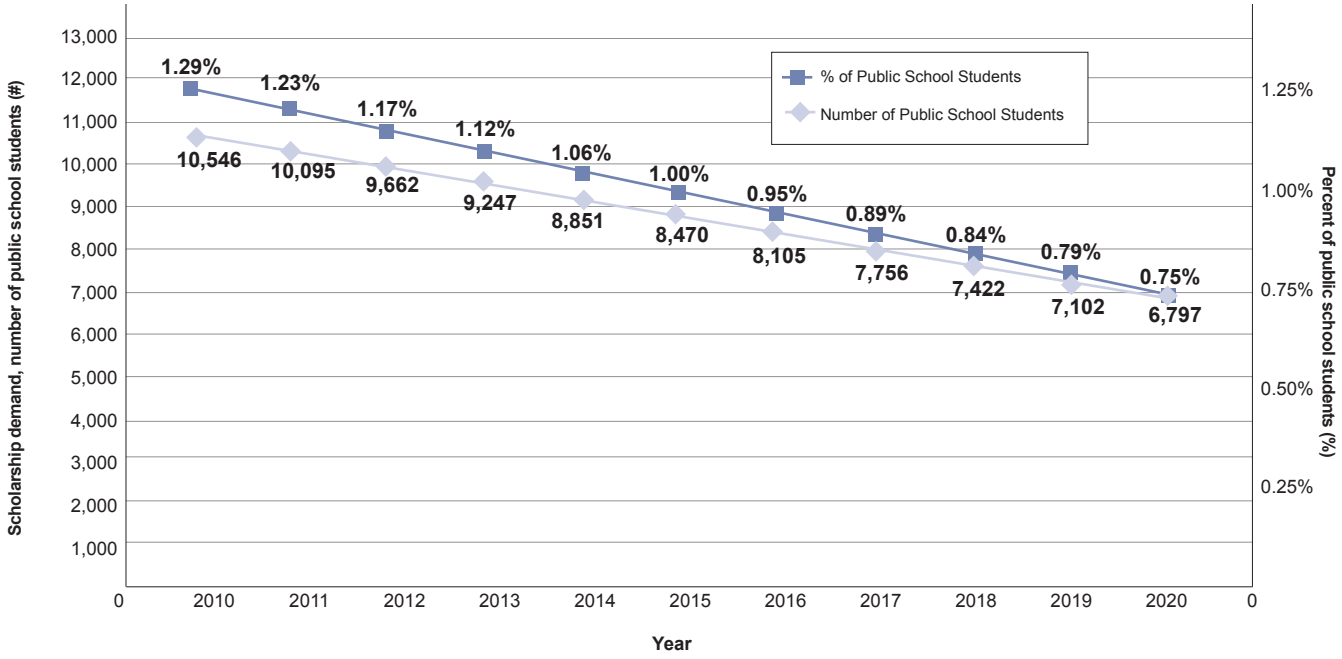
Figure 9 shows that in school year 2010-2011, a total of 10,546 students would have to transfer from public to private schools, at an average savings of $4,758[17] in state education aid for the entire BOAST program (both the scholarship portion and the innovative educational program portion) to

"break even" ($4,758 x 10,546 = $50,178,509[18]). Figure 9 also shows that the number of students who need to transfer from public to private schools for the state to save money declines each year because the program is capped at $50 million in tax credits and state aid per pupil is expected to rise annually, producing greater savings to the state for each student who leaves the public schools. Finally, the chart indicates that only about one percent of Maryland's K-12 public school children would need to receive scholarships in order for the program to be fiscally neutral.

Under the BOAST proposal, Maryland's fiscal break even point starts at about 1% of public school students (equal to 10,546 students), and then substantially decreases over time.

Figure 9

Number of scholarships awarded to public school students (#), and percent of public school students, by year



Our analyses indicate that even relatively low scholarship values (lower than the current per-student state education aid) can induce relatively high rates of participation and transfer from public to private schools if eligibility for scholarships is not severely limited to the lowest-income families.

The percentage of scholarships that must go to students transferring from public to private schools in order for the state of Maryland to break even varies by scholarship value. This is a difficult point to articulate but an important one to grasp in understanding the potential fiscal impacts of the BOAST program. When scholarship values are lower, more scholarships are available and the ability of the

program to provide enough scholarships to public school students in order to reach the break even number of transfer students can be achieved even if a lower percentage of scholarships are awarded to public school students. As an example, in 2010-2011, we estimated that 10,546 scholarships would have to go to transferring public school students in order for the state to break even on the BOAST program. If the average scholarship value is $2,000, then 16,000 scholarships can be awarded with $30 million in available tax credits that makes $32 million in scholarship money available. Thus 66 percent of the 16,000 scholarships would need to go to public school students for the program to break even. If the average scholarship value is $3,000, however, only 10,667 scholarships will be available and in order for the state to break even on the program, 99 percent of scholarships would have to go to current public school students (10,546/10,667 = 99 percent).

Figure 10 illustrates these points and also shows how the percentage of scholarships needing to go to public school students varies according to scholarship value in the "out years" of 2015 and 2020. The chart shows that the percentage of scholarships that must go to public school students in order for the state to break even declines each year of the program. This occurs because as state education aid per pupil increases each year (as it is required to do) the BOAST program saves a larger amount of state education aid for each public school student who receives a scholarship.

If the average scholarship value is $2,000 in 2010, nearly 66% of scholarships will need to go to public school students for the program to meet its fiscal break even point.

Figure 10

Percent of students needed to break even (%) by average scholarship value

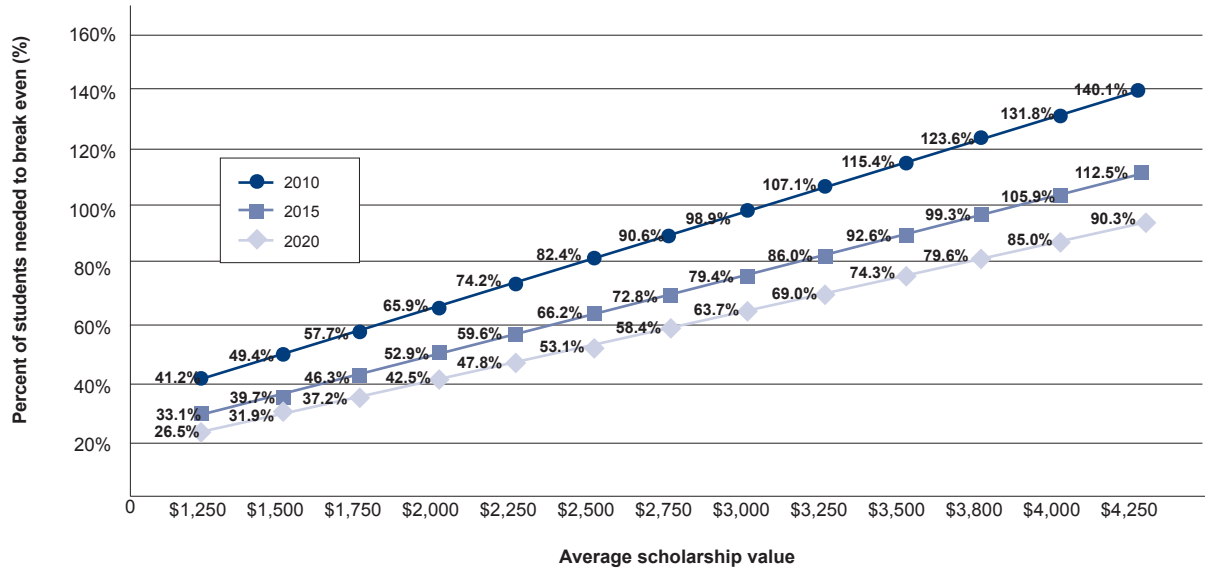


Table 8 highlights some combinations of scholarship program variables and the fiscal impacts they would have on the state, under a scenario where :

- The state realizes a reduction in education aid spending of $4,758 for each public school student who leaves.
- A total of $50 million in tax credits are available, with 60 percent going to scholarship programs.
- 67 percent of the scholarships are awarded to public school students and 33 percent are awarded to private school students.

Under this scenario, 10,546 public school students must participate in the program and transfer to a private school for the state to break even – that is, for the costs of the tax credits for both the scholarship and innovative education program to be offset by savings in state education aid.

If 67% of scholarships are awarded to public school students...We estimate BOAST's overall net fiscal impact would produce up to $134 million in savings, over a ten-year period, as long as the average scholarship is about $2,000 per student.

Table 8

Net fiscal impact of BOAST (in millions) by year and average value of scholarship

Scholarship Value	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
$1,250	($8.5)	($8.3)	($8.2)	($8.0)	($7.8)	($7.6)	($7.4)	($7.2)	($7.0)	($6.9)	($6.7)	($83.6)
$1,500	($0.2)	$0.0	$0.3	$0.5	$0.7	$0.9	$1.1	$1.4	$1.6	$1.8	$2.1	$10.2
$1,750	$8.1	$8.4	$8.7	$8.9	$9.2	$9.4	$9.7	$10.0	$10.2	$10.5	$10.8	$103.9
$2,000	$0.8	$3.1	$5.5	$8.0	$10.6	$13.3	$16.2	$18.6	$18.9	$19.2	$19.5	**$133.6**
$2,250	($4.8)	($2.8)	($0.7)	$1.5	$3.8	$6.3	$8.8	$11.5	$14.3	$17.2	$20.2	$75.2
$2,500	($9.4)	($7.6)	($5.6)	($3.6)	($1.6)	$0.6	$2.9	$5.3	$7.8	$10.4	$13.1	$12.5
$2,750	($13.1)	($11.4)	($9.7)	($7.9)	($6.0)	($4.0)	($1.9)	$0.3	$2.5	$4.9	$7.4	($38.9)
$3,000	($16.2)	($14.7)	($13.1)	($11.4)	($9.7)	($7.8)	($5.9)	($3.9)	($1.9)	$0.3	$2.6	($81.7)
$3,250	($18.8)	($17.4)	($15.9)	($14.4)	($12.8)	($11.1)	($9.3)	($7.5)	($5.6)	($3.6)	($1.5)	($117.9)
$3,500	($21.0)	($19.7)	($18.4)	($16.9)	($15.5)	($13.9)	($12.3)	($10.6)	($8.8)	($6.9)	($5.0)	($148.9)
$3,750	($23.0)	($21.8)	($20.5)	($19.2)	($17.8)	($16.3)	($14.8)	($13.2)	($11.5)	($9.8)	($8.0)	($175.8)
$4,000	($24.7)	($23.5)	($22.4)	($21.1)	($19.8)	($18.4)	($17.0)	($15.5)	($14.0)	($12.3)	($10.6)	($199.3)
$4,250	($26.2)	($25.1)	($24.0)	($22.8)	($21.6)	($20.3)	($19.0)	($17.6)	($16.1)	($14.5)	($12.9)	($220.1)

Table 8 demonstrates that many combinations of scholarship values and income eligibility would generate enough demand and provide a large enough supply of scholarships to generate fiscal benefits for the state. Assuming that 67 percent of scholarships go to public school students, the table shows that at average scholarship values of $1,750 to $2,000, the state realizes a small net fiscal gain in the first year and that over a 10-year period, the State of Maryland realizes a net fiscal gain at average scholarship values between $1,500 and $2,500. Fiscal benefits are maximized at $133.6 million over 10 years at an average scholarship value of $2,000. At average scholarship values below $1,500, the scholarship

program may not create enough demand for scholarships to allow the program to generate savings large enough to offset the cost of credits for innovative public school programs and the cost of scholarships to current private school students that generate no savings in state education aid spending.

Table 9 shows the net fiscal impact of the BOAST proposal when 80 percent of scholarships are awarded to public school students.

If 80% of scholarships are awarded to public school students...We estimate BOAST's overall net fiscal impact would produce up to $267 million in savings, over a ten-year period, as long as the average scholarship is about $2,000 per student. Table 9

Net fiscal impact of BOAST (in millions) by year and average scholarship value

Scholarship Value	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
$1,250	($0.4)	($0.2)	$0.0	$0.2	$0.4	$0.7	$0.9	$1.1	$1.3	$1.6	$1.8	$7.4
$1,500	$9.5	$9.8	$10.0	$10.3	$10.6	$10.8	$11.1	$11.4	$11.6	$11.9	$12.2	$119.3
$1,750	$19.4	$19.8	$20.1	$20.4	$20.7	$21.0	$21.3	$21.6	$22.0	$22.3	$22.6	$231.2
$2,000	$10.7	$13.5	$16.3	$19.3	**$22.4**	$25.7	$29.1	$31.9	$32.3	$32.6	$33.0	**$266.7**
$2,250	$4.0	$6.4	$8.9	$11.6	$14.3	$17.2	$20.3	$23.4	$26.8	$30.2	$33.8	$197.0
$2,500	($1.5)	$0.7	$3.0	$5.4	$7.9	$10.5	$13.2	$16.1	$19.1	$22.2	$25.4	$122.0
$2,750	($5.9)	($3.9)	($1.8)	$0.3	$2.6	$5.0	$7.5	$10.1	$12.8	$15.6	$18.6	$60.7
$3,000	($9.6)	($7.8)	($5.9)	($3.9)	($1.8)	$0.4	$2.7	$5.0	$7.5	$10.1	$12.8	$9.6
$3,250	($12.7)	($11.0)	($9.3)	($7.4)	($5.5)	($3.5)	($1.4)	$0.8	$3.1	$5.5	$8.0	($33.6)
$3,500	($15.4)	($13.8)	($12.2)	($10.5)	($8.7)	($6.9)	($4.9)	($2.9)	($0.7)	$1.5	$3.8	($70.6)
$3,750	($17.7)	($16.2)	($14.7)	($13.1)	($11.5)	($9.7)	($7.9)	($6.0)	($4.0)	($2.0)	$0.2	($102.7)
$4,000	($19.7)	($18.4)	($16.9)	($15.5)	($13.9)	($12.3)	($10.6)	($8.8)	($6.9)	($5.0)	($2.9)	($130.8)
$4,250	($21.5)	($20.2)	($18.9)	($17.5)	($16.0)	($14.5)	($12.9)	($11.2)	($9.5)	($7.6)	($5.7)	($155.6)

Figure 11 demonstrates how the net 10-year fiscal impacts of the BOAST proposal respond to the percentage of tuition tax-credit-funded scholarships that are awarded to public school students varies in four scenarios. The chart shows:

- Under all scenarios, net fiscal benefits are maximized at average scholarship values of approximately $2,000.
- That when 100 percent of scholarships are awarded to public school students, the state can realize as much as $471 million in fiscal benefits over 10 years.
- Even when only 50 percent of scholarships are awarded to public school students, the state still can realize net 10-year fiscal benefits if average scholarship values fall in a range of $1,750 to $2,250.
- The chart also shows that the scholarship (SGO) portion of the program is the key to the fiscal impacts of the BOAST proposal and that the fiscal benefits it provides to the State of Maryland can be used to pay for the innovative education program in public schools.

The higher the percentage of scholarships that go to public school students, the greater the net fiscal benefits. Figure 11

10-year fiscal impacts (millions) by average scholarship value

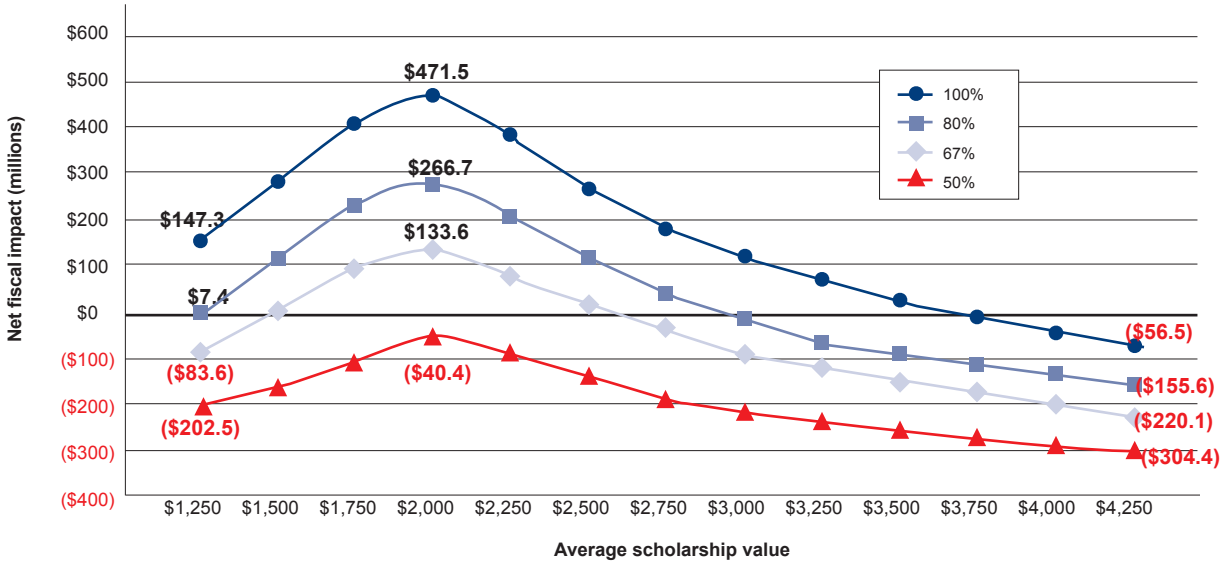


Table 10 shows the net fiscal impact of just the scholarship portion of the BOAST proposal (the cost of the tax credits for contributions to innovative public school programs are not considered) under our baseline scenario where 67 percent of scholarships are awarded to public school students and 33 percent to current private school students. The table shows that as much as $354 million in net savings can be realized over 10 years by the scholarship portion of the BOAST proposal at an average scholarship value of $2,000. Savings decrease as the average scholarship value varies from that amount but remain large over the 10-year analysis period in all but a situation where the average scholarship value is $4,250.

Figure 12 shows the difference in fiscal impacts of BOAST when only the scholarship program impacts are considered and when the total fiscal impact (including the innovative education program for public schools) is considered. The chart shows that the net fiscal benefits of the SGO scholarship portion of the BOAST can overcome the net cost of the IEO public school program and generate overall fiscal benefits for the state in many scenarios.

BOAST's scholarship program could produce up to $354 million in fiscal benefits, over a ten-year period, if at least 67% of private school scholarships are awarded to current public school students.

Table 10

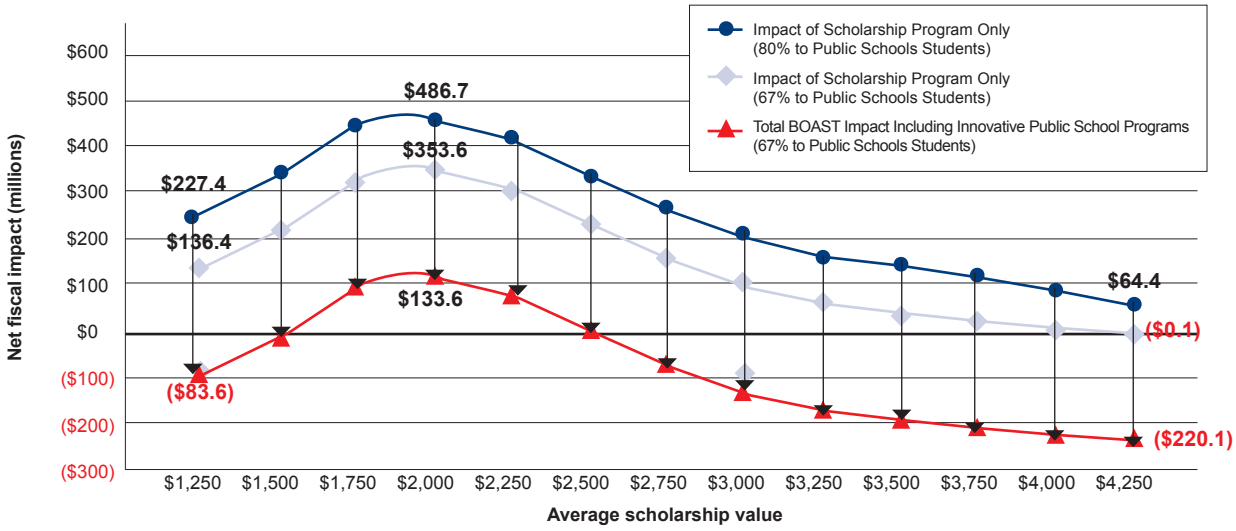
Net fiscal impact of scholarship program portion-only (in millions) by year and average scholarship value

Scholarship Value	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
$1,250	$11.5	$11.7	$11.8	$12.0	$12.2	$12.4	$12.6	$12.8	$13.0	$13.1	$13.3	$136.4
$1,500	$19.8	$20.0	$20.3	$20.5	$20.7	$20.9	$21.1	$21.4	$21.6	$21.8	$22.1	$230.2
$1,750	$28.1	$28.4	$28.7	$28.9	$29.2	$29.4	$29.7	$30.0	$30.2	$30.5	$30.8	$323.9
$2,000	$20.8	$23.1	$25.5	$28.0	$30.6	$33.3	$36.2	$38.6	$38.9	$39.2	$39.5	**$353.6**
$2,250	$15.2	$17.2	$19.3	$21.5	$23.8	$26.3	$28.8	$31.5	$34.3	$37.2	$40.2	$295.2
$2,500	$10.6	$12.4	$14.4	$16.4	$18.4	$20.6	$22.9	$25.3	$27.8	$30.4	$33.1	$232.5
$2,750	$6.9	$8.6	$10.3	$12.1	$14.0	$16.0	$18.1	$20.3	$22.5	$24.9	$27.4	$181.1
$3,000	$3.8	$5.3	$6.9	$8.6	$10.3	$12.2	$14.1	$16.1	$18.1	$20.3	$22.6	$138.3
$3,250	$1.2	$2.6	$4.1	$5.6	$7.2	$8.9	$10.7	$12.5	$14.4	$16.4	$18.5	$102.1
$3,500	($1.0)	$0.3	$1.6	$3.1	$4.5	$6.1	$7.7	$9.4	$11.2	$13.1	$15.0	$71.1
$3,750	($3.0)	($1.8)	($0.5)	$0.8	$2.2	$3.7	$5.2	$6.8	$8.5	$10.2	$12.0	$44.2
$4,000	($4.7)	($3.5)	($2.4)	($1.1)	$0.2	$1.6	$3.0	$4.5	$6.0	$7.7	$9.4	$20.7
$4,250	($6.2)	($5.1)	($4.0)	($2.8)	($1.6)	($0.3)	$1.0	$2.4	$3.9	$5.5	$7.1	($0.1)

The cumulative 10-year fiscal impacts for the scholarship portion of the tax credit are large, and in some scenarios, will offset the $200 million 10-year cost of tax credits for contributions to public school innovation programs.

Figure 12

10-year fiscal impacts (millions) by average scholarship value



Maximizing net fiscal benefits requires "right-sizing" BOAST

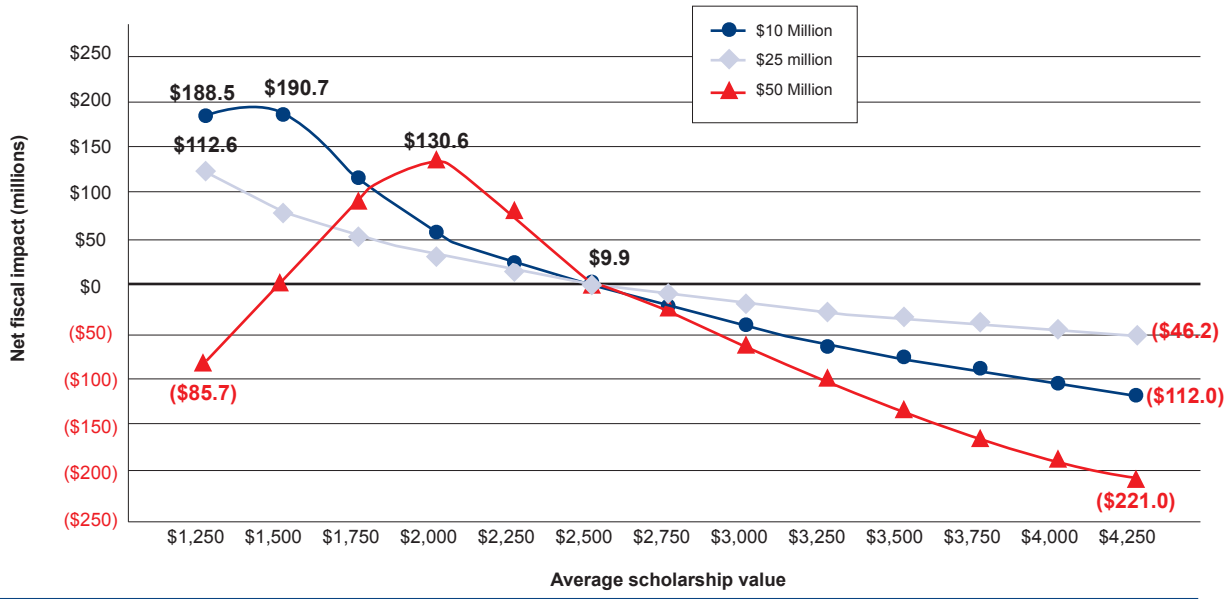
For this report we chose to analyze a proposed private school scholarship and public school innovation program with a cap on available tax credits of $50 million. According to the Maryland Depart-

ment of Legislative Services, similar programs in comparable states suggest a reasonable range of credits from $50-75 million. But it is important to note that the design of a fiscally neutral program will depend on variables that have unique values in each state. The size of the program interacts with other key demographic, demand, and school finance variables to influence the net fiscal effects of a tax-credit scholarship program.

Figure 13 demonstrates how the size of the program can interact with scholarship values to influence net fiscal benefits. To be fiscally neutral or better, the BOAST program must result in savings in state education aid that are greater than the tax-credit cost of providing scholarships. As we have shown, this is relatively easy to accomplish with BOAST. Significant savings are realized for the state each time a public school student receives a scholarship at a cost less than the amount of state per pupil education aid. If BOAST were only a scholarship program, then a larger policy could generate more savings up to the point that there was enough demand among public school students to use all funds for scholarship contribution that received tax credit. But fiscal neutrality also requires that these savings pay for the tax-credit cost of the public school innovation portion of the program. With a large program, these costs will be large and BOAST will be more challenged to produce enough demand and transfer of public school students to private schools to create enough savings to pay for the entire program.

Maximum net fiscal benefits are realized at different scholarship values depending on the size of the proposed program. Figure 13

10-year fiscal impacts (millions) by average scholarship value



A smaller program will be certain of generating enough demand among public school students to pay for the entire BOAST program. Depending on whether the primary fiscal goal of BOAST is to avoid potential cost or to maximize net fiscal benefits, a program between $10 million and $30 million is optimal.

Fiscal Impact on Local School Districts

Table 11 shows the impact of a scholarship program on local school districts. As indicated earlier in this study, scholarship participants who leave the public schools would reduce per-student state aid to their local school districts, but local revenues that are not tied to enrollments (such as property taxes) would remain unchanged. In addition, a majority of federal revenue also remains in the school district. Meanwhile, the decline in students would result in a reduction in variable or marginal expenses for school districts. In combination, these changes produce a net increase in the resources available for use in educating the students who do not participate in the program and remain in public schools.

Table 11 uses our baseline program assumptions, including 67 percent of scholarships will go to public school students, and applies them to a range of scholarship values to show how local district finances will be affected. In addition, the table assumes that a very high percentage (50 percent) of school district expenses are fixed (they do not vary with the addition or subtraction of students) and that only the local revenue associated with students is retained when a student receives a scholarship and leaves the district. This percentage of expenses that are assumed to be fixed is unrealistically high (certainly for periods of time longer than one year) but serves to demonstrate that our estimated impact of BOAST on local school districts is not biased by assuming that all district expenses are variable.

Table 11 shows that the combination of a reduction in expenses that is more than the loss of state aid and the continued support of local revenues that remain in school districts even when students leave results in a positive fiscal impact to school districts. The total fiscal impact on local districts is positive, and thus the resources available to educate each child who remains in the Maryland public schools (they do not receive scholarships) increases as a result of the BOAST program. The table also shows that when contributions for innovative education programs are added to the fiscal impact on districts, net fiscal benefits increase.

With a 50% fixed costs rate, we estimate a $50 million BOAST program has a net positive fiscal impact on local school districts, ranging from $85 million to nearly $167 million per year, depending on average scholarship value.

Table 11

Net fiscal impact of BOAST scholarship program on Maryland's school districts (assumes 67% of scholarships awarded to public school students; eligibility requirement set at 185% federal poverty level; 50% fixed costs rate)

Scholarship Value	$2,000	$2,500	$3,000	$3,500	$4,000	$4,500
# of Scholarships	13,075	18,286	14,222	11,636	9,846	7,529
Loss of State Aid	($62,208,701)	($87,001,326)	($67,667,698)	($55,364,480)	($46,846,868)	($35,824,075)
Reduction in School Expenses	$81,776,739	$114,368,000	$88,952,889	$72,779,636	$61,582,769	$47,092,706
Net Change	$19,568,038	$27,366,674	$21,285,191	$17,415,156	$14,735,902	$11,268,631
Revenue Associated with Scholarship Students That Remains in Local Districts	$80,985,709	$113,261,714	$88,092,444	$72,075,636	$60,987,077	$46,637,176
Net Fiscal Impact for Students Who Remain in Public Schools	$100,553,747	$140,628,389	$109,377,636	$89,490,793	$75,722,978	$57,905,807
Impact per Scholarship	$7,691	$7,691	$7,691	$7,691	$7,691	$7,691
IEO Contributions ($20 Million in Tax Credits @ .75)	$26,666,667	$26,666,667	$26,666,667	$26,666,667	$26,666,667	$26,666,667
Aggregate Fiscal Impact on School Districts	**$127,220,414**	**$167,295,056**	**$136,044,303**	**$116,157,460**	**$102,389,645**	**$84,572,474**

Finally, Table 12 demonstrates the sensitivity of the impact of BOAST on local districts to assumptions about the percentage of district expenses that are fixed versus variable. Table 11 assumed a high rate (50 percent) of district expenses are fixed; Table 12 assumes that all school district costs are fixed and that school districts will see no reduction in expenses as a result of the loss of 7,000 to 13,000 students statewide. Results show that even with this unrealistic assumption, local school districts will not be made financially worse off by the BOAST program. Adding in the impacts of the IEO contributions to local districts add to the small, total net positive fiscal impacts on school districts in the state.

Assuming a 100% fixed costs rate, we estimate a $50 million BOAST program has a net positive fiscal impact on local school districts, ranging from $37 million to nearly $53 million per year, depending on average scholarship value.

Table 12

Net fiscal impact of BOAST scholarship program on Maryland's school districts (assumes 67% of scholarships awarded to public school students; eligibility requirement set at 185% federal poverty level; 100% fixed costs - i.e. no reduction in expenses associated with the loss of 7,000 – 13,000 students)

Scholarship Value	$2,000	$2,500	$3,000	$3,500	$4,000	$4,500
# of Scholarships	13,075	18,286	14,222	11,636	9,846	7,529
Loss of State Aid	($62,208,701)	($87,001,326)	($67,667,698)	($55,364,480)	($46,846,868)	($35,824,075)
Reduction in School Expenses	$0	$0	$0	$0	$0	$0
Net Change	($62,208,701)	($87,001,326)	($67,667,698)	($55,364,480)	($46,846,868)	($35,824,075)
Revenue Associated with Scholarship Students That Remains in Local Districts	$80,985,709	$113,261,714	$88,092,444	$72,075,636	$60,987,077	$46,637,176
Net Fiscal Impact for Students Who Remain in Public Schools	**$18,777,009**	$26,260,389	$20,424,747	$16,711,156	$14,140,209	$10,813,101
Impact per Scholarship	**$1,436**	$1,436	$1,436	$1,436	$1,436	$1,436
IEO Contributions ($20 Million in Tax Credits @ .75)	**$26,666,667**	$26,666,667	$26,666,667	$26,666,667	$26,666,667	$26,666,667
Aggregate Fiscal Impact on School Districts	**$45,443,675**	**$52,927,055**	**$47,091,413**	**$43,377,823**	**$40,806,876**	**$37,479,768**

Conclusion

Our analysis indicates that school district revenues vary considerably based on enrollment levels, but that expenditures also vary with enrollments. A number of variables will affect the fiscal impacts of a tax-credit scholarship program, but there are many ways to structure such a program to yield fiscal benefits for the State of Maryland. Using conservative estimates for the price elasticity of demand for private schooling in Maryland, we estimate that the BOAST proposal will produce as much as $134 million in net benefits to the state over 10 years if more than 67 percent of scholarships are awarded to public school students. Our results show that the scholarship portion of the BOAST proposal alone

will generate large net savings for the State of Maryland, but that much of these savings will be absorbed by the cost of the BOAST proposal's innovative education program for public schools. Overall, the scholarship portion of BOAST can, under some but not all scenarios, generate enough savings in state education aid expenditures to produce net fiscal benefits for the state to pay for the innovative education program for public schools and result in the BOAST proposal producing a net fiscal benefit for the state of Maryland.

Our analysis also suggests that the BOAST proposal does not adversely affect local school districts and the per-student resources available to them, but will instead increase the resources available to students who do not participate in the scholarship program and remain in public schools. These results are robust even under unrealistic high assumptions about the percentage of local school district costs that are fixed.

Our analysis makes it clear that a number of scholarship program features would yield fiscal benefits, while some would produce limited costs. All design aspects create greater educational choices and opportunities for students from all backgrounds and without adversely affecting students who do not participate in the program and stay in public schools.

Notes

[1] See the opinion poll data collected in: *ABCs of School Choice, 2008-2009 Edition* (Indianapolis: Milton and Rose D. Friedman Foundation for Educational Choice, 2008).

[2] Paul DiPerna, *Maryland's Opinion on K-12 Education and School Choice* (Indianapolis: Milton and Rose D. Friedman Foundation for Educational Choice, 2008).

[3] *The Fact Book: 2008-2009* (Annapolis: Maryland State Department of Education, 2009).

[4] *Home Schooling: 12 Year Report* (Annapolis: Maryland State Department of Education, 2009).

[5] *The Fact Book: 2008-2009* (Annapolis: Maryland State Department of Education, 2009).

[6] This description of the Bridge to Excellence Act is from a more complete description and analysis of Maryland's school finance system in: Benjamin Scafidi, *The Formula Behind Maryland's K-12 Funding* (Indianapolis: Milton and Rose D. Friedman Foundation for Educational Choice, 2008).

[7] *The Fact Book: 2008-2009* (Annapolis: Maryland State Department of Education, 2009).

[8] Although categorical aid is in part determined by enrollment levels, the amount of funding may not directly respond to changes in enrollment.

[9] Cotton Lindsay, *Fiscal Impact of the Universal Scholarship Tax Credit Proposal* (Columbia: South Carolina Policy Council, 2004); *Estimating Demand and Supply Response to Tuition Tax Credits for Private School Tuition in Utah* (Logan: Utah State University, 2004); Susan Aud and Leon Michos, *Spreading Freedom and Saving Money: The Fiscal Impact of the D.C. Voucher Program* (Indianapolis: Milton and Rose D. Friedman Foundation for Educational Choice, 2004).

[10] $50,000,000 / .75 = $66,666,667

[11] We assume $50 million in available credits of which 60 percent (or $30 million) are awarded to SGOs. If tax credits are awarded at a value of 75 cents for each dollar contributed, then $30 million in tax credits for contributions to SGOs would result in total contributions to SGOs of $40 million. We also assume that 80 percent of this amount will be awarded in scholarship grants to students. The net amount of available scholarship funds in our analysis is thus $32 million.

[12] Barry Chiswick and Stella Koutroumanes, "An Econometric Estimate of the Demand for Private Schooling," Research in Labor Economics 15 (1996): 209-237; James D. Gwartney and Richard Stroup, *Economics: Private and Public Choice* (8th Edition) (Dryden: South-Western College Publishing, 1997).

[13] Andrew Keeler and Warren Kriesel, "School Choice in Rural Georgia: An Empirical Analysis," *Journal of Agriculture and Applied Economics* 26 (1994): 526-534.

[14] Susan Dynarski, Jonathan Gruber, and Danielle Li, "Cheaper by the Dozen: Using Sibling Discounts at Catholic Schools to Estimate the Price Elasticity of Private School Attendance," (Chicago: National Bureau of Economic Research, 2009), Working Paper # 15461.

[15] *ABCs of School Choice, 2009-2010 Edition* (Indianapolis: The Friedman Foundation for Educational Choice, 2009).

[16] To develop our estimate of the average price of private schooling in Maryland we used two methods. U.S. averages ($3,500 in 2003/2004) from the U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Private School Data File," 2003–04, inflated to estimated 2010 levels. Private schooling costs vary significantly across the country, as does public schooling. We adjusted the U.S. average cost of private schooling to an estimated Maryland average by measuring the difference between the U.S. and Maryland average elementary and secondary school teacher salaries in private schools. Teacher salaries are the major expense of K-12 education, making teacher salaries a reasonable surrogate measure of price differences between Maryland and the U.S. average. Separately, we accessed tuition price information from a sample of 75 private schools in Maryland with a tuition price range of $3,100 to $20,810 (median $5,950) for elementary schools and a range of $3,300 to $22,605 (median $7,400) for secondary (grades 9-12) schools. This sample did not adequately adjust for the high percentage of private schools with some sectarian affiliation that generally had lower tuition levels. From the two methods we estimate a grade level-weighted average tuition (with a great deal of variance) of approximately $6,400. Using different estimates produces some change in our estimate of demand for scholarships but because demand for scholarships exceeds supply in almost all cases, there is no effect on the estimate of fiscal impacts.

[17] This is the estimated state aid per pupil for the 2010-2011 school year.

[18] $50,178,509 is the cost of the tax credits plus the cost of program administration as determined by the State of Maryland Department of Legislative Services in its fiscal analysis of the BOAST proposal.

About the Author

Brian J. Gottlob (bgottlob@poleconresearch.com) is the Principal of PolEcon Research. For 17 years Gottlob has analyzed economic, demographic, labor market industry and public policy trends for private sector, government and nonprofit organizations. He has extensive experience in developing econometric models and has completed studies on a range of economic, tax policy, energy, education, and health care issues in the states of New Hampshire, Virginia, Ohio, New Mexico, New York, Texas, Oregon, Michigan, Georgia, Mississippi, West Virginia and Illinois. Gottlob is a Senior Fellow at The Foundation for Educational Choice. He has an undergraduate degree in economics from the State University of New York and a graduate degree in public policy analysis from the University of New Hampshire.

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