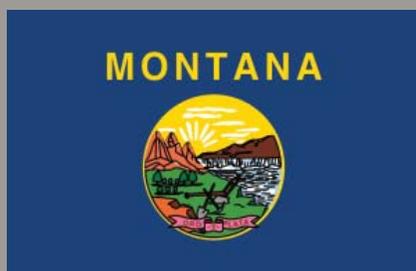


SCHOOL CHOICE

# ISSUES

IN THE STATE

## The Fiscal Impact of Tax-Credit Scholarships in Montana



**School Choice for Montana:**

Many agree with the concept. Some disagree. And some simply want more information. As the public debate continues to grow about how best to provide a quality education to all Montana children, it is important to know the facts about parent choice, and how parent choice programs have had an impact on communities, parents and students around the country. All of this analysis is done with one goal in mind: The best possible education for all of Montana's children.

Prepared By:

**Brian Gottlob**

Senior Fellow

Friedman Foundation for Educational Choice

January 2009

**Study released jointly by the Friedman Foundation for Educational  
Choice and the Montana Family Foundation**

A MESSAGE FROM THE FRIEDMAN FOUNDATION:

## OUR CHALLENGE TO YOU

Our research adheres to the highest standards of scientific rigor. We know that one reason the school choice movement has achieved such great success is because the empirical evidence really does show that school choice works. More and more people are dropping their opposition to school choice as they become familiar with the large body of high-quality scientific studies that supports it. Having racked up a steady record of success through good science, why would we sabotage our credibility with junk science?

This is our answer to those who say we can't produce credible research because we aren't neutral about school choice. Some people think that good science can only be produced by researchers who have no opinions about the things they study. Like robots, these neutral researchers are supposed to carry out their analyses without actually thinking or caring about the subjects they study.

But what's the point of doing science in the first place if we're never allowed to come to any conclusions? Why would we want to stay neutral when some policies are solidly proven to work, and others are proven to fail?

That's why it's foolish to dismiss all the studies showing that school choice works on grounds that they were conducted by researchers who think that school choice works. If we take that approach, we would have to dismiss all the studies showing that smoking causes cancer, because all of them were conducted by researchers who think that smoking causes cancer. We would end up rejecting all science across the board.

The sensible approach is to accept studies that follow sound scientific methods, and reject those that don't. Science produces reliable empirical information, not because scientists are devoid of opinions and motives, but because the rigorous procedural rules of science prevent the researchers' opinions and motives from determining their results. If research adheres to scientific standards, its results can be relied upon no matter who conducted it. If not, then the biases of the researcher do become relevant, because lack of scientific rigor opens the door for those biases to affect the results.

So if you're skeptical about our research on school choice, this is our challenge to you: prove us wrong. Judge our work by scientific standards and see how it measures up. If you can find anything in our work that doesn't follow sound empirical methods, by all means say so. We welcome any and all scientific critique of our work. But if you can't find anything scientifically wrong with it, don't complain that our findings can't be true just because we're not neutral. That may make a good sound bite, but what lurks behind it is a flat rejection of science.

# The Fiscal Impact of Tax-Credit Scholarships in Montana

Prepared By:

**Brian Gottlob**

Senior Fellow

Friedman Foundation for Educational Choice

January 2009



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# Executive Summary

Many states have enacted or are considering proposals to give tax credits for contributions that provide tuition scholarships for students in K-12 schools to attend the private or public schools of their choice. This study seeks to inform the public and policymakers about the implications for Montana if the state were to enact such a program. The study constructs a model to determine the likely contributions that will be received, the level of participation in the program among families and students of different income levels, and the overall fiscal impact of tax-credit scholarships on state government and local school districts.

In addition to expanding educational opportunity and improving the equity of the education system, a tax-credit scholarship program would generate significant fiscal benefits for local school districts by increasing the available resources for students who remain in public schools. Because much of their revenue does not vary with enrollment, school districts retain much of the funding associated with students who use scholarships to migrate from public to private schools. The overall impact on public schools is an increase in the financial resources available for each student who remains in a public school. Depending on how the program is designed, it could also result in fiscal savings to the state budget. Even if it does not produce a savings at the state level, overall costs will be significantly reduced because public school spending will go down as students leave with scholarships.

## The findings include:

- When students leave Montana public schools in significant numbers, local school districts experience reductions in expenses that are greater than the reduction in state aid. In addition, school district revenues from both state and local sources do not decline immediately when enrollments decline.
- Even after local school districts no longer receive state or local revenue associated with students who have left a school district, there is a net gain of resources available to students who remain in the public schools equal to about \$2,759 for every student who participates in the scholarship program.
- The total fiscal impact of a tax-credit scholarship program depends on the number of public school students who participate. This, in turn, depends on a number of program design factors, such as 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, Montana state agencies, and other sources to estimate how public school families might respond to a tax-credit scholarship program with various design features.
- A proposed scholarship program for current public school students that would provide \$10 million in scholarship funding, establish income eligibility at 200 percent of the free and reduced-price lunch level, and award scholarships of \$3,500 each that would produce a total fiscal benefit of \$7.5 million for local school districts.
- The impact of the program on the state budget depends on program design features as well. For example, a program with the design features in the example above would produce a savings of almost \$1 million for the state. Depending on such factors as the average size of tuition scholarships granted, our analysis indicates a range of state fiscal impacts from \$-1.4 million to +\$5.4 million.
- Raising the income eligibility for scholarships always increases the fiscal benefit of the program, by making more public school students eligible for scholarships among income groups that have the highest propensity to migrate from public to private schools.
- A tax-credit scholarship program is a more efficient way to direct dollars to education than increasing state aid. Montana data show that every dollar of increased state aid to schools only produces an additional 44-64 cents of additional school spending because local governments respond to the state spending increase by reducing local spending on education. By contrast, every dollar designated to tax-credit scholarship program is a full dollar that goes to education.

## About the Author

Brian J. Gottlob ([bgottlob@poleconresearch.com](mailto:bgottlob@poleconresearch.com)) is the principal of PoEcon 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 New Hampshire, Virginia, Ohio, New Mexico, New York, Texas, Oregon, Michigan, Georgia, Mississippi, West Virginia and Illinois. Gottlob is a senior fellow at the Friedman Foundation for Educational Choice. He has been an instructor at the Whittemore School of Business and Economics at the University of New Hampshire, a member of the Advisory Board of the New England Economic Partnership and a member of the National Association of Business Economics. Prior to founding PoEcon, Gottlob was a Vice President for Fiscal and Economic Policy at the Business and Industry Association of New Hampshire. 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.

## Friedman Foundation for Educational Choice



The Friedman Foundation for Educational Choice, dubbed “the nation’s leading voucher advocates” by the Wall Street Journal, is a nonprofit organization established in 1996. The origins of the foundation lie in the Friedmans’ long-standing concern about the serious deficiencies in America’s elementary and secondary public schools. The best way to improve the quality of education, they believe, is to enable all parents with the freedom to choose the schools that their children attend. The Friedman Foundation builds upon this vision, clarifies its meaning to the public and amplifies the national call for true education reform through school choice.

## Montana Family Foundation



The Montana Family Foundation is a non-profit, research and education organization dedicated to supporting, protecting and strengthening Montana families.

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## Introduction

Proposals to increase educational opportunities and choices for students of different backgrounds, abilities, needs and economic circumstances are increasing throughout the country. In part, this reflects increasing support among the public for the concept of school choice; a majority of U.S. citizens now support it.<sup>1</sup>

In Montana, substantial majorities favor school choice. A 2008 opinion poll found that 54 percent of Montana residents support school vouchers and 64 percent support a tuition tax credit scholarship system funded by individual and business contributions to scholarship-granting organizations. Support for school choice using either vouchers or a system of tuition tax credits is nearly identical among likely voters who identify themselves as a Democratic, Republican or independent voter.<sup>2</sup>

In K-12 education, families in Montana already exercise school choice in several ways:

- According to Montana Department of Education, U.S. Department of Education, and The U.S. Census Bureau data, about 10,000 school-age children in Montana attend private schools.<sup>3</sup>
- About 3,000 Montana students are home-schooled.

Since the 2000-01 school year, public school enrollment in Montana has declined by nine percent while home schooling has increased by 10 percent and private school enrollment has increased by two percent.<sup>4</sup> Montana families are increasingly choosing alternatives to public school enrollment. However, the major form of choice in Montana and in the United States occurs when a family chooses its place of residence. Because higher-quality schools often are found in communities with higher housing prices, this type of school choice is available at a high cost, and is unaffordable to many families. Throughout the United States, affluent families exercise a lot of choice. Montana families sort themselves among schools and school districts on the basis of parents' income and education. But if education funding were made available to parents to help families have more choices among schools, we would see less segregation on the basis of parental income and education. The positive response by families in Montana over the past several years to a wider variety of educational options and choices suggests that Montana should consider the merits of providing even more educational options for school children.

This study uses empirical methods and the tools of economic analysis to examine school choice in Montana. Empirical analyses allow us to find analytical answers to important policy questions outside the hardened positions of support or opposition that come from viewing school choice simply as a matter of political leanings or ideological principle. Perhaps believing it inappropriate to discuss education in terms of market incentives and pressures, many well-meaning individuals who are deeply concerned about K-12 education ignore the educational impacts of market forces. However, 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 Montana funds elementary and secondary education. We examine the demographics of public and private schools in Montana 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 develop a model that shows how the expenditures of Montana school districts vary with changes in student enrollment, and project how families in Montana will respond to a scholarship tax credit program. Finally, we document the fiscal impacts of such a program on Montana's state budgets and those of local school districts.

## How Montana Funds Public Schools

The expense of educating children in Montana, as in most states, is a responsibility shared between the state and local governments. The system of public school finance in Montana is complex. There is an overall lack of understanding among the public and even among local school administrators and legislators about its workings. Documents explaining the system are available from the Montana Department of Public Instruction,<sup>5</sup> but these documents presuppose a level of familiarity with

and understanding of the system that relatively few Montana citizens possess. The complexity of the system often impedes reasoned policy debates over school finance. The purpose of this report is not to create the need for deeper understanding of the workings of Montana's school finance system; rather we provide a brief overview of the key features and funding mechanism used to provide state education aid to local school districts. This allows us to evaluate the impact that a tuition scholarship tax credit program would have on state and local public expenditures and revenues.

The basis of the current funding system in Montana was implemented in 1993. The key feature of Montana's system is its "equalization" structure that determines a maximum and minimum general fund budget for each school district based on the number of students in the district. The goal is to limit expenditure disparities to 25% for similarly-sized school districts. A district's minimum budget, or BASE budget, is 80% of the maximum. The BASE and maximum budget of the district is adjusted each year to reflect changes in the school district's enrollment.

To help equalize the funding of local school districts, the State of Montana distributes state funds to school districts in a number of ways:

- By providing a "basic entitlement" to each district ranging from \$21,290 for each elementary school district, to \$236,552 for each high school district.
- Per-student entitlements of \$4,579 for elementary students and \$5,861 for high school students, that are adjusted for the size of enrollment in each district (per student funds for a district are reduced by \$.20 for each additional elementary and \$.50 for each high school student up to a maximum of \$1,000 to account for the economies of scale assumed for larger districts.)
- State special education payments of about \$200 per student.
- Quality educator payment (QEP) of \$3,036 per full-time educator.
- At-risk student payments of \$5 million allocated to districts depending on their Federal Title I student status.
- Indian education for all payments (IEAP) of \$20.40 per student.
- American Indian achievement gap payments of \$200 per American Indian student.
- A number of categorical block grants for such things as transportation, debt service, technology, capital projects etc.

In addition, the State of Montana uses guaranteed tax base (GTB) funding to help assure that all school districts have a similar local property tax base with which to fund its schools.

## How the Guaranteed Tax Base (GTB) System Works

The State of Montana is required to fund 44.7 percent of the "base" budget of a local school district through basic entitlement, per student entitlement, and other payments. For the next 35.3 percent of the local school budget, the portion that must be supported by local revenue sources, the State of Montana provides state aid using a guaranteed tax base formula. The balance of local school district's funding emanates from federal and other sources. In 2008, the state guaranteed that for every dollar of the base budget that a district must fund locally, there will be \$20.83 of taxable property valuation at the elementary level and \$32.26 at the high school level to fund that budget. If a local district has per pupil property valuations lower than these amounts, resulting in a lower tax yield at any given tax rate than those guaranteed in GTB per pupil valuation, the state will provide state GTB payments equal to the difference in revenue that is raised between the actual per pupil valuation and that guaranteed by the GTB.

Combined, all sources of state education aid payments to local districts equaled about \$703 million in fiscal year 2006-07.

## How School Funding Varies with Enrollment

The relationship between enrollment levels and school funding is a question of particular importance for determining the fiscal impact of school choice programs. Funding from different sources responds to changes in enrollment in different ways. While most

school funding that comes from the state varies with enrollment, local school funding does not.

For 2007-08, over 80 percent of state support for public schools in Montana is calculated on the basis of some measure of enrollment. It varies as a district adds or loses students, either among the general student population or among specific categories of students. Some payments such as Guaranteed Tax Base (GTB) payments and Quality Educator Payments (QEP), are indirectly determined by enrollment.<sup>7</sup> Conservatively, we assume that about \$585 million of state education aid is made on the basis of some type of enrollment-based calculation, while \$117 million does not vary directly with enrollment.

Overall, Montana’s school finance system places some restrictions on the budgetary authority of individual school districts. However, because a high percentage of state education funding in Montana is distributed without the restrictions that accompany categorical or narrow-purpose grants, Montana’s funding systems do provide flexibility for local districts to determine how state funds are allocated.

Taxes on real property are the largest single source of local revenue for school districts. These revenues are determined by local property values and tax rates. Montana school districts also receive “distributions of fees on property that was formerly in the property tax base, but is now taxed through flat taxes, with one tax rate applied statewide. These flat taxes, which include revenues from motor vehicle and recreational vehicle fees as well as from oil, gas and coal production taxes, are distributed in the same manner as taxes collected from the mills levied against the property tax base<sup>8</sup>.”

Local school districts are restricted in their ability to increase their budgets from year to year. Because districts average enrollments over a three year period in developing budgets, enrollment has relatively little near-term effect on local revenue. Enrollment changes prompt larger adjustments to local revenues over time, but in terms of either local or state sources of revenue local districts do not experience significant reductions in revenues in the short-term as enrollments decline.

Some revenues from federal sources vary with enrollment, such as funds for the reimbursement of free and reduced-price lunch, breakfast and milk programs. Since 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 1**

<b>Montana Public School Revenue - FY2006-07</b>			
<b>State Sources</b>	<b>Amount</b>	<b>Per Student (ANB)</b>	<b>Percent</b>
Funding Determined by Enrollment	\$585,494,612	\$4,047	83.3%
Categorical Aid and Portion of GTB <sup>9</sup>	\$116,995,705	\$809	16.7%
<b>Total State Sources</b>	<b>\$702,490,317</b>	<b>\$4,856</b>	<b>47.9%</b>
Local Sources (Incl. County)	\$573,150,678	\$3,961	39.1%
Federal Sources	\$190,670,951	\$1,318	13.0%
<b>Total*</b>	<b>\$1,466,311,946</b>	<b>\$10,135</b>	<b>100%</b>

Source: Author's calculations based on Montana Department of Public Instruction spreadsheet file OPIREV07.xls, accessed online at: [http://opi.mt.gov/PUB/School%20Finance/OPICoreDataFiles/ExpRevCore/Revenues/XLS\\_Format/](http://opi.mt.gov/PUB/School%20Finance/OPICoreDataFiles/ExpRevCore/Revenues/XLS_Format/)

Table 1 uses 2006-07 funding levels as reported by the Montana Department of Public Instruction to present a basic scenario of how funding changes as enrollments change. Table 2 refines this analysis to include unique features of Montana’s school funding system that minimizes the loss of revenue that occurs when students leave a district. Table 1 shows that, for each student, the state provides an average of about \$4,856 in education aid. Of the \$4,856, about 83 percent, or \$4,047, is responsive to changes in enrollment levels. Thus if nothing else changed, when a new student enters a school district, a district would, on average, receive \$4,047 in additional state funding via the State’s various forms of education aid payments. Conversely, when a student leaves a district, state per-student

funding is reduced. If Montana school finance laws operated like most other states, state funding would be reduced by \$4,047 on average, with the district retaining \$809 in state funds, the entire \$3,961 from local sources and much of the \$1,318 from federal sources.

However, the product of Montana’s funding system is that state funding is actually reduced by a smaller amount than the average per pupil revenue amount, for at least two years after district enrollment declines. In addition, districts do not retain all local revenues associated with a decline in students. In the long run, all revenue is at least potentially variable with enrollment; with the exact extent dependent upon the decisions of local school boards and those that approve their budgets. The shorter-term impacts often take precedence because of their immediate effect.

Table 2 illustrates how school revenues are affected by enrollment declines by incorporating the important feature of Montana’s school finance system that allows districts to average the current year and prior two years enrollment levels in calculating their school budgets and state education aid entitlements. The table shows how Montana’s aggregate and per-student school district revenues would have been affected if enrollment in the 2006-07 school year had been 134,000 rather than the actual number of 144,681 (a decline of 10,681 or slightly more than the total number of students currently enrolled in Montana private schools.). Because state law allows Montana school districts to average their current year and prior two year’s enrollment levels in implementing the state’s system of state aid to local school districts, state aid based on enrollment would be calculated as if 141,455 students attended Montana’s public schools. In the following year, if enrollment remained at 134,000, local budgets (and the amount of local revenue districts can collect) as well as state education entitlement aid would be calculated on the basis of an enrollment of 137,560 (the 3 year average enrollment), despite an actual enrollment level of 134,000. Thus districts are cushioned from declining revenues for at least two years after a drop in enrollment. In fact, the net effect on local districts is to receive a per pupil revenue increase when enrollments decline, with a greater windfall occurring the larger the drop in revenue. In the scenario presented in Table 2, where enrollment declines by 10,681, per pupil revenues increase by \$614 per student in the first year after the enrollment decline. As should be apparent, the larger the decline in enrollment the greater is the initial per pupil increase in revenue.

**Table 2**

<b>Change in Montana School District 2006-07 Revenues Resulting From a Decline in Enrollment</b> (Enrollment Decline From 144,681 to 134,000)				
<b>Revenue Source</b>	<b>Amount</b>	<b>Change from Actual 2006-07 Revenue</b>	<b>Per Student (FTE)</b>	<b>Change Per Student</b>
<b>State Sources</b>				
Funding Based on Enrollment	\$572,469,734	(\$13,024,878)	\$4,272	\$225
Categorical Aid and Equalization	\$116,995,705	\$0	\$873	\$64
<b>Total State Sources</b>	<b>\$689,465,439</b>	<b>(\$13,024,878)</b>	<b>\$5,145</b>	<b>\$289</b>
Local Sources*	\$560,304,575	(\$12,846,103)	\$4,181	\$220
Federal Sources	\$190,670,951	\$0	\$1,423	\$105
<b>Total</b>	<b>\$1,440,440,965</b>	<b>(\$25,870,981)</b>	<b>\$10,750</b>	<b>\$614</b>

The table shows that, compared to actual revenues for the 2006-07 school year, the decline of 10,681 students would lower total district revenues by \$25.9 million, but per-student revenues would actually increase by \$614 per student.

The implications of this analysis are:

- Under the current system of Montana public school funding, a decline in local district student enrollments, while resulting in a decline in total revenues, actually produces an increase in the resources available for educating each student who remains in the district.
- Because school funding does not decline proportionately with enrollment, a loss of students cannot result in lower per-student revenues being available to school districts.

- Smaller public school enrollments can result in large savings for the State of Montana without reducing the per-student revenues available to local school districts.
- Montana could, as an alternative to realizing savings from enrollment declines, 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 the 2006-07 school year, the loss of a student from a Montana school district would mean the loss of only about 25 percent of the state aid associated with a student in the first year after the student left the district (about \$1,219 of the \$4,856 in state education aid), leaving \$3,637 in state aid in the district. Because of Montana’s local school district budgeting procedures, the loss of a student would also still allow districts to collect \$2,758 in local tax revenue in the first year (declining in the second year) after a student leaves a district, resulting in a loss of only \$1,203 or 30 percent of the local revenues associated with each student leaving a district. If the loss of these funds is lower than the expenditures attributable to each child, school districts cannot be made financially worse off by a loss of enrollment. In the next section we will consider the extent to which these expenditures vary with enrollment.

## How School Expenditures Vary With Enrollment

Evaluating the fiscal impact of enrollment changes on Montana school districts requires not only an understanding of how state education aid to communities is affected, but also some estimate of how expenditures of school districts change in response to enrollment changes.

When students leave a school district in Montana, the district loses state aid associated with those children (more accurately as noted earlier, Montana’s school finance system actually results in a phasing out of the revenue over a period of years), but expenses associated with educating those children also decline. One criticism of school choice is that the loss of students is not accompanied by a concomitant 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.<sup>10</sup>

Using detailed school district data from the Montana Department of Public Instruction, we employed an econometric approach to estimate the variable expenditures associated with educating each student in Montana. We used detailed school district financial data from all districts for the 1996-1997 through 2007-08 school years to determine to what extent total expenditures and general fund (those expenditures most directly related to instructional expenditures, excluding such expenditures as capital expenses, debt service, transportation, and enterprise funds) are variable (that is, responsive to the addition or loss of students in a district).<sup>11</sup> For this study we considered variable expenditures to be expenses that are dependent on enrollment levels over a period of at least a year. This analysis will test the expectation that school districts can and do adjust their expenditures to reflect enrollment levels from one year to the next.

We developed simple linear regression models to estimate the expenditure structure of public schools in Montana. We identified the model with the strongest ability to describe and predict how both total expenditures and ‘general fund’ expenditures of school districts change in response to changes in enrollment. It is expressed by the following equation:

$$ChngExpenditures = \alpha + ChngEnrollment + PPWealth + 1996Expend + \epsilon$$

Where:

$\alpha$  = Constant

*ChngExpenditures* = Change in district expenditures (total or general fund) 1996-2007

*ChngEnrollment* = Change in district enrollment 1996-2007

*PPWealth* = Local property tax base per pupil

*1996Expend* = Total district expenditures (total or general fund) in 1996-07 school year

$\epsilon$  = Error term

We include 1996 expenditures as an explanatory variable because the past preference for the level of spending on schools is likely to be a strong predictor of current and future preferences for spending levels. That is, districts that spend more or less on a per pupil basis relative to other districts are likely to continue a similar relative pattern unless there is a significant change in the demographic composition of a community. The model estimates that the variable expenditures associated with educating each additional public school student in Montana in the 2006-07 school year were \$6,806 or 57 percent of the \$11,951 total expenditures per student (including non-operating expenditures such as capital expenses and debt service) across all districts.<sup>12</sup>

Results suggest that the variable expenditures associated with changes in enrollment are \$4,541 or 62 percent of total general fund expenditures of \$7,324 per student annually. The percentage of expenditures that is variable (dependent upon enrollment levels) is lower in Montana than in other states where comparable analyses have been employed and may be attributable to a greater number (and percentage) of very small school districts in Montana. Non-variable (fixed) expenditures that are spread over a smaller enrollment base will increase the percentage of total expenditures per pupil that are fixed.

The model explains 89 percent of the nominal change in school district expenditures between the 1996-97 and 2007-08 school years. A majority of district expenditure data in Montana is reported as spending by individual schools and thus provides a more accurate depiction of how expenditures are affected by changes in enrollment than does data for districts that include many schools (because some schools in a district may have experienced enrollment changes different than other schools or the district total). These results are not meant to imply that an increase or decline in a small number of students in a school would necessarily lead to increases or decreases in school expenditures of \$6,806 per student (or \$4,541 in general fund spending). However, in larger numbers and across districts, expenditures over time are highly responsive to enrollment changes.

Because the change in expenditures associated with each student who enters or leaves Montana’s public schools is greater than the loss of state education aid and local revenue per student, the loss of students from a school district would have a net positive impact on local school district finances. At the same time, the district would (on average) see a decrease in general fund expenditures of \$4,541, or \$6,806 in total expenditures. Thus, at least in the short run, school districts are financially better off when enrollment declines in a Montana school district. Even if enrollment declines resulted in the loss of all federal aid (an unrealistic scenario), each district still would retain a portion of the state revenue associated with each student that left the district (for another 2 years) as well as a portion of per student local revenues.

**Table 3**

Variable Expenditure Model Summary						
Model	R	R <sup>2</sup>	Adj R <sup>2</sup>			
1	0.945	0.975	0.891			
Coefficients						
		Unstandardized Coefficients	Standardized Coefficients			
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	34150.442	47215.550		.723	.470
	ChgEnrollment	6806.019	324.823	.382	20.953	.000
	ChngValpp	2.490	.955	.043	2.608	.009
	1996Total Budget	.625	.011	1.056	57.758	.000

*Dependent Variable: ChngExpenditures*

Each year thousands of school children migrate between school districts; individual districts lose and gain students; and local districts regularly adjust their expenditures to accommodate these changes. Our analysis of U.S. Census Bureau data

suggests that 11.8 percent of Montana school age children in 2007 lived in a different home or apartment than they did in 2006.<sup>14</sup> This implies that about 17,000 public school students change residences each year, and it is likely that a significant percentage of those who move do so in a way that requires changing schools and/or districts. The number is likely to far exceed the number who would participate in a tax-credit scholarship program. Our analysis shows that concerns over the potential fiscal impacts of school choice on local school districts not only are overstated, but they fail to understand the fundamental local district fiscal effect of expanding school choice in Montana: an increase in the resources available for each student who remains in the school district.

## How State Education Aid Affects Local Education Expenditures

Developing a time-series database of state and local education finance variables in Montana allows us to examine and understand the impacts of enrollment changes and other important issues in education finance. There are at least three related education finance questions that may influence an evaluation of any program to expand the education options available to Montana families:

- How does state education aid affect the aggregate level of local expenditures?
- How does state education aid affect different expenditure categories?
- How does state education aid affect the equitable provision of education services across local districts and among children across and within districts?

None of these questions is the central focus of this study, but thoughtful consideration of a tax-credit scholarship program cannot escape these critical questions. Consideration of equity across local districts and among individual children is a topic for another study.

## Each Dollar of Additional State Aid Increases School Expenditures by Only 44 to 66 Cents

Increases in state education aid do not necessarily result in a concomitant increase in educational expenditures by school districts. Local school districts can respond to an increase in state aid by reducing the local tax burden for education, or by shifting local expenditures from education to non-educational categories without either reducing tax collections or increasing education expenditures.<sup>15</sup> In addition, a primary objective of Montana's school finance system appears to be limiting the variation in spending levels between districts. Although a worthy goal, it is achieved, in part, by placing limits on the amount districts can spend. One result is that increases in state education aid may not result in concomitant increase in education expenditures, even for those districts which would choose to use all state aid to increase education spending (rather than using it to reduce local education property tax burdens or by shifting local expenditures to non-education expenditures).

Based on our analysis of Montana spending data, we estimate that between 1996 and 2007, each additional dollar of state education aid resulted in between 44 and 66 cents of additional education spending in public schools.<sup>16</sup> This figure is in a range of estimates (centered around 50 percent) from individual states and found in the literature on school finance. The results offer a cautionary note to those who seek to increase education expenditures by simply increasing state aid to schools. A number of factors, including local preferences for education spending that are largely determined by demographic and socioeconomic variables (such things as the level of educational attainment of the adult population in a community) all contribute to increased additional spending.

The legal requirements imposed by most states that dictate state education aid be used for education spending are easy to meet without actually increasing local education budgets. Local governments can simply move the same number of local tax dollars out of the school budget as the number of state dollars that come into the school budget. A local government that reduces education expenditures by \$1 million when it accepts an additional \$1 million in state education aid has complied with the legal requirement to spend state education aid on education. The local government could spend the \$1 million in new state funding on education while spending \$1 million in local tax revenue—which it would have raised for education in the absence of the state aid—for other local services. In this case, education spending would not increase and taxes would not be lowered, but spending on other local services would increase. Or it could simply reduce local taxes by \$1 million, in which case taxes would be lowered while spending on both

education and other local services would not increase. Montana restricts the budget authority of local districts both in terms of minimum and maximum expenditure levels and this may account for some of our model estimates that indicate close to 70 percent of state aid is used for education spending, a percentage higher than most estimates found in the studies of other states.

As our results and those of other researchers indicate, the most likely outcome of additional state education aid is a combination of increases in education spending, increases in non-education spending increases, and some property tax relief.

These findings and those in prior sections of this study support at least three important conclusions that are relevant to an evaluation of a tax-credit scholarship program:

- Because each dollar of additional state education aid, on average, translates into much less than one dollar of additional local spending on education services, the current system of education finance is a relatively inefficient method of increasing educational services and educational opportunities for Montana students.
- By contrast, education funding that provides scholarships for students to attend schools would result in \$1 of educational expenditures for each \$1 of funding (if administrative expenses for the program are counted as educational expenditures, as they are in the public school system). For those most concerned with creating equitable educational opportunities across schools and districts, or maximizing education expenditures for each tax dollar allocated for education, tax-credit scholarships are thus a more efficient mechanism for directing expenditures for education and for providing increased educational opportunities than is increased state education aid.
- Because the reduction in school district revenue associated with declines in enrollment is less than the variable cost of educating students, school districts cannot be made financially worse off (over periods of more than one year) by the loss of students to a scholarship program. This point will be discussed in greater detail later in this study.

## Demographics of Montana’s School-Age Children

Thirty-four percent of students in Montana’s public schools qualify for the federal free and reduced-price lunch program and a similar percentage of private school students (31 percent) qualify. That means they reside in households with income levels at or below 185 percent of federal poverty guidelines, which are based on family size. A family of four can earn up to \$39,220 in 2008 and have its children qualify for free or reduced-price lunches (Table 4).

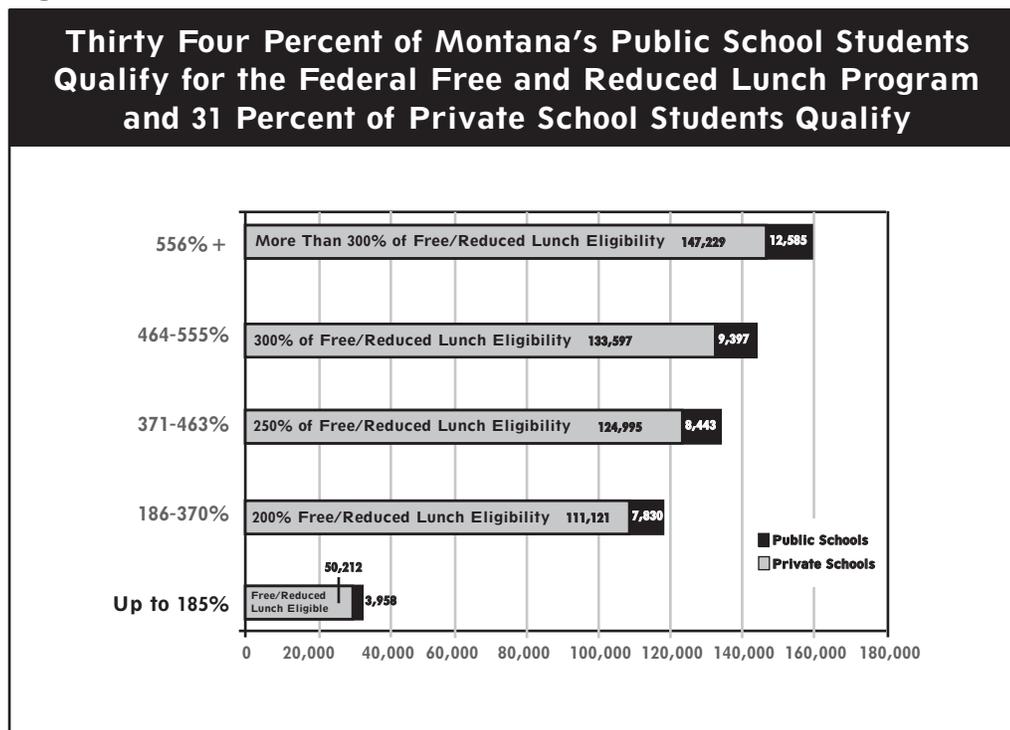
Table 4

2008 Poverty and Free/Reduced Lunch Income Guidelines					
Family Size	Poverty	Free and Reduced Lunch Eligibility	% of Free and Reduced Lunch		
			200%	250%	300%
1	\$10,400	\$19,240	\$38,480	\$48,100	\$57,720
2	\$14,000	\$25,900	\$51,800	\$64,750	\$77,700
3	\$17,600	\$32,560	\$65,120	\$81,400	\$97,680
4	\$21,200	\$39,220	\$78,440	\$98,050	\$117,660
5	\$24,800	\$45,880	\$91,760	\$114,700	\$137,640
6	\$28,400	\$52,540	\$105,080	\$131,350	\$157,620
7	\$32,000	\$59,200	\$118,400	\$148,000	\$177,600

Our results indicate that about 50,000 students in K-12 public schools qualified (although they may not have participated in the program) for free or reduced price lunches in 2007 and another 3,570 students qualify in private schools (see Figure 1). The relatively high percentage of free and reduced lunch eligibility among private school students (31% compared to 34% in the public schools) is an indication of the demand for private education among the families of economically disadvantaged

children in Montana, and likely extraordinary efforts (monetary and otherwise) on behalf of the children and their families to allow them to attend the schools of their choice.

Figure 1



Source: Author Analysis of U.S. Census Bureau American Community Survey 2007 data for Montana

### Characteristics of Public and Private School Children in Montana

According to the Montana Department of Public Instruction, about 8 percent of Montana school-age children either attend private schools or are home schooled. Our analysis of Census Bureau, American Community Survey and decennial census data suggests a slightly higher but similar figure. Using either measure, it appears that between 12,000 and 13,000 Montana school aged children are enrolled in private schools or are home schooled. For a mostly rural state, with many small school districts, this is a relatively high percentage of private school enrollment.

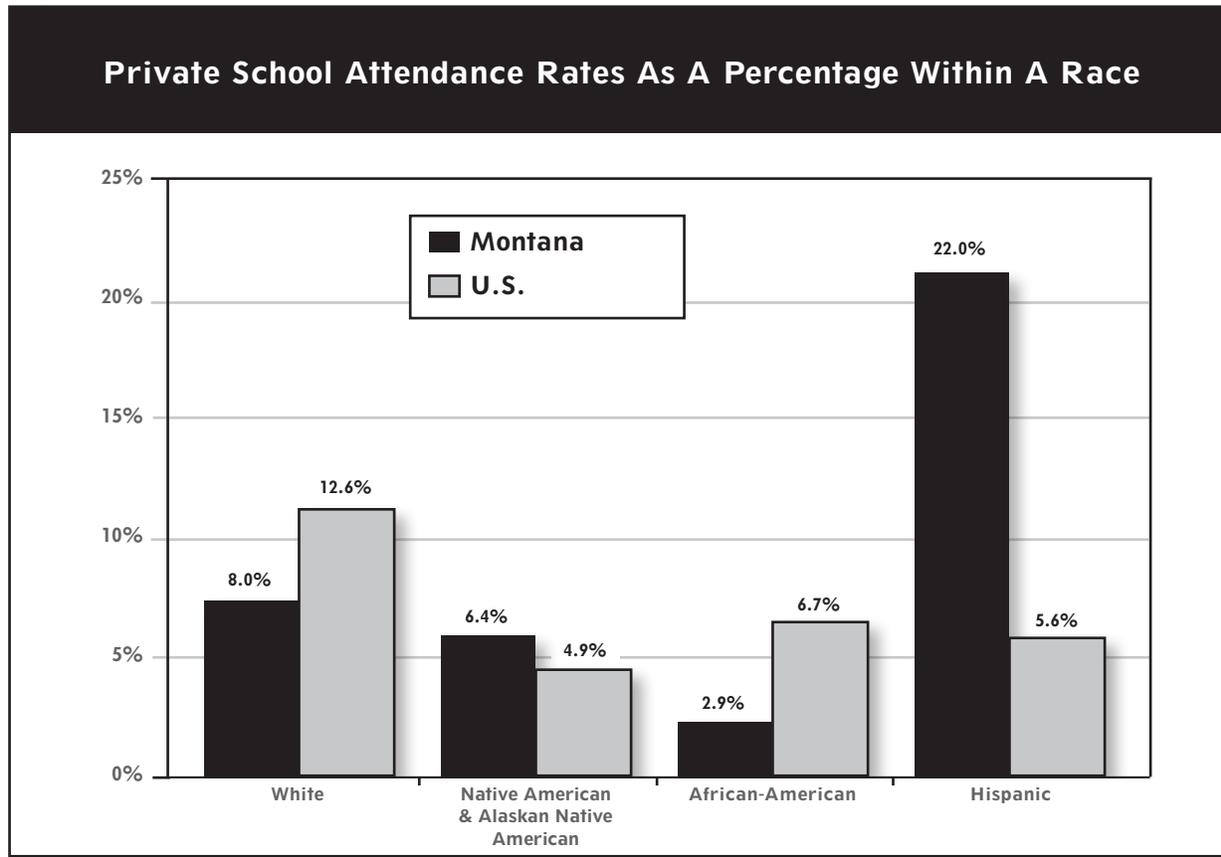
In the absence of a universal school choice program, parents will largely exercise school choice by choosing to live in communities that best match their preferences for educational services or by paying to have their children attend private schools. One result of the absence of a universal choice program is that families and school children segregate themselves along lines of income, parental educational attainment and race and ethnicity.

A primary goal of Montana’s public school finance system is to minimize spending differences between districts. One result of that goal has been regulations which limit the ability of districts to spend at the desired level of educational services. In that situation, it is likely that families who are less able to exercise educational choice by residing in communities that match their preference for spending on educational services would, instead, exercise choice by attending private schools in relatively higher percentages for a rural state. In addition, the higher percentage of students from lower income families in Montana’s private schools accounts for some of the state’s relatively high percentage of private schooling.

Nevertheless there is still segregation in schools along income lines in Montana. Montana’s pattern of private school enrollment differs than the pattern exhibited in much of the country. An examination of the characteristics of Montana school children provides some indications of the tendency to segregate in the absence of school choice.

- The overall percentage of children in private schools in Montana is relatively low, especially among white students, but among Native American and Hispanic students, the rate is higher than the U.S. average (see Figure 2.)

Figure 2



Source: Author analysis of US Census "American Community Survey" 2007 data for the U.S. and Montana

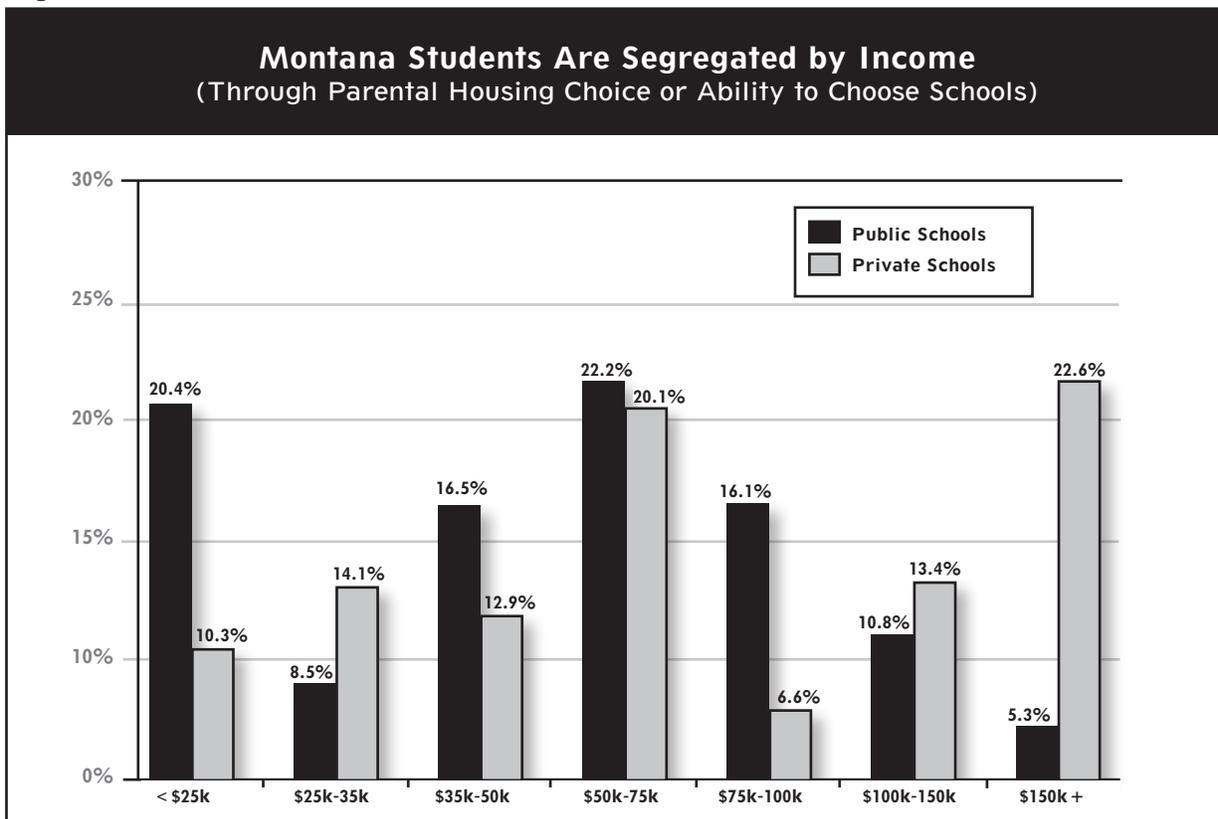
- Twenty-one percent of students in Montana public schools come from families with an annual income below \$25,000, compared to 10 percent of students in private schools. More than one-third (36%) of Montana students from families with incomes of at least \$100,000 attend private schools, while 15% of public school students are from families earning at least \$100,000. Figure 3 shows the income distribution of both public and private school students in Montana.
- A somewhat higher percentage of lower income minority students (Native American and Hispanic) enroll in private schools in Montana compared to the U.S. as a whole.

The demand for private schooling in Montana increases significantly as family income increases, suggesting an income elasticity of demand for private schooling of 0.5 or below at lower income levels and 1.0 or above at the highest income levels. Income elasticity refers to the change in demand for private schooling that occurs with each percentage-point change in family income. An elasticity of 0.5 indicates that, if family income doubled (an increase of 100 percent), there would be a corresponding increase in private school attendance of 50 percent. Figure 4 shows that lower and lower-middle income families in Montana are underrepresented in private schools compared to the U.S. average.

Together, these data suggest that:

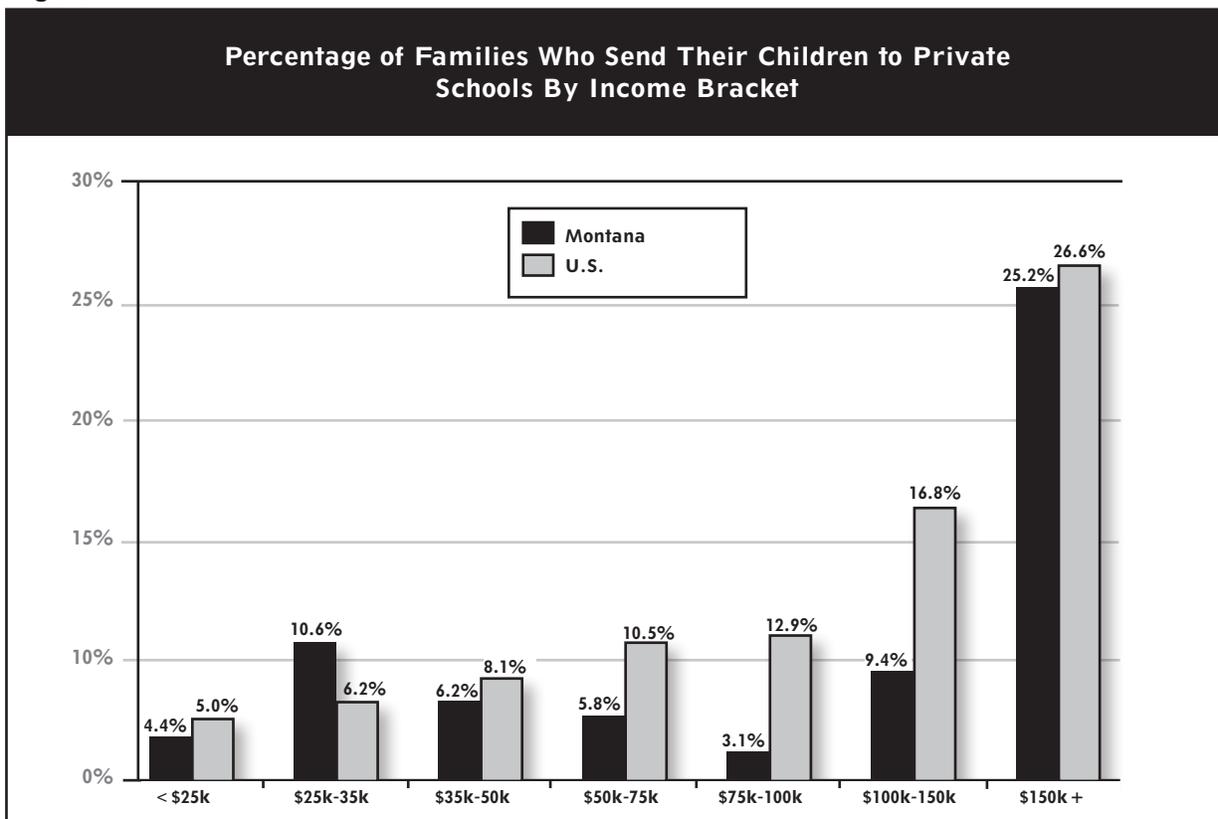
- There are substantial economic and racial differences in the composition of public versus private schools in Montana, indicating a difference in the ability of parents to choose private schools for their children.
- The rates of private school enrollment among Montana families of higher incomes compared to enrollment among lower-income families suggest that a large percentage of Montanans 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 and other lines in Montana schools will likely continue.

Figure 3



Source: Author analysis of US Census "American Community Survey" 2007 data

Figure 4



Source: Author Analysis of U.S. Census Bureau American Community Survey 2007 data

## Proposals to Increase Educational Options and Opportunities

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. Like most states, in Montana there exists significant separation of students in Montana's public and private schools along income and racial lines. 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 these families are more likely to face.

Montana could achieve a number of important fiscal and educational objectives by increasing the options parents have for educating their children. Tax-credit scholarships could prove one method. Proposals for such scholarships have arisen, in part, in response to concerns about the quality of public schooling and the rising demand for private schooling created by those concerns.

To provide equal access to school options among students of different socioeconomic and demographic backgrounds, Montana, like other states, should consider providing a tax credit to individuals and businesses for contributions made to organizations that provide tuition scholarships to families who want to attend private school. Under one proposal, tax credits could be capped at \$500 for a single taxpayer or \$1,000 for a married couple filing a joint tax return. Businesses could claim a credit against their corporate taxes up to 75 percent of their corporate tax liability. Total tax credits available to corporate and individual contributors to student scholarship granting organizations could be capped at a modest amount of from \$10 to \$20 million in the first year.

The educational and fiscal impact of a tax-credit scholarship program will be determined by the amount of contributions. The higher the contributions to scholarship organizations, the more tax credits would be claimed. Higher contributions would also make more scholarships available as well. To better understand the implications of a tax-credit funded scholarship program in Montana, our analysis begins by considering the volume of contributions to scholarship organizations that can be expected. We then consider the degree to which the program induces children currently in (or planning to attend) Montana's public schools to migrate to private schools. During the 2006-07 school year, the state paid, on average, about \$4,856 for every student enrolled in a public school (of which \$4,047 per student varies with each increase or decrease in student enrollment.) For the scholarship program to be fiscally neutral or better for the state budget, it must induce enough students to migrate from public to private schools so that savings in state per-student education aid equal or exceed the forgone tax revenue (tax credits) that funds the tuition scholarships.

Forecasting the impact of Montana's proposed tax-credit scholarship program requires that we predict how parents will respond to the availability of scholarships. To estimate the number of students who will receive scholarships and attend private schools, we examined the size of the school-age population in public and private schools; the characteristics and differences of the population of school children in public and private schools; and how those differences likely will affect the demand for scholarships. We analyzed the interactive effects between the volume of scholarship funds available; the average dollar value of individual scholarship awards; the total number of scholarship awards; and the impact the migration of public school students to private schools will have on public school enrollments and finances in Montana.

## Estimating Program Participation Levels

The fiscal impact of the Montana tax-credit scholarship proposal first would depend on the volume of contributions and the value of the tax credits claimed by individuals and corporations that fund scholarships. To begin our analysis, we consider the volume of contributions expected to be claimed.

With a scholarship tax credit, businesses and individuals can choose to pay taxes to be used for general state services or they can contribute to a scholarship granting organization to provide scholarships for students enrolling in private schools or out-of-district public schools. When businesses or individuals make a contribution to the tax credit program they directly target the use of their tax dollars to support education. Given this choice, many businesses and individuals can be expected to contribute to the program. With a tax credit, Montana increases educational expenditures in a way that does not occur when state education aid is increased. As we noted earlier, each additional dollar of state education aid increases school

expenditures by only 44-64 cents. With a tax-credit scholarship program, the funding created by tax credits results in \$1 of educational expenditures for each \$1 spent. For many business and individuals, the ability to target their funding to educational expenditures 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 independent 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, offer credits to individuals or corporations who contribute to organizations that provide private school scholarships. The experience of these states is directly relevant to the Montana proposal.

By donating to scholarship organizations and receiving a tax credit in return, individuals and businesses contribute to Montana's public good in an amount equal to what they would have paid had they not contributed to the scholarship organization. Thus, total payment to the public good of Montana by individuals and businesses is not decreased by the tax credit program; rather, contributors to scholarship organizations ensure that their payments go directly to support the education of Montana students. As noted earlier in the study, funding contributed to scholarship organizations produces a larger overall increase in the educational services purchased per dollar compared to money spent on state education aid.

In states such as Florida and Pennsylvania, the opportunity to direct tax payments to scholarship programs proved to be a powerful incentive for businesses. These states saw their donation limits met in the first year of implementation. Each state subsequently increased the total allowable tax credits.

## Business Contributions to Scholarship Organizations

States that have enacted similar tuition scholarship tax credits have capped the total dollar amount of tax credits available to businesses and individuals. The experience of other states clearly indicates that we can reasonably expect businesses to contribute up to the maximum amount allowed by a cap. There are many reasons Montana may want to provide a tax credit for businesses that contribute directly to educating Montana's children. Doing so would:

- Establish a convenient and consistent mechanism and incentive for businesses to contribute directly to educating Montana's children.
- Target educational expenditures directly to families and children rather than institutions that may reduce the amount of resources that go directly to students.
- Direct resources to students most in need of educational options and least likely to benefit from general increases in school district budgets.
- Give businesses a meaningful and convenient way to address their concerns about the quality of public education and its impact on business and the Montana economy.

Beyond the experience of other states, there are clear reasons why businesses can be expected to make contributions up to the maximum tax credit allowance:

- In nationwide surveys, nearly half (48 percent) of all businesses indicated that education was the top priority for their philanthropic and civic activities.<sup>17</sup>
- Unlike tax payments, contributions to a program such as the Montana tax-credit scholarship program are assumed to generate concomitant civic and public relations opportunities and benefits.

According to the Montana Department of Revenue, 36,233 corporate license tax returns were filed in Montana in 2006. Collectively they generated \$154 million in corporate license taxes.<sup>18</sup> In addition, corporations paid another \$154 million in

natural resource taxes for such things as coal, oil, gas, and mineral extraction and production. Another \$121 million in natural resource taxes were paid to local governments in Montana. These numbers suggest that a tuition tax credit program with a cap \$10 million would, at most, allow Montana corporations to offset about 3.6 percent of their corporate license or state natural resource tax liability. However, because credits also are available to individuals as a credit against personal income taxes, competition for available credits is likely.

### Scholarship Contributions from Individuals

According to data from the Montana Department of Revenue, if \$10 million in available credits were claimed by individuals, the approximately \$800 million in income tax liability for Montana residents in 2007 would have been reduced by about 1.25 percent.<sup>19</sup>

To estimate the volume of contributions and tax credits that would be claimed by individuals, we developed a model that uses data on the charitable contributions of Montana residents derived from the Internal Revenue Service’s Statistics of Income; historical survey research data on the percentage of charitable contributions that are directed to educational organizations; and analyses of the experience of other states with tuition tax credits.

Historically, about 20 percent of individual taxpayers have indicated that they contribute to educational organizations and about 30 percent of their total contributions go to education organizations.<sup>20</sup> Charitable contributions as a percentage of Adjusted Gross Income (AGI) in Montana for the most recent year for which contribution data are available (2006), indicate that 117,396 Montana residents itemized their deductions and claimed charitable contribution tax deductions of \$416 million equal to just over 2 percent of their total AGI of about \$20.4 billion.<sup>21</sup>

Arizona has more than nine years’ experience with an individual tax-credit scholarship program (more recently that state has also enacted a corporate tax-credit scholarship program.) In Arizona, individual contributions to scholarship organizations equal just over 1 percent of the total volume of charitable contributions in the state, and equal to about 0.03 percent of the total AGI of Arizona residents.<sup>22</sup> We applied Montana’s historical rate of charitable giving to projections of the AGI of state residents to estimate the overall level of charitable contributions from individuals in the state for each year to 2016.<sup>23</sup> We then applied ratios derived from Arizona’s experience to produce two estimates (based on scholarship contributions as a percentage of all charitable contributions in Montana and scholarship contributions as a percentage of total AGI) of total contributions to student scholarship organizations. Our final estimate was an average of the two projections. Table 5 presents our estimate of contributions from individual taxpayers by AGI in Montana from 2009 to 2016. The table indicates that individual taxpayers can be expected to claim tax credits for contributions in amounts equal to about one-half the capped amount if credits are capped at \$10 million or about one-third if credits are capped at \$15 million.

**Table 5**

Projected Tax Credits Claimed by Individuals, by Taxpayer Income								
Income	2009	2010	2011	2012	2013	2014	2015	2016
< \$20k	\$125,344	\$129,104	\$132,977	\$136,967	\$141,076	\$145,308	\$149,667	\$154,157
\$20-30k	\$173,387	\$178,588	\$183,946	\$189,464	\$195,148	\$201,003	\$207,033	\$213,244
\$30-50k	\$521,803	\$537,457	\$553,580	\$570,188	\$587,293	\$604,912	\$623,060	\$641,751
\$50-75k	\$806,234	\$830,421	\$855,334	\$880,994	\$907,424	\$934,646	\$962,686	\$991,566
\$75-100k	\$638,013	\$657,153	\$676,867	\$697,174	\$718,089	\$739,631	\$761,820	\$784,675
\$100-150k	\$613,927	\$632,344	\$651,315	\$670,854	\$690,980	\$711,709	\$733,061	\$755,052
\$150-200k	\$259,787	\$267,581	\$275,608	\$283,877	\$292,393	\$301,165	\$310,200	\$319,506
\$200-500k	\$479,064	\$493,435	\$508,239	\$523,486	\$539,190	\$555,366	\$572,027	\$589,188
\$500k-1M	\$217,241	\$223,758	\$230,471	\$237,385	\$244,506	\$251,842	\$259,397	\$267,179
1M >	\$584,069	\$601,591	\$619,639	\$638,228	\$657,375	\$677,096	\$697,409	\$718,331
<b>Total</b>	<b>\$4,418,867</b>	<b>\$4,551,433</b>	<b>\$4,687,976</b>	<b>\$4,828,616</b>	<b>\$4,973,474</b>	<b>\$5,122,678</b>	<b>\$5,276,359</b>	<b>\$5,434,649</b>

The figures in Table 5 represent the amount of contributions that can be expected in the absence of a cap on available tax credits. Because contributions from corporations can be expected to be greater than those from individuals, the actual amount of contributions claimed by individuals would depend upon how credits are allocated between corporations and individuals.

## Tuition Prices Strongly Influence Demand for Private Schools

The impact that a tax-credit scholarship program would have on public and private school demographics in Montana, as well as on state and local finances, depends on contributions, decisions of scholarship organizations and the response of families of children in public and private schools to the availability of scholarships. These are difficult to forecast. Program design elements and eligibility criteria would combine to influence the participation of Montana families.

To estimate the response of Montana 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 included are:

- The income-eligibility requirements for program participation;
- The average dollar value of tuition scholarships; and
- The expected price elasticity of demand for private schooling according to income level.

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 of the impact of changes in the price of private schools on demand (the price elasticity of demand) indicate that the demand for private schools increases as the price to families declines (and the demand decreases as the price rises), a so-called negative price elasticity. The range of estimates between these studies is large, however. 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.<sup>24</sup> A 1994 study by university economists in Georgia estimated the elasticity of demand for private schooling in rural areas of that state to be -1.07.<sup>25</sup>

Both the participation rate and fiscal impact of a scholarship program would 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 \$1,500 to \$5,000.

The number of scenarios and program design combinations is nearly infinite. Our purpose is to create an understanding of how design elements would affect program participation, and ultimately the fiscal impact. For Montana families, a scholarship with a value of \$1,500 would represent a 23 percent reduction in the estimated average 2008 private school tuition of \$6,400.<sup>26</sup> To estimate program participation, we calculated the reduction in price that scholarships of various dollar values would have on our forecast of the average price of tuition and applied different price elasticities and means tests to the distribution of school-age children in public and private schools in Montana.

Figure 5 presents our estimate of participation in a scholarship program in Montana at different scholarship values if all students were eligible regardless of income and if scholarships were of the same value. The chart shows that as many as 9,800 public school students, or about 6.8 percent of all public school students, would seek to participate in a scholarship program with these design features, while obviously all of the current private school students (not including those home schooled) would seek to take advantage of the program.

However, if a scholarship program were enacted in Montana it might restrict eligibility - especially for students currently enrolled in private schools - by means testing or in some other manner. For fiscal reasons that will be highlighted later in this study, it is beneficial for the state to make as many public school children eligible for scholarships as possible

to encourage maximum migration from the public to private schools. Depending on the dollar value of scholarships, means testing or a reduction in the value of scholarships as income rises can have a negative effect on the fiscal impact of a tax-credit scholarship program.

Figure 5

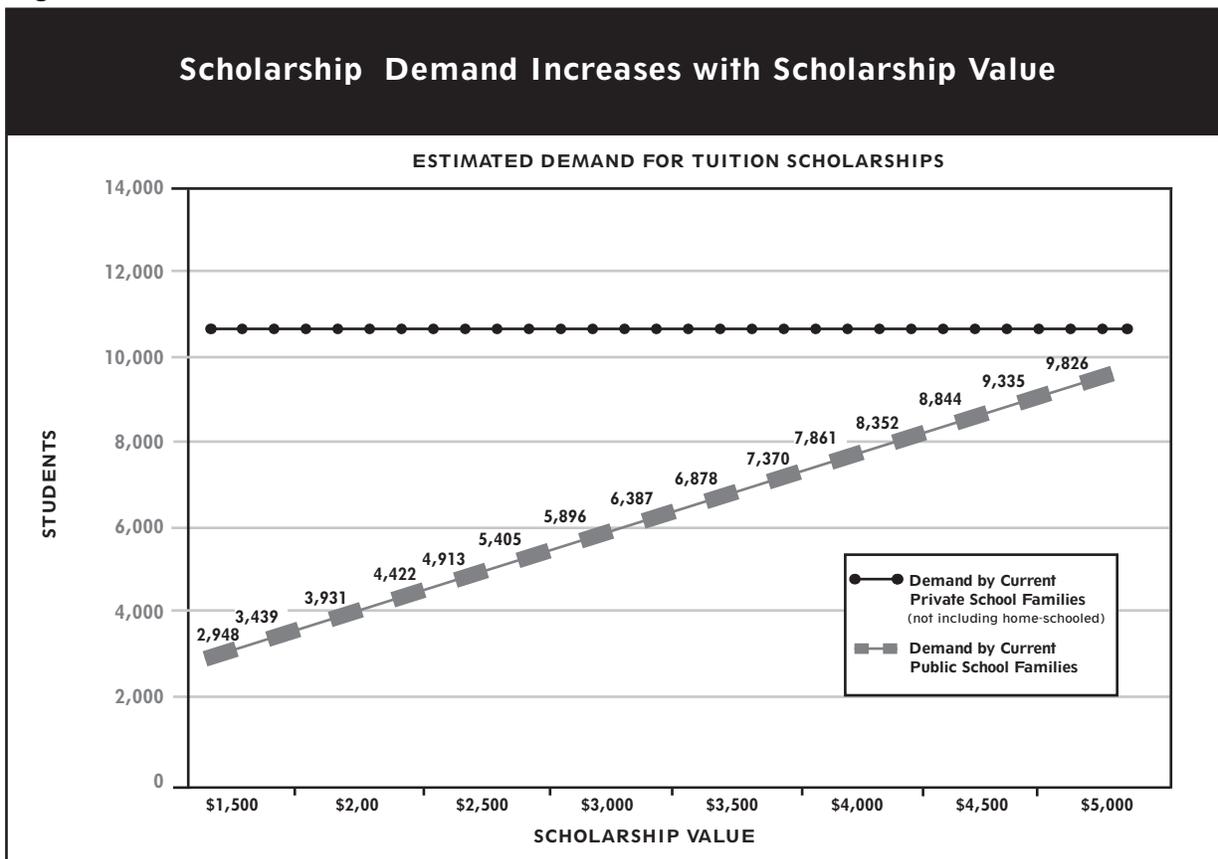


Figure 6 shows the impact on estimated demand for scholarships among public school students if eligibility is means tested. The means tests are based on eligibility for the federal free and reduced-price lunch program as highlighted in Table 4. Eligibility ranges from the standard set for the free and reduced-price lunch program (185 percent of federal poverty guidelines) to three times the family income that would make a student eligible for free or reduced lunches (about 555 percent of federal poverty guidelines).

The figure shows that means testing can dramatically reduce program participation because fewer public school families are eligible. As importantly, the elasticity of demand for private schooling is much lower among lower-income families, meaning they are less likely to participate in a scholarship program than higher-income families regardless of the value of the scholarship. As we document in subsequent sections of this study, reducing eligibility among public school families actually results in lower fiscal benefits (or even fiscal losses) for the program. Thus, more restrictive means testing does not improve the fiscal impact of a program.

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, Montana would receive no fiscal benefit (in the form of reduced state education aid payments) from increasing their eligibility. The primary effect of restricting the eligibility of current private school students would be to reduce the competition for scholarships and increase the fiscal benefits to the state.

On the other hand, 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.

Figure 6

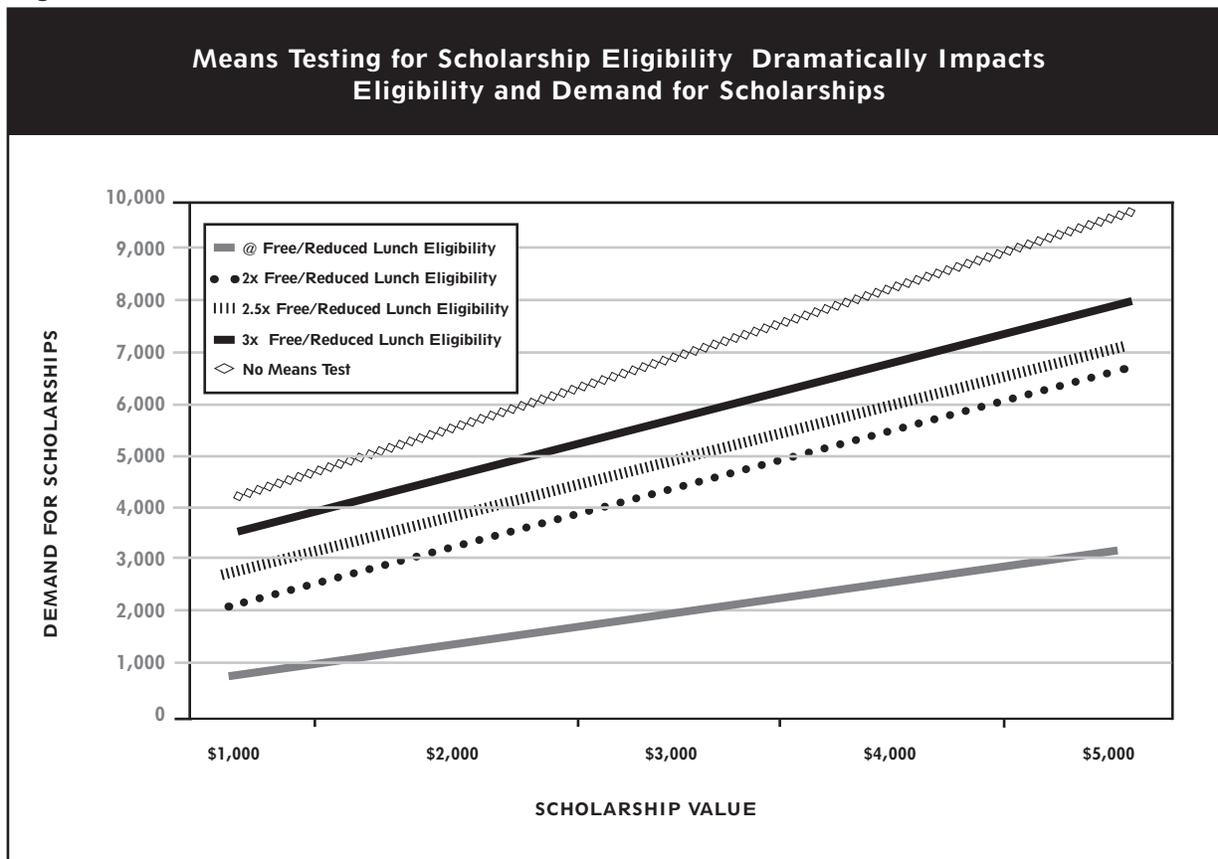
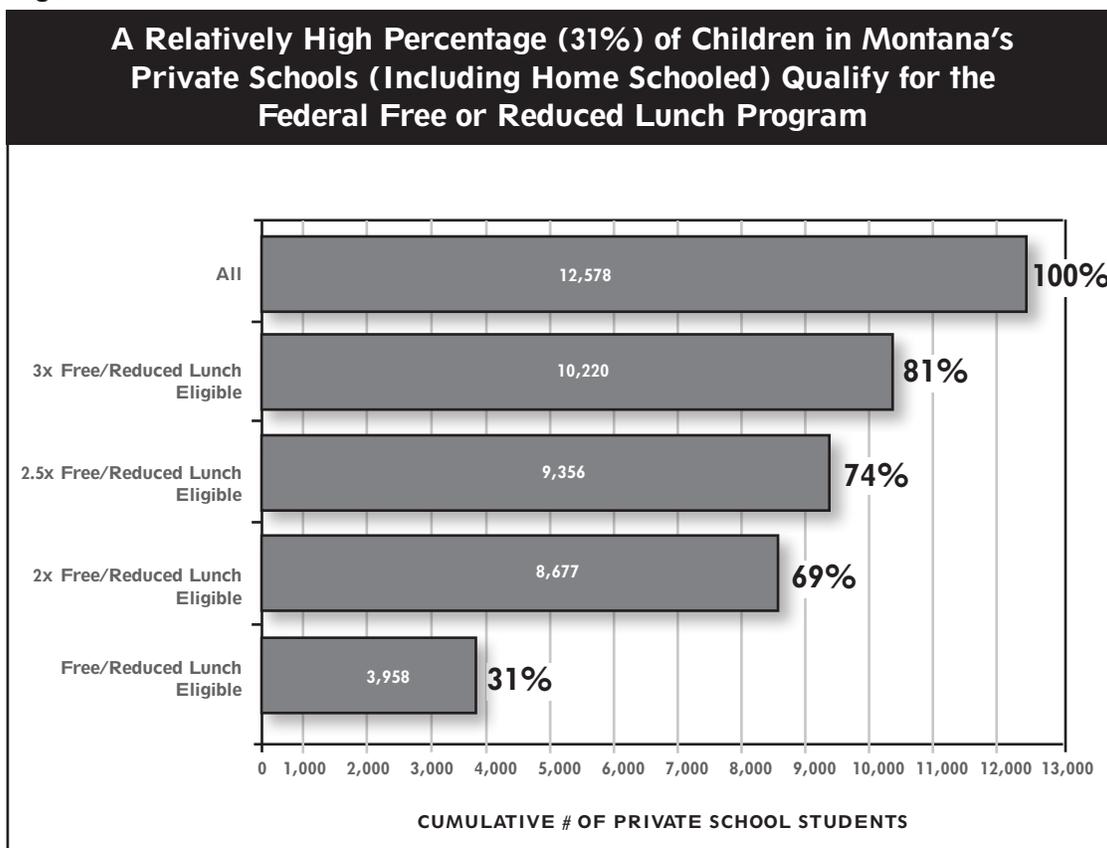


Figure 7



Source: Author Estimates Using US Census Bureau "American Community Survey" 2007 data for Montana

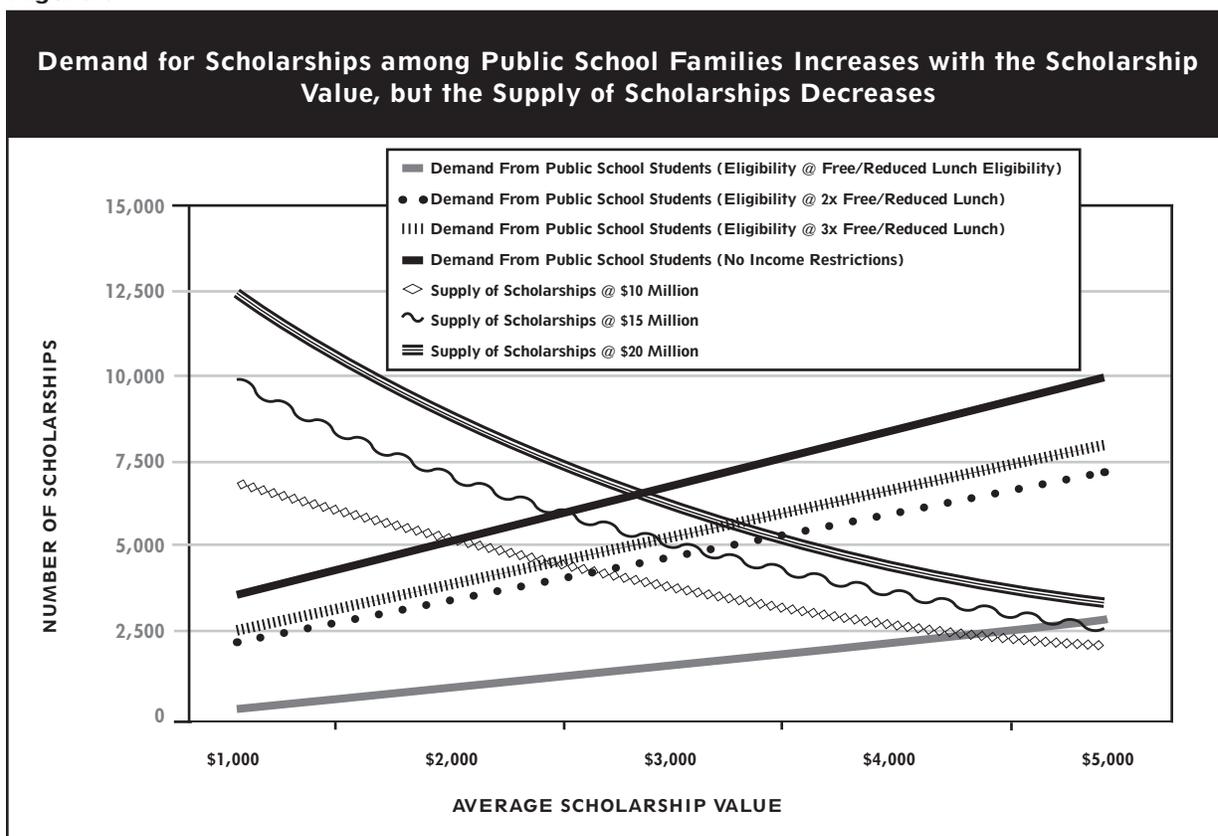
Figure 7 shows how eligibility for scholarships among private school students is affected by means testing based on multiples of eligibility for the federal free or reduced-price lunch program. For example, if private school student (including home-schools) participation is limited to students from families with incomes less than 2 times the level that would qualify them for the federal free or reduced-price lunch program, about 30 percent of private school students are eliminated from eligibility. Meanwhile, lower-income families are not discriminated against simply because they made sacrifices to have their children educated in a school of their choosing, prior to enactment of a scholarship program.

### Combining Supply and Demand Models to Estimate the Number of Scholarships

The experience of states such as Arizona suggests that the number of scholarship applicants (i.e. demand) would be greater than the available number of scholarships. In Montana, the supply of scholarship money likely would be limited in each year, and it likely would not be sufficient to award scholarships to all applicants. As an example, we have estimated that the average private school tuition in Montana is \$6,400 and a scholarship of \$3,500 would reduce tuition by an average of 55 percent. Using a reasonable estimate of price elasticity of  $-0.75$ , a 55 percent decline in private school tuition should increase demand for private schools by about 5,159 among those students currently enrolled in Montana public schools, or about 3,838 if eligibility is limited to students from families with incomes below 2.5 times the income level for free or reduced-price lunch eligibility.<sup>27</sup> At the same time, scholarship funds would likely be limited. If scholarship funds from tax credits are limited to \$10 million, only 2,714 scholarships would be available (if 95% of contributions are used for scholarships and 5% of contributions are allowed for scholarship administration.) That is about 53 percent of the demand for scholarships, or about 71 percent of demand if eligibility is restricted. If scholarship funding were increased to \$15 million, 4,071 scholarships worth \$3,500 each would be available and 79 percent of the demand for scholarships could be met if income eligibility is not limited.

Figure 8 highlights the relationship between the demand for scholarships and their supply at scholarship values ranging between \$1,500 and \$5,000 and at several means-tested eligibility levels. These examples highlight the important relationships between the total amount of scholarship money available, the average size of scholarship awards, program eligibility, and the migration of students to private schools. These variables, along with the decisions of scholarship organizations, are difficult to model, but they would determine the fiscal impact of the program. They are discussed more thoroughly in the following sections.

Figure 8



### Program Trade-offs

A tax-credit scholarship program could be constructed in various ways to yield important fiscal, educational, and social objectives. A high dollar-value scholarship does the most to attract low-income students to participate in a choice program but would reduce the number of scholarships available if the donations had a low cap. Conversely, relatively low scholarship values would provide many more scholarships but would reduce overall program participation among the low-income families who need educational options the most. Limiting participation to the lowest-income public school students would dramatically reduce overall demand for scholarships and reduce fiscal benefits while targeting the program to lower-income children.

These types of trade-offs are inherent in all important public policies, and school choice programs provide 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 trade-offs they imply.

Table 6 presents the cumulative distribution of projected scholarship demand by income for scholarship values ranging from \$2,000 to \$4,500. As has been noted, our analysis suggests that scholarships would induce a higher rate of public school migration if the value of scholarships is increased and means testing for program eligibility is less restrictive.

**Table 6**

<b>Cumulative Scholarship Demand among Public School Students by Scholarship Value and Income Eligibility</b>											
	<b>SCHOLARSHIP VALUE</b>										
<b>Income Eligibility</b> (% Of Free/Reduced Lunch)	<b>\$5,000</b>	<b>\$4,750</b>	<b>\$4,500</b>	<b>\$4,250</b>	<b>\$4,000</b>	<b>\$3,750</b>	<b>\$3,500</b>	<b>\$3,250</b>	<b>\$3,000</b>	<b>\$2,750</b>	<b>\$2,500</b>
185%	3,093	2,938	2,783	2,629	2,474	2,319	2,165	2,010	1,856	1,701	1,546
200%	6,779	6,440	6,101	5,762	5,423	5,084	4,745	4,406	4,067	3,728	3,389
250%	7,310	6,944	6,579	6,213	5,848	5,482	5,117	4,751	4,386	4,020	3,655
300%	7,984	7,585	7,186	6,786	6,387	5,988	5,589	5,190	4,790	4,391	3,992
<b>Above 300%</b>	<b>9,826</b>	<b>9,335</b>	<b>8,844</b>	<b>8,352</b>	<b>7,861</b>	<b>7,370</b>	<b>6,878</b>	<b>6,387</b>	<b>5,896</b>	<b>5,405</b>	<b>4,913</b>

Table 7 translates the estimates of scholarship demand in Table 6 into the context of the public school population and shows that, at an average scholarship value of \$4,500, about 6 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**

<b>Cumulative Scholarship Demand among Public School Students (as a Percentage of all Public School Students) by Income Eligibility</b>											
	<b>SCHOLARSHIP VALUE</b>										
<b>Income Eligibility</b> (% Of Free/Reduced Lunch)	<b>\$5,000</b>	<b>\$4,750</b>	<b>\$4,500</b>	<b>\$4,250</b>	<b>\$4,000</b>	<b>\$3,750</b>	<b>\$3,500</b>	<b>\$3,250</b>	<b>\$3,000</b>	<b>\$2,750</b>	<b>\$2,500</b>
185%	2.2%	2.0%	1.9%	1.8%	1.7%	1.6%	1.5%	1.4%	1.3%	1.2%	1.1%
200%	4.7%	4.5%	4.2%	4.0%	3.8%	3.5%	3.3%	3.1%	2.8%	2.6%	2.4%
250%	5.1%	4.8%	4.6%	4.3%	4.1%	3.8%	3.6%	3.3%	3.1%	2.8%	2.5%
300%	5.6%	5.3%	5.0%	4.7%	4.4%	4.2%	3.9%	3.6%	3.3%	3.1%	2.8%
<b>Above 300%</b>	<b>6.8%</b>	<b>6.5%</b>	<b>6.2%</b>	<b>5.8%</b>	<b>5.5%</b>	<b>5.1%</b>	<b>4.8%</b>	<b>4.4%</b>	<b>4.1%</b>	<b>3.8%</b>	<b>3.4%</b>

Table 8 shows the cumulative percentage of scholarship demand that can be satisfied with tax-credit scholarships if \$10 million of tax credits are allocated to scholarship organizations. The table shows that, if funds are limited to \$10 million, a

tax-credit scholarship program could satisfy demand for scholarships among public school students only if the average value of scholarships is relatively low (reducing demand and increasing the number of scholarships available) and more restrictive income criteria are used. Unfortunately, even in this situation the demand is met only because fewer public school families would seek scholarships at such low values. The shaded area of Table 8 highlights combinations of income eligibility and scholarship size where the availability of scholarships would exceed demand. These combinations are most likely to result in costs to the State of Montana that exceed the fiscal benefits.

Table 8

Percentage of Scholarship Demand Among Public School Students that Can Be Satisfied by \$10 Million in Scholarships											
Income Eligibility (% of Free/Reduced Lunch)	SCHOLARSHIP VALUE										
	\$4,500	\$4,250	\$4,000	\$3,750	\$3,500	\$3,250	\$3,000	\$2,750	\$2,500	\$2,250	\$2,000
185%	76%	85%	96%	109%	125%	145%	171%	203%	246%	303%	384%
200%	35%	39%	44%	50%	57%	66%	78%	93%	112%	138%	175%
250%	32%	36%	41%	46%	53%	62%	72%	86%	104%	128%	162%
300%	29%	33%	37%	42%	49%	56%	66%	79%	95%	118%	149%
Above 300%	24%	27%	30%	34%	39%	46%	54%	64%	77%	95%	121%

Table 9 shows the projected cumulative number of scholarships that would be awarded for each combination of eligibility and scholarship value criteria under a cap of \$10 million. The table illustrates some subtle points about the design of a tax-credit scholarship program. First, it suggests that, at average scholarship values of \$4,000 or less, it would be important to increase the income-eligibility criterion above the level that qualifies a student to receive free or reduced-price school lunches. If the income criterion is not above the free or reduced-price lunch eligibility threshold, there likely would be insufficient demand among public school students to use all the \$10 million in scholarships. One implication of that is that Montana would not maximize its fiscal benefits, a point that is demonstrated in the next section.

Table 9

Cumulative Scholarship Awards Among Public School Students by Income Eligibility (with \$10 Million in Scholarships)											
Income Eligibility (% of Free/Reduced Lunch)	SCHOLARSHIP VALUE										
	\$4,500	\$4,250	\$4,000	\$3,750	\$3,500	\$3,250	\$3,000	\$2,750	\$2,500	\$2,250	\$2,000
185%	2,111	2,235	2,375	2,319	2,165	2,010	1,856	1,701	1,546	1,392	1,237
200%	2,111	2,235	2,375	2,533	2,714	2,923	3,167	3,455	3,389	3,051	2,712
250%	2,111	2,235	2,375	2,533	2,714	2,923	3,167	3,455	3,655	3,289	2,924
300%	2,111	2,235	2,375	2,533	2,714	2,923	3,167	3,455	3,800	3,593	3,194
Above 300%	2,111	2,235	2,375	2,533	2,714	2,923	3,167	3,455	3,800	4,222	3,931

The table also illustrates the key points that families with higher incomes would participate at rates higher than those of lower income even with lower scholarship values, and that the demographic mix of participants would shift more to higher-income families in the absence of income-eligibility requirements. 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 full fiscal benefits would not be realized. The table highlights the need for balance in designing a program and how inordinate attention to a single program objective may result in a reduction of the overall educational and fiscal benefits of the program.

The final sections of this study provide estimates of the fiscal impact of a tax-credit scholarship program for the state and local school districts.

## Fiscal Impact on the State

The most important factor in determining the fiscal impact of a scholarship program is the degree to which scholarships induce Montana’s public school students to migrate to private schools, and at what expense. During the 2006-07 school year, Montana state government paid about \$4,047 in education aid to school districts for every student enrolled in public school (as noted earlier in this report, total state education dollars per student are \$4,856 of which an estimated \$4,047 varies when a student enters or leaves the public schools.) A tuition scholarship program will save money to the extent that it induces students to migrate from public to private schools at a low enough cost in foregone tax revenue to generate savings in state per-student education aid.

Inducing sufficient public-to-private-school migration to result in fiscal savings (because the reduction of state education aid payments offsets the cost of the scholarships) can be accomplished easily. We will operate on the assumption that current private school students would not be eligible for tax-credit scholarships. However, the results of this analysis will provide important information about the fiscal impact of program-design decisions, which would still be relevant even if current private school students are eligible for a program that is enacted.

It bears repeating that the basic fiscal calculus of a scholarship program is simple. If the cost to Montana of each scholarship student who migrates from a public school is less than the cost per student in state aid, there would be a fiscal benefit to the state.

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 migration from public to private schools if eligibility for scholarships is not limited to lower-income families. This is because higher-income families in Montana have a high elasticity of demand for private schooling. As a result, even a relatively modest scholarship would prompt significant numbers of families to migrate from public to private schools. However, as noted, lower scholarship values would reduce the percentage of participants who come from lower-income families.

Table 10 highlights some combinations of scholarship program variables and the fiscal impacts they would have on the state under a scenario where:

- Current private school students are not eligible for tax-credit scholarships.
- The state realizes a reduction in education spending of \$4,047 (out of a total of \$4,856 of per-student state aid) for each public school student who leaves.
- A total of \$50 million in tax-credit scholarships is available.

Under this scenario, 2,471 public school students must participate in the program and migrate to a private school for the state to break even—that is, for the costs of the tax credit to be offset by savings in state education aid.<sup>28</sup>

The estimates in Table 10 include only state-level fiscal impacts. Table 10 demonstrates that certain 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.

Some key information that can be gleaned from Tables 6-10 include:

- Limiting eligibility to the lowest income students always results in a small, net fiscal loss.

- Low scholarship values generate less demand and may limit participation.
- Demand is increased at lower scholarship values if income-eligibility requirements are more generous, allowing higher-income families to participate.
- Raising the income eligibility for scholarships would always increase the program’s fiscal benefit, though it also would alter the composition of scholarship applicants.
- At lower scholarship values, allowing higher-income families to participate would increase demand and thus increase the program’s fiscal benefits. With low scholarship values, limited demand from lower-income families would not generate enough participation to produce a positive fiscal impact.
- At higher scholarship values, demand for scholarships from families of all incomes would outstrip the \$10 million limit, so increased demand from higher-income families would not produce additional participation. Higher-income eligibility would increase competition for scholarships and might alter the demographic mix of participants.

Table 10

<b>Fiscal Impact of a Scholarship Program on the State by Income Eligibility</b> (with \$50 Million in Scholarships)											
Income Eligibility (% of Free/Reduced Lunch)	SCHOLARSHIP VALUE										
	\$4,500	\$4,250	\$4,000	\$3,750	\$3,500	\$3,250	\$3,000	\$2,750	\$2,500	\$2,250	\$2,000
185%	(\$1.46)	(\$0.95)	(\$0.39)	(\$0.62)	(\$1.24)	(\$1.87)	(\$2.49)	(\$3.12)	(\$3.74)	(\$4.37)	(\$4.99)
200%	(\$1.46)	(\$0.95)	(\$0.39)	\$0.25	\$0.98	\$1.83	\$2.82	\$3.98	\$3.72	\$2.35	\$0.98
250%	(\$1.46)	(\$0.95)	(\$0.39)	\$0.25	\$0.98	\$1.83	\$2.82	\$3.98	\$4.79	\$3.31	\$1.83
300%	(\$1.46)	(\$0.95)	(\$0.39)	\$0.25	\$0.98	\$1.83	\$2.82	\$3.98	\$5.38	\$4.54	\$2.93

Demand for scholarships and participation levels increase dramatically as income-eligibility restrictions decrease. More relaxed means testing would also produce the greatest fiscal benefits, because more public school students would be eligible for scholarships and eligibility is increased most among groups with the highest propensity to migrate from public to private schools. If enough public school students migrate, the savings the state realizes from reduced state education aid could offset the costs of providing the tax credits.

Table 11 provides details of the calculations of the state fiscal impacts presented in Table 10, under a scenario where:

- \$10 million in scholarships are made available
- Income eligibility is set at two times the income eligibility for the federal free or reduced-price lunch program

The table shows that, if average scholarship values exceed the amount of per-student state education aid savings for each student who migrates to a private school, the state will experience a small negative fiscal impact from the program. At average scholarship values that are less than the amount of per-student state education aid, the state will realize a positive fiscal impact.

The net fiscal benefit to the state can easily be increased if tax credits provided to individuals and businesses are limited to a percentage of their contributions to scholarship granting organizations. For example, limiting the tax credit to 80% of a contribution would increase the net fiscal benefits to the state. In the scenarios given above, this would create additional net benefits of between .5 and 5.7 million on top what has already been shown.

Table 11

<b>Fiscal Impact of a Scholarship Program on the State by Scholarship Value</b> (Assumes Means Testing at Two Times Eligibility for Free and Reduced Lunch)						
	<b>SCHOLARSHIP VALUE</b>					
	\$4,500	\$4,000	\$3,500	\$3,000	\$2,500	\$2,000
Cost of Scholarships	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000
Scholarships Available	2,111	2,375	2,714	3,167	3,800	4,750
Demand for Scholarships	6,101	5,423	4,745	4,067	3,389	2,712
Scholarships Awarded	2,111	2,375	2,714	3,167	3,389	2,712
State Education Aid Savings	\$8,543,217	\$9,611,625	\$10,984,714	\$12,815,500	\$13,717,134	\$10,937,707
<b>Net State Fiscal Impact</b>	<b>(\$1,456,783)</b>	<b>(\$388,375)</b>	<b>\$984,714</b>	<b>\$2,815,500</b>	<b>\$3,717,134</b>	<b>\$973,707</b>

## Fiscal Impact on Local School Districts

Table 12 shows the impact of a tax-credit scholarship program on local school districts. As demonstrated earlier in this study, scholarship participants who leave the public schools reduce per-student state education aid to their local school districts. This may reduce the amount of local property tax revenue that a school district can collect. Each of these impacts is phased in—because education finance laws allow districts to average district enrollments figures for use in calculating aid and tax levies, over the current and two most recent school years. The net effect allows districts to collect state aid and to levy property taxes for a period of two years after students leave a district. Meanwhile, the reduction in students would result in a reduction in variable expenses for school districts. In combination, these changes result in 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.

The combination of a reduction in expenses that is greater 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 significant fiscal benefit to local school districts. Each scholarship student produces a net increase in resources available to students who remain in the district of about \$2,759.

Table 12

<b>Impact of a Scholarship Program on Local School Districts</b> (with \$50 Million in Scholarships & Means Testing at Two Times Eligibility for Free and Reduced Lunch)						
	\$4,500	\$4,000	\$3,500	\$3,000	\$2,500	\$2,000
# of Scholarships	2,111	2,375	2,714	3,167	3,389	2,712
Loss of State Aid (after 2 years)	\$8,543,217	\$9,611,625	\$10,984,714	\$12,815,500	\$13,717,134	\$10,973,707
Reduction in School Expenditures	\$14,367,466	\$16,164,250	\$18,473,429	\$21,552,333	\$23,068,647	\$18,454,918
<b>Net Fiscal Impact for Students Who Remain in Public Schools</b>	<b>+\$5,824,249</b>	<b>+\$6,552,625</b>	<b>+\$7,488,715</b>	<b>+\$8,736,833</b>	<b>+\$9,351,513</b>	<b>+\$7,481,211</b>
<b>Impact per Scholarship</b>	<b>+\$2,759</b>	<b>+\$2,759</b>	<b>+\$2,759</b>	<b>+\$2,759</b>	<b>+\$2,759</b>	<b>+\$2,759</b>

## Conclusions

Our analysis indicates that school district revenues vary considerably based on enrollment levels, but that expenditures also vary with enrollments. We conclude that a number of variables would affect the fiscal impacts of a tax-credit scholarship program, but that there are many ways to structure such a program to yield fiscal benefits. A balance of fiscal interests and the desire to increase educational opportunities for those most in need can be achieved in a way that would not adversely affect the per-student resources available to local school districts, but will instead increase the resources available to students who do not participate in the scholarship program and remain in public schools.

Our analysis makes it clear that while a number of scholarship program designs would yield fiscal benefits, a few would result in a small increase in costs. All would create greater educational choices and opportunities for students from all backgrounds and without adversely affecting students who do not participate in the program.

## Endnotes

- <sup>1</sup> See the opinion poll data collected in "ABCs of School Choice, 2007-08 Edition," Friedman Foundation for Educational Choice, February 2008, p. 57-62.
- <sup>2</sup> See Paul DiPerna, "Montana's Opinion on K-12 Education and School Choice," Friedman Foundation for Educational Choice October 2008.
- <sup>3</sup> The Montana Department of Education reports a figure of less than 9,000 but the National Center for Education Statistics indicates a higher number and data from the 2007 American Community Survey of the U.S. Census Bureau show that more than 11,000 Montana children in kindergarten through grade 12 attend something other than a public school.
- <sup>4</sup> Montana Department of Public Instruction, Excel spreadsheet file: *enrollmenthistory.xls*, and publication: "Facts About Montana Education," both available at: <http://www.opi.state.mt.us/index.html>.
- <sup>5</sup> See for example "FY 2007-08 General Fund Budget Overview and Worksheets" and "Understanding Montana School Finance and School District Budgets" by the Montana Office of Public Instruction, available at: <http://www.opi.state.mt.us/index.html>
- <sup>6</sup> This description of "non-property tax" revenue sources is taken from a description of Montana's School finance system produced in 2001 for the National Center for Education Statistics, by Madalyn Quinlan of the Montana Office of Public Instruction, available at: [http://www.schoolfunding.info/states/mt/main\\_mt.php3](http://www.schoolfunding.info/states/mt/main_mt.php3).
- <sup>7</sup> Intuitively it is understood that if a district has very few students the size of its school budget will be small and GTB payments (if any) would be minimal but GTB payments are not made directly on the basis of enrollments. For our purposes, we assume 70% of GTB payments are not responsive to enrollment. Quality Educator Payments are another example of payments that are only indirectly related to enrollment. Because these payments are determined by the number of "full-time equivalent" educators, they are in large part a function enrollment levels. However, in order to avoid overstating the portion of state aid that varies according to enrollment levels we treat all QEP as not varying with enrollment
- <sup>8</sup> This description of "non-property tax" revenue sources is taken from a description of Montana's School finance system produced in 2001 for the National Center for Education Statistics, by Madalyn Quinlan of the Montana Office of Public Instruction, available at: [http://www.schoolfunding.info/states/mt/main\\_mt.php3](http://www.schoolfunding.info/states/mt/main_mt.php3).
- <sup>9</sup> This includes such items as "Quality Educator Payments", and the base entitlement amount given to each elementary, middle, and high school. In addition, the State's "Guaranteed Tax Base" (GTB) payments does not based contain a per pupil payment element but because expenditures influence these payments, and expenditures are, in part, a function of the size of enrollments, we include a portion of GTB payments (31%) in the total reported here.
- <sup>10</sup> Brian Gottlob, "The Fiscal Impacts of School Choice in New Hampshire," Friedman Foundation for Educational Choice, February 2004; Cotton Lindsay, "Fiscal Impact of the Universal Scholarship Tax Credit Proposal," South Carolina Policy Council, March 2004; "Estimating Demand and Supply Response to Tuition Tax Credits for Private School Tuition in Utah," Utah State University, December 2004; Brian Gottlob, "The Fiscal Impact of Tuition Tax Credits in New Mexico," Friedman Foundation for Educational Choice, April 2005; Susan Aud and Leon Michos, "Spreading Freedom and Saving Money: The Fiscal Impact of the D.C. Voucher Program," 2006.
- <sup>11</sup> We adjusted the data to eliminate districts that had changed between 1996 and 2008, to eliminate the possibility that changes in the structure of districts would account for changes in expenditures.
- <sup>12</sup> The Montana Department of Public Instruction, like most state education agencies, reports per pupil spending figures for operating, current, or 'general fund' expenses not total expenditures per pupil but it is important to understand how total budgets as well as general fund expenses change in response to changes in enrollments.
- <sup>13</sup> The author has conducted similar analyses of school spending in the states of Georgia, Kentucky, New Hampshire, Missouri and New Mexico.
- <sup>14</sup> Based on data from the U.S. Census Bureau "American Community Survey 2007" data for Montana
- <sup>15</sup> For a more complete explanation of how this occurs see: Gottlob, B, and Kenyon, D., "Dollars Diverted: Taking a Hard Look at Education Finance Reform in New Hampshire," *State Tax Notes*, Vol. 35., Number 12, March 2005.
- <sup>16</sup> The range of between 42 and 60 cents is the result of different model specifications which include additional explanatory variables and variable transformations.
- <sup>17</sup> "The State of Corporate Citizenship: A View From Inside," The Center for Corporate Citizenship at Boston College, 2004.
- <sup>18</sup> "Biennial Report of The Montana Department of Revenue."
- <sup>19</sup> "Biennial Report of The Montana Department of Revenue."
- <sup>20</sup> "Giving and Volunteering in the United States," Independent Sector, the Gallup Organization, reports for 1989, 1991, 1993, 1995, and 1997.
- <sup>21</sup> Available at <http://www.irs.gov/pub/irs-soi/>
- <sup>22</sup> Author's analysis of Internal Revenue Service Statistics of Income data for Arizona and Arizona tax credit data reported in Lukas, C., "The Arizona Scholarship Tax Credit: Providing Choice Fore Arizona Taxpayers and Students," Goldwater Institute (No. 186), December 2003.
- <sup>23</sup> 2006 AGI from IRS "Statistics of Income" was adjusted to reflect an average annual growth rate of 1.5 percent.
- <sup>24</sup> Chiswick, B. R., and S. Koutroumanes, "An Econometric Estimate of the Demand for Private Schooling," *Research in Labor Economics*, 15:209-237, 1996; and Gwartney, J. D., and R. L. Stroup, *Economics: Private and Public Choice* (8th Edition), South-Western College Publishing, 1997.
- <sup>25</sup> Andrew Keeler and Warren Kriesel, "School Choice in Rural Georgia: An Empirical Analysis," *Journal of Agriculture and Applied Economics*, December 1994.
- <sup>26</sup> The most recent national private school price survey was conducted in 2003-2004 and is available from the National Center for Education Statistics (NCES). We adjusted the national average using the NCES education cost index for the State of Montana (91.4% of the U.S. average) and inflated the adjusted average to 2008 dollars. In addition, we adjusted the average to reflect the relative mix of parochial and non-sectarian schools in Montana because of the large differences in the tuition charges between parochial and non-sectarian schools.
- <sup>27</sup> Our research indicates that the price elasticity for lower income families is lower than the elasticity for higher income families; -0.75 represents a median figure. In estimating scholarship demand among families of different income levels, however, the demonstrated preference for private schooling in Montana at each level of family income is used.
- <sup>28</sup> This is true for the third year of the program. As noted earlier, Montana's state education aid regulations allow districts to average three years of enrollments in calculating enrollments for state aid and local taxing purposes. Thus the state would continue to pay for students who leave a district (although a smaller amount) for two years after they leave. However, because this also occurs in the absence of a scholarship program, when students leave the public schools for any reason.

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