Policy Analysis
No. 414 September 17, 2001

The Arizona Scholarship Tax Credit
Giving Parents Choices, Saving Taxpayers Money

by Carrie Lips and Jennifer Jacoby

Executive Summary

In 1997 policymakers in Arizona created a $500 tax credit for contributions to organizations that give students scholarships to attend private elementary and secondary schools. At that time there was, and there still is, much debate and uncertainty about the program's likely effect on students, taxpayers, and the education system. This analysis informs that debate by considering Arizona's experience with the tax credit and assessing its likely impact in the future.

To assess the credit's impact, we surveyed Arizona's private schools, surveyed and interviewed representatives of Arizona's scholarship organizations, and supplemented original data collection with information provided by the Arizona Departments of Revenue and Education. Research shows that from 1998 through 2000 the tax credit generated more than $32 million, which funded almost 19,000 scholarships through more than 30 scholarship organizations. More than 80 percent of scholarship recipients were selected on the basis of financial need.

We also estimated the impact of the credit on Arizona's budget. Although the state forgoes revenue as people exercise the credit, taxpayers save money when students who would have been educated at public expense use the scholarships to transfer to nonpublic schools. Therefore, although Arizona lost $13.7 million in 1999, we find that, once savings are taken into account, the credit was revenue neutral. Using moderate assumptions about the growth of taxpayer participation, we estimate that by 2015 the scholarship credit will be raising $58 million per year, funding 35,000 to 61,000 scholarships annually, and helping send 11,000 to 37,000 students who would otherwise have to attend public school to schools of their choice. The cost of the credit is likely to be significantly less than the savings that result from student transfers. The data suggest that the scholarship tax credit will be a net winner for Arizona taxpayers; it will extend school choice to thousands of families and save taxpayers millions of dollars.

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Introduction

Arizona's scholarship tax credit enables taxpayers to receive a dollar-for-dollar tax credit for contributions made to nonprofit scholarship organizations that give students scholarships to attend nonpublic elementary and secondary schools. When the tax credit became law in 1997, there was much uncertainty about the probable impact of the program on students, taxpayers, and the education system. This paper informs that debate by considering Arizona's experience with the tax credit and assessing its likely impact in the future.

For example, there is widespread disagreement about whom the tax credit benefits and the potential impact of the program on Arizona's schools. Opponents of the tax credit believe that the program will subsidize private schools and undermine the public school system. Ginny Chin, a school board member in Arizona, stated her opposition to the tax credit: "Philosophically, I'm so opposed to taking money away from public schools and using it to supplement religious and private schools."[1] Supporters of the credit argue that most of the scholarships will assist children in lower-income families and that all schools will improve as they compete to attract students.[2] For example, Jeff Flake, who was the executive director of the Goldwater Institute in Arizona and is now an Arizona Republican representative to Congress, argued in 1997 that competition would benefit students: "The tuition tax credit, if it is allowed to go forward, will take us one step closer toward this educational marketplace."[3]

The credit's potential impact on taxpayers is also a source of debate. Many people worry that, as awareness of the tax credit grows, the state will lose significant revenue as taxpayers exercise the credit. Others counter that taxpayers stand to save money over time. Although the credit initially "costs" the state, as the scholarships enable students to transfer from public to private schools, the public schools have fewer pupils to educate and can reduce spending accordingly. We examine trends in credit use to determine the overall impact of the tax credit on Arizona's current and future budget.

To assess the effects of the tax credit, we surveyed all organizations that the Arizona Department of Revenue identified as school tuition organizations. We also called the organizations to gather supplemental data.[4] The Center for Market-Based Education, which was collecting similar information at the time, shared data on the scholarship organizations.[5] We created a survey for private schools in Arizona in order to gain a better understanding of the private school marketplace.[6] In addition to data provided by the surveys, we examined data collected by the Arizona Department of Revenue, the Arizona Department of Education, and the U.S. Department of Education.

We find that from 1998 to 2000 Arizona's tax credit generated roughly $32 million in donations to more than 30 scholarship organizations. That money funded 19,000 scholarships for students overwhelmingly identified as coming from low-income families.[7] Furthermore, the data suggest that roughly 20 percent of the scholarships were given to students who would otherwise have had to attend public school. Although the state forgoes revenue as people exercise the credit, taxpayers save money when students who would have been educated at public expense transfer to nonpublic schools. Therefore, although Arizona lost $13.7 million in 1999, we find that, once savings are taken into account, the credit was revenue neutral.[8]

As awareness of the tax credit grows, we expect the amount of money available for scholarships to increase considerably. Using moderate assumptions about the growth of taxpayer participation, we expect that an increasing number of students who would have attended public schools will use scholarships to transfer to private schools. As a result, while the amount of potential revenue lost as a result of the tax credit will increase, so too will the number of students able to trans-

fer from public to private schools; those transfers will potentially save taxpayers millions of dollars. Overall, we estimate that by 2015 the scholarship tax credit could raise $58 million for scholarships per year, fund 35,000 to 61,000 scholarships annually, and help 11,000 to 37,000 students who would otherwise have to attend public schools attend nonpublic schools of their choice. The data suggest that the tax credit should, at a minimum, be revenue neutral; more likely, it will save Arizona taxpayers tens of millions of dollars per year.

These findings are significant not just for Arizona but for policymakers across the country who want parents to have greater control over their children's education. This analysis shows that scholarship tax credits are an effective method of increasing parental choice for lower-income families. Moreover, taxpayers may reap significant savings as children transfer to private schools, freeing resources that could be reinvested in education or returned to taxpayers. Policymakers in other states should consider implementing similar tax credit initiatives.

Arizona's Scholarship Tax Credit

In 1997 the Arizona legislature passed a bill that amended the state tax law (title 43, art. 5, sec. 1089) to enable Arizona taxpayers to receive a dollar-for-dollar tax credit up to $500 against their state income tax for donations to approved organizations that provide students with scholarships to attend private schools. Those credits became effective for the taxable year beginning January 1, 1998. Therefore, 1998 was the first year during which taxpayers could claim this credit.[9] In the November 2000 election, Proposition 301 increased the amount of the tax credit to $625 for married couples effective January 1, 2001.[10] Previously, married taxpayers filing a joint return were allowed to claim a maximum credit of only $500.

Taxpayers who owe the state less than $500 in taxes and choose to donate to a scholarship organization receive the credit up to the full amount they owe in income tax but do not receive money back from the state for any portion that exceeds their tax liability. However, the taxpayer may carry forward the extra donation and receive a tax credit in future years.[11]

To be eligible to receive donations, scholarship organizations must meet set requirements. First an organization must be nonprofit, in accordance with sec. 501(c)(3) of the Internal Revenue Code. Second, at least 90 percent of the organization's revenue must be made available for scholarships (remaining funds are used for administrative purposes). Third, scholarships must be redeemable at more than one qualified school.

A school that accepts scholarship recipients must be a private primary or secondary school in Arizona and may not discriminate on the basis of race, color, handicap, familial status, or national origin.

Although the process of allocating scholarships differs from organization to organization, prospective scholarship recipients usually apply directly to the organization. Each organization sets standards of scholarship eligibility and determines the cash value of each scholarship.

In the fall of 1997 a coalition of teachers, clergy members, and public education officials challenged the legality of the law contending that it provided support to religious schools in violation of Arizona law and the First Amendment to the U.S. Constitution. The Arizona Supreme Court ruled in favor of the law in 1999, and the U.S. Supreme Court declined to review the decision, ending the legal challenges to the law.[12]

Taxpayer Participation

Since the law passed in 1997, the number of taxpayers making donations and using the tax credit has increased dramatically.[13] In 1998 there were 15 active scholarship organizations and, as shown in Table 1, those orga-

By 2015 the scholarship tax credit could raise $58 million for scholarships per year.

Table 1
Amount Donated to and Distributed by Scholarship Organizations

	1998	1999	2000
Amount donated	$1,816,299	$13,706,611	$17,246,792
Number of donors	4,247	31,875	37,368
Amount distributed	$167,650	$2,377,319	$12,787,545
Number of scholarships	326	3,726	14,936

Source: Derived from a spreadsheet provided by the Arizona Department of Revenue.

nizations reported 4,247 donations for a total of $1.8 million.[14] By 2000 there were 34 scholarship organizations that reported 37,368 donations for a total of $17.2 million.

Scholarship organizations typically receive most of their donations toward the end of the tax year in December. There is often an eight-month lag between the time donations are collected and the time they are distributed as scholarships. Therefore, even though the scholarship organizations received $1.8 million in donations during 1998, only $167,650 was distributed in scholarships during the 1998 school year. Those scholarships helped 326 students attend 23 different schools. In 1999 the number of donations to scholarship organizations and the amount claimed as tax credits increased dramatically as did the number of scholarships distributed.

A few companies have set up payroll deduction programs that allow employees to contribute throughout the year.

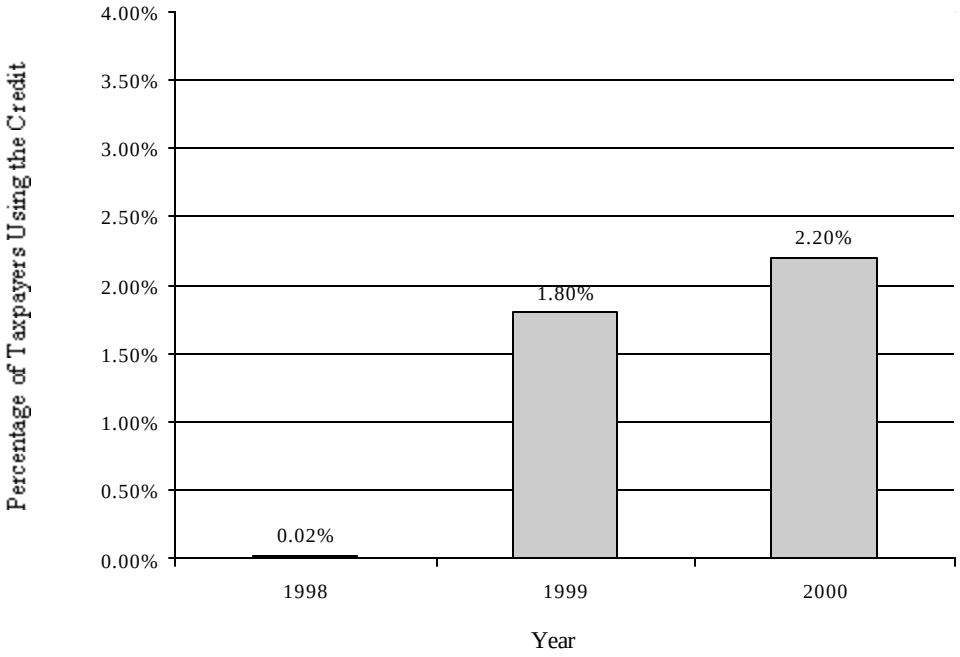
Although the Department of Revenue does not yet have final figures for 2000, preliminary data show that the amount of donations has increased. The Department of Revenue estimates that scholarship organizations received $17.2 million, a 26 percent increase from 1999. Those organizations allocated 14,936 scholarships with a total value of $12,787,545 for the 2000–01 school year. The average value was $856, enough to cover roughly 28 percent of the average private school's tuition and a 34 percent increase from the average scholarship amount of $638 for the 1999–2000 school year.

In 1999 roughly 1.8 percent of taxpayers used the credit. Figure 1 shows the percentage of taxpayers who used the tax credit in 1998, 1999, and 2000. Figure 2 shows the percentage of taxpayers by income level who used the credit in 1998. As would be expected, taxpayers with higher incomes have greater tax liability and therefore are more likely to use the tax credit. Although the tax credit makes scholarship donations almost costless (up to the $625 limit), individuals still have to be able to write a check up front and wait for a tax refund.

A few companies have set up payroll deduction programs that allow employees to contribute throughout the year. For example, 20 percent of Londen Insurance Group's employees signed up for their payroll deduction program for the 2000 tax year.[15] Under that program, employees determine how much they would like to contribute. A prorated portion of an employee's wages is withheld and is not considered taxable state income. The employee's paycheck will not decrease as long as his state tax liability is equal to or greater than the amount contributed. If other companies adopt similar payroll deduction programs, we could expect to see an increase in taxpayer participation even in the lower tax brackets.

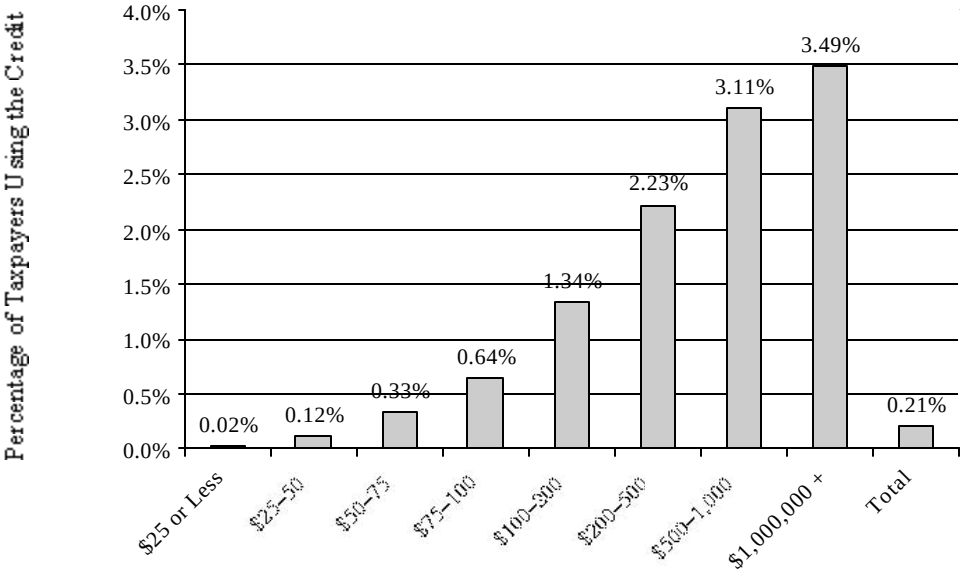
Figures are not yet available on donations by income level for 1999 or 2000, so we assume that the pattern of giving in the future will be similar to that in 1998, when a greater percentage of taxpayers in the upper-income brackets than of those in the lower-income brackets used the tax credit.

Figure 1
Percentage of Taxpayers Who Used the Tax Credit, 1998–2000



Source: Derived from a spreadsheet provided by the Arizona Department of Revenue.

Figure 2
Percentage of Taxpayers by Income Bracket Who Used the Tax Credit in 1998



Sources: Arizona Department of Revenue, *Annual Report 2000,* p. 91; Arizona Department of Revenue, "Arizona's Individual Income Tax Credits for Schools," in *Final Report of 1998 Credits*, p. 8; and authors' calculations.

Most scholarship organizations use financial need as the primary criterion for allocating scholarships to eligible students.

Scholarship Organizations

The scholarship organizations receiving donations and distributing scholarships vary greatly in size and focus. Table 2 lists the scholarship organizations during the 2000 school year and the amounts donated for scholarships.

Most scholarship organizations are small and serve specific students. Of the 34 scholarship organizations, 20 raised less than $200,000 and 9 raised less than $50,000 during 2000. Only a few of the organizations accept applications from all students and give scholarships to attend any private school in Arizona. Most specialize in serving specific groups of students. For example, some assist students on the basis of religious affiliation, ethnicity, type of school (such as Montessori); others give scholarships only to students attending schools affiliated with the organization. In fact, many organizations are offshoots of specific private schools and serve the needs of students at those schools.

Most scholarship organizations use financial need as the primary criterion for allocating scholarships to eligible students. Therefore, most scholarships are given to students currently enrolled in affiliated private schools who are either at risk of having to leave the private school for financial reasons or whose families are making significant sacrifices in order to send them to private school. In this sense, some scholarship organizations serve as a kind of financial aid office for the private schools, assisting students in serious financial need. In some instances, the scholarship organizations rely on the private schools to identify the neediest students and to distribute the scholarship money.

Currently, most scholarship organizations raise awareness of the availability of the scholarship tax credit primarily through private schools. Only a few of the scholarship organizations have more extensive marketing campaigns, such as advertising in the media and using targeted direct mail to reach taxpayers. However, 21 of the organizations are members of a nonprofit 501(c)(3) organization called the Children's Hope Association. This organization is dedicated to promoting awareness of the tax credit among Arizona taxpayers, defending the program to the Arizona legislature, and providing information about Arizona's tax credit to legislators around the country. For example, the association ran an advertisement in the *Arizona Republic* publicizing the credit and listing the member scholarship organizations and their contact information. Trent Franks, president of the Children's Hope Association, stated that the response to the ad was significant and that the association plans to continue such efforts.[16] Those efforts may significantly increase awareness of the program and thereby significantly increase taxpayer participation rates.

Almost all of the organizations that accepted donations do not have enough resources to meet the needs of all applicants. The greatest unmet demand seems to be for independent, nonparochial schools. Two organizations that provide scholarships to enable any financially needy student to attend any private school reported the largest waiting lists; one had a waiting list of 2,000 and the other 3,000.

It is difficult to determine exactly how much unmet demand there is for scholarships because few organizations keep track of that information. Considering that 14,936 scholarships were given in 2000, the two waiting lists alone suggest that at least 33 percent more students wanted scholarships than were able to obtain them.

Most organizations provide partial tuition scholarships. Many expressed the belief that it is important for the family to make some contribution toward tuition so that parents are more involved in their children's education. The average scholarship amount for the 2000–01 school year was $856. However, scholarship amounts ranged greatly, from $602 to $3,389, according to our interviews. Our survey results suggest that most private schools in Arizona charge between $2,000 and $4,000 for tuition.

Table 2
Individual Donations to Arizona Scholarship Organizations, 2000

Scholarship Organization	Number of Donations	Amount Donated (dollars)
Arizona Adventist Scholarships, Inc.	439	187,855
Arizona Christian School Tuition Organization	7,600	3,490,936
Arizona Episcopal Schools Foundation	1,012	421,638
Arizona Independent Schools Scholarship Foundation	914	409,042
Arizona Native Scholastic and Enrichment Resources	na	25,125
Arizona Scholarship Fund	1,253	532,649
Arizona School Choice Trust	na	940,574
Brophy Community Foundation	1,359	570,784
Catholic Tuition Organization of the Diocese of Phoenix	12,418	5,437,215
Catholic Tuition Organization of the Diocese of Tucson	4,336	1,774,613
Chabad Tuition Organization	226	79,982
Chedar Scholarship Organization, Inc.	861	361,566
Christ Lutheran School Foundation	236	103,510
Christian Scholarship Fund of Arizona	552	235,451
Educare Scholarship Fund	240	103,370
Florence Englehardt/Pappas Foundation	105	48,850
Foundation for Montessori Scholarships	72	34,050
Higher Education for Lutherans Program	760	335,000
Institute for Better Education	721	314,035
Jewish Community Day School Scholarship Fund	1,276	575,859
Lutheran Education Foundation	708	298,580
Maranatha Christian Co-Op Tuition Fund	32	14,150
Montessori Centre School Tuition Organization	22	9,700
New Way Learning Academy School Tuition Organization	141	64,975
Northern Arizona Christian School Scholarship Fund	482	180,454
Orme Primavera Schools Foundation	192	84,009
Patagonia Scholarship Fund	12	5,800
Prescott Christian School Scholarship Foundation	357	147,317
School Tuition Association of Yuma	242	109,529
Schools with Heart Foundation	253	106,550
Shepherd of the Desert	87	38,735
Southern Arizona Foundation for Education	389	172,789
VVBC Christian Education Fund	53	24,950
Walter T. Beamis Scholarship Foundation	18	7,150
Total	37,368	17,246,792

Source: Arizona Department of Revenue, information for 2000 as of May 21, 2001.
Note: na = not available.

Therefore, if the most common tuition cost is roughly $3,000, then the average scholarship would reduce the tuition payment by 28 percent.

Scholarship Recipients

One question of particular interest to policymakers is, Which children receive scholar-

We estimate that between 15 and 30 percent of scholarships were dedicated to students who would have otherwise attended public school.

ships? The Center for Market-Based Education concluded, on the basis of interviews with scholarship organizations, that between 70 and 80 percent of scholarships are being distributed to low-income families.[17] Our interviews with representatives of scholarship organizations indicate that the percentage of scholarships targeted to lower-income children may be even higher.[18] Every representative reported that financial need is a consideration in the allocation of scholarships. In fact, the majority of organizations reported that financial need is the primary criterion used to determine eligibility and allocate scholarships.

During our interviews, we also asked representatives of scholarship organizations what percentage of the scholarship recipients either were previously enrolled in public school or would probably have to leave private school if they did not receive scholarships. Unfortunately, many of the representatives could not provide that information. However, it was clear from our interviews that most scholarships were used by students already enrolled in private school. Since many of those students were identified by the schools as needing assistance in order to continue their private school education, it is likely that a portion of those students would have otherwise had to return to public school. Some of the representatives believed that a significant portion of their organizations' scholarships was dedicated to students seeking to leave public schools. For example, one organization had the specific goal of dedicating two-thirds of its scholarships to students previously in public schools.

We found that 36 percent of the scholarships of the organizations that were able to offer an estimate of the number of scholarship recipients who came from public schools were given to former public school students. However, those organizations account for only 13 percent of the scholarships. In particular, we did not have estimates for some of the largest organizations, which were primarily focused on assisting students at Catholic schools. However, a representative of one such organizations described its efforts to reach out to all Catholic students in the area. The ultimate goal was to help give every Catholic student currently enrolled in public school the opportunity to attend a Catholic school. It seems likely that a significant portion of that organization's scholarships ultimately will be given to students who would otherwise have to attend public school. However, in forming our estimate, it seems reasonable to assume that the organizations that collected data on the number of scholarships distributed to public school students had higher percentages of such students. We must also take into account the possibility that a portion of those scholarship recipients previously in public schools might have switched to private schools even without scholarships. Therefore, we conclude that the finding of 36 percent probably overstates the portion of students who switched from public to private school as a result of a scholarship.

On the basis of our data collection and conversations with representatives of scholarship organizations, we estimate that between 15 and 30 percent of scholarships were dedicated to students who would have otherwise attended public school. To conservatively estimate the effects of the program, we assume that 20 percent of all scholarships were used by students who would have otherwise attended public school.

Economic theory and experience with financial aid in higher education also suggest that scholarship organizations are likely to dedicate scholarships to students who would otherwise be unable to attend private school. David Breneman, dean of the Curry School of Education, University of Virginia, who has researched the financial aid strategies of small liberal arts colleges, has developed an economic model for private colleges. He distinguishes between two types of private colleges: selective schools that reach full enrollment entirely with students paying full tuition and less selective schools that must discount tuition in order to reach full enrollment. However, he finds that, regardless of

the type of school, all share the same incentive: "to maximize the quality and diversity of its student body and the quality of faculty and facilities, while meeting desired goals for enrollment, faculty and related educational resources."[19] According to this model, private schools have two possible goals when allocating financial aid: to maintain or increase enrollment levels or to improve the quality of their student body. If a school allocates financial aid to students who would have attended the school without any financial aid, it is not furthering either of those two goals. If a school is trying to maximize enrollment and tuition revenue, rational behavior is to reserve scholarships for students who would not attend the school without financial assistance.

Given schools' incentives to target aid to new students, it might be surprising that only an estimated 20 percent of scholarships went to new students. However, one must consider the process most scholarship organizations currently use to attract applicants and allocate scholarships. Most have made only limited efforts to attract new students for a number of reasons. Some scholarship organizations say that they have done little marketing because of limited administrative resources. Others cite a desire to keep overhead low so a higher percentage of donations can be used for scholarships. Furthermore, many scholarship organizations are run by individuals in their spare time. Those individuals spend the majority of their time learning the ropes of running a nonprofit organization and handling administrative tasks; they have neither the time nor the financial resources to launch extensive outreach campaigns.

However, many scholarship organizations expressed a desire to improve their outreach programs to low-income families. One organization noted that it was attempting to increase awareness of the availability of scholarship money by piggybacking with programs that serve low-income students, such as the Big Brothers/Big Sisters of America and Boys and Girls Clubs of America. This suggests that in the future more and more scholarships will go to new students.

The Universe of Private Schools

When considering the overall effects of the scholarship tax credit, it is important to consider the schools that receive the students on scholarships provided by scholarship organizations. To gather information about Arizona's private schools, we sent surveys to the 303 private schools identified by the Center for Market-Based Education.[20] As shown in Figure 3, the private schools in Arizona range from religiously affiliated schools to college preparatory schools to schools offering specific curricula, such as Montessori schools.

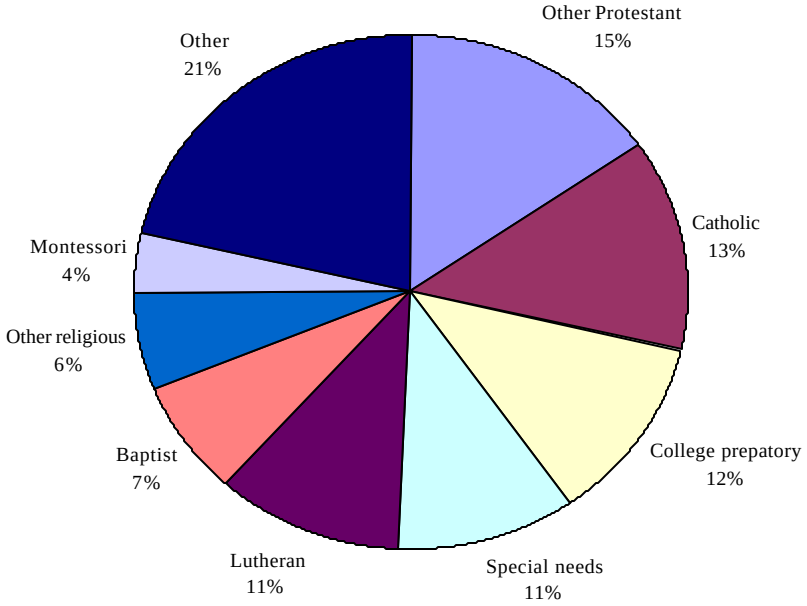
As shown in Figure 4, tuition at Arizona's private schools varies a great deal. However, 71 percent of survey respondents charge $4,000 or less, and the tuition category most often cited by schools was between $2,000 and $3,000. It should also be noted that many of the schools at the extreme high end of the tuition ranges are schools that offer specialized curricula, such as schools for handicapped children and therapeutic group homes for students with emotional and behavioral problems.

As shown in Figure 5, all of the 22 schools that charge less than $2,000 per year are parochial schools. However, when considering a slightly higher tuition level—schools that charge from $2,000 to $4,000—there is a greater diversity of private schools, including some independent schools in addition to parochial schools. Most of the schools charging more than $4,000 are special needs or college preparatory. According to the U.S. Department of Education, the per pupil expenditure in Arizona public schools for the 1997–98 school year was $4,595, considerably more than the majority of private schools charge for tuition.[21]

Seventy-five percent of the private schools

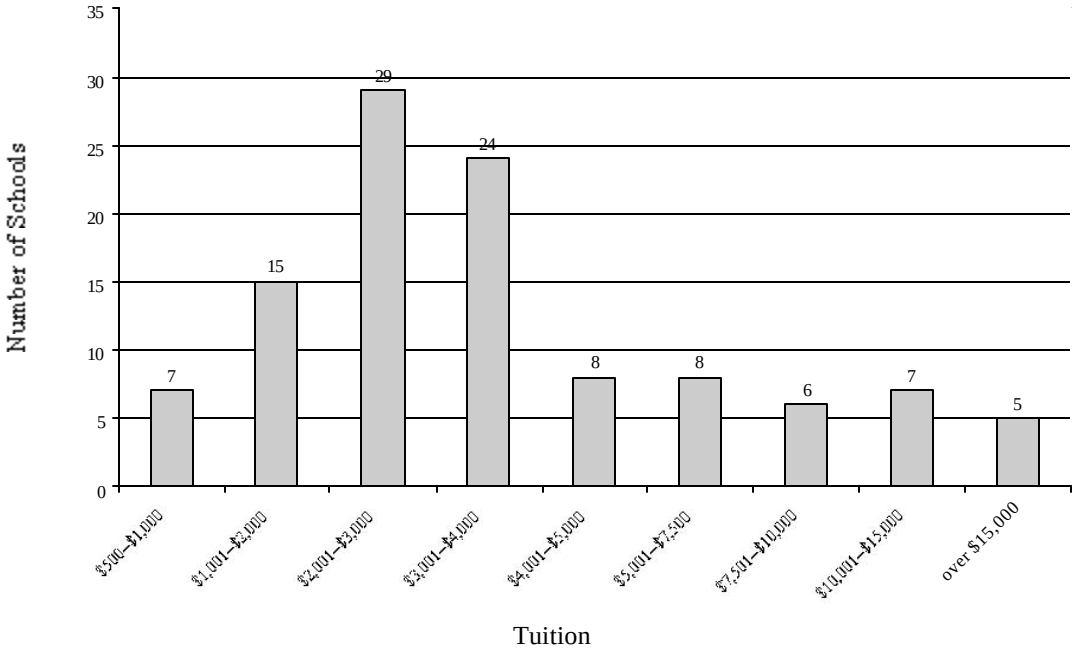
Tuition at Arizona's private schools varies. However, the tuition category most often cited by schools was between $2,000 and $3,000.

Figure 3
Diversity of Arizona's Private Schools



Source: Derived from author survey.

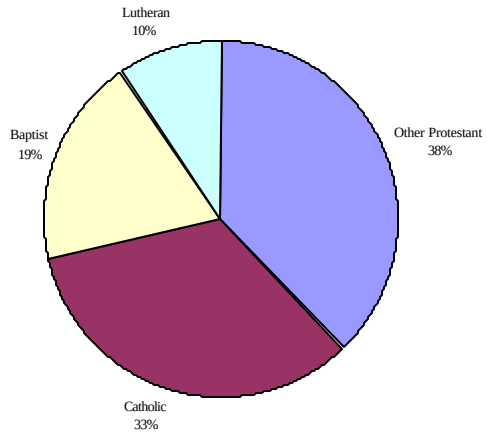
Figure 4
Number of Schools by Tuition, 2000–01



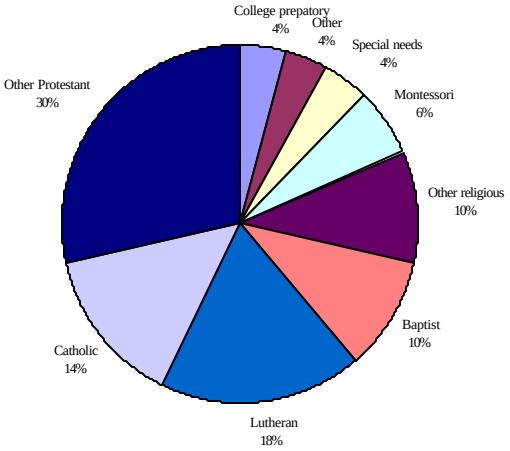
Source: Derived from author survey.

Figure 5
Private School Diversity by Tuition Level

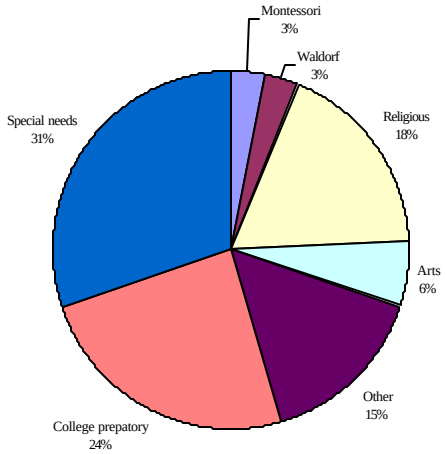
Private Schools with Tution below $2,000



Private Schools with Tuition from $2,000 to $4,000



Private Schools with Tuition above $4,000



Source: Derived from author survey.

Table 3
Fiscal Impact of Tax Credit

	Estimated Percentage of Scholarships Given to New Students					
Impact Factor	10	15	20	25	30	36
Direct revenue loss, 1999	$13,706,611	$13,706,611	$13,706,611	$13,706,611	$13,706,611	$13,706,611
Transfer savings, 2000–01	$6,863,092	$10,294,638	$13,726,184	$17,157,730	$20,589,276	$24,707,131
Net loss (savings)	$6,843,519	$3,411,973	$(19,573)	$(3,451,119)	$(6,882,665)	$(11,000,520)

Source: Authors' calculations.

that responded to our survey offered students financial aid. Ninety-five percent of those schools consider financial need as one criterion when allocating aid. Eighty-three percent of the schools consider only financial need when allocating aid.

Twenty-four percent of the schools that responded to our survey reported an increase in enrollment from the 1997–98 school year to the 2000–01 school year, 7 percent a decrease, and 69 percent constant enrollment. That is consistent with the trend suggested by U.S. Department of Education data. It appears that enrollment in private schools is generally flat or increasing slightly, but not at a rate consistent with overall population growth.

Other qualitative evidence suggests that demand for private schools may be increasing more significantly. According to Monsignor Edward Ryle of the Archdiocese of Phoenix, there has been a considerable increase in the demand for Catholic schools, and the Catholic Church plans to open two new schools in the Phoenix area in the fall of 2001.[22] He was also aware of another Catholic school under construction in Arizona. This increase in private schools is a new phenomenon. Monsignor Ryle informed us that there had been only one or two new Catholic schools opened in Arizona in decades. It is unclear whether this increased demand is a result of the availability of scholarships from the tuition tax credit or if it is simply the outcome of the growth in Arizona's population and its Catholic population in particular.

Current Budget Impact

To the extent that the students who receive scholarships are already attending private schools, the tax credit is a total loss for Arizona's budget. However, for each student in 2001 who would have attended public school if it were not for a scholarship, the state and localities save roughly $4,595 that would have otherwise been spent to educate that child in the public school system.[23] This is a rough, conservative estimate of the savings generated by students choosing to attend private instead of public schools. There are additional savings such as the savings that the state gains by not having to build additional schools to house the students and not having to hire additional teachers or administrators.

The $13.7 million donated to scholarship organizations in 1999 funded 14,936 scholarships for the 2000–01 school year. This suggests that, since the cost of educating a student in public school is roughly $4,595, the tax credit program was essentially revenue neutral for Arizona taxpayers. As shown in Table 3, that finding is based on our conservative estimate that 20 percent of scholar-

Table 4
Projected Taxpayer Participation and Total Donations by Income Bracket, 2001

Federal Adjusted Gross Income	Total Number of Filers	Participation Rate (percentage)	Total Number of Filers Using Credit	Total Donations (dollars)
$25,000 or less	938,032	0.50	4,690	1,570,970
$25,000–$50,000	506,420	2.00	10,128	4,503,844
$50,000–$75,000	245,697	3.50	8,599	4,370,206
$75,000–$100,000	103,192	5.50	5,676	2,982,635
$100,000–$200,000	81,816	8.00	6,545	3,515,315
$200,000–$500,000	20,322	9.00	1,829	1,024,531
$500,000–$1,000,000	3,733	10.00	373	209,121
$1,000,000 +	1,986	10.00	199	108,933
Total	1,901,198	2.00[a]	38,039	18,285,555

Source: Authors' calculations.

[a]Percentage of all taxpayers

ships were used by students who would have otherwise gone to public schools. However, it is also possible that the program actually saved Arizona taxpayers money. If, for instance, 25 percent of the scholarships were used by students who would have otherwise attended public schools, the credit saved taxpayers roughly $3.5 million.

Projected Impact through 2015

On the basis of the past trends in use of the tax credit, we can estimate the amount of money that is likely to be generated for scholarships in the future and the subsequent impact on Arizona's budget. These estimates hinge primarily on taxpayer participation rates and the distribution of scholarships.

From information provided by the Arizona Department of Revenue, we know the percentage of taxpayers using the credit increased from an estimated 0.2 percent in 1998 to 2.2 percent in 2000. To estimate the credit's potential impact on Arizona's budget, we assume that the number of taxpayers by income groups grows at a rate consistent with Census Bureau projections for growth in Arizona's population through 2015.[24] As of 2001, the tax credit is capped at $625 for married couples filing jointly and $500 for all other taxpayers. Forty-three percent of taxpayers in Arizona are married couples filing jointly. To be conservative, we assume that married filers constitute two-thirds of those who use the tax credit.[25] Furthermore, we assume that the proportion of the credit used remains the same as in 1998 when a taxpayer in the lowest income bracket on average claimed 58 percent, or $290, of the total credit available compared to 95 percent, or $475, for taxpayers in the highest bracket.

As shown in Table 4, our estimates for 2001 begin with the assumption that only 0.5 percent of those in the lowest income bracket will use the tax credit. We assume that a greater percentage of taxpayers in each income bracket will use the credit with an estimated 10 percent of taxpayers in the highest income brackets using the credit. These calculations suggest that roughly 2 percent of taxpayers will exercise the tax credit in 2001 and that total donations will be $18.3 million. This is a very conservative estimate, given that it represents no growth in taxpayer participation and roughly a 6 percent increase over estimated total receipts for

Table 5
Estimated Future Amount of Tax Credit by Taxpayer Participation (millions of dollars)

	Low Growth	Moderate Growth	High Growth
2001	18.3	18.3	18.3
2002	19.2	20.4	21.9
2003	20.5	23.0	26.0
2004	21.9	25.6	30.2
2005	23.2	28.3	34.5
2006	24.6	31.1	38.8
2007	26.1	33.8	43.3
2008	27.5	36.7	47.8
2009	29.0	39.6	52.4
2010	30.5	42.5	57.1
2011	32.0	45.5	61.8
2012	33.5	48.6	66.7
2013	35.1	52.7	71.7
2014	36.7	54.8	76.7
2015	38.3	58.1	81.9
Percentage of all taxpayers participating in 2015	3.55%	5.36%	9.00%

Source: Authors' calculations.
Note: Low-growth scenario = 1 percentage point annual increase among taxpayers earning $75,000 or more; moderate-growth scenario = 1 percentage point annual increase among taxpayers earning $50,000 or more; high-

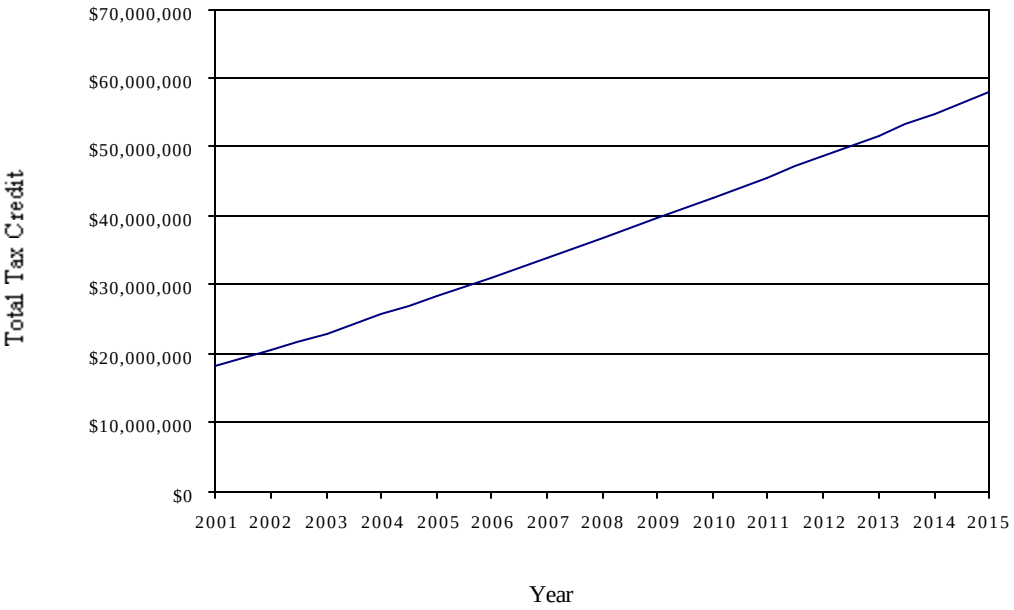
For each student in 2001 who would have attended public school if it were not for a scholarship, the state and localities save roughly $4,595.

2000, a much smaller increase than occurred between 1999 and 2000.

With an understanding of taxpayer participation rates, we then projected how much revenue could be generated through 2015, given different levels of growth in participation. In Table 5, we show how revenue could grow based on low-, moderate-, and high-growth scenarios. For the slow-growth estimates, we assume that growth occurs only among taxpayers with incomes of $75,000 or greater. That is an extremely conservative estimate, considering that it assumes no increase in participation among taxpayers earning less than $75,000. In the high-growth estimate, we assume participation continues to increase among all taxpayers, but at a rate of only one-half of a percentage point. Even in the high-growth scenario, we assume that only 9 percent of all taxpayers will use the tax credit in 2015, a conservative assumption since credit use is essentially costless to donors.

Under the moderate-growth scenario, we assume that the rate of participation will increase by one percentage point each year, but only among taxpayers with incomes of $50,000 or more. This would mean that by 2015 only 5.36 percent of all taxpayers would be using the credit. This represents a growth rate that is significantly less than the 26 percent growth rate in the total amount of donations that occurred between the 1999 and 2000 tax years. Therefore, we are assuming that the rate of growth would slow over time. It seems reasonable to assume that participation rates will slow once those taxpayers most likely to be interested in using the tax credit are already doing so. However, even this moderate-growth scenario may be conservative if, over time, awareness of the credit

Figure 6
Total Amount of Tax Credit Claimed by Year Assuming Moderate Growth in Participation



Source: Authors' calculations.

grows, increasing numbers of children receive scholarships, and their parents encourage others to donate to the scholarship organizations. As shown in Figure 6, using the moderate-growth assumption, this would mean total donations would reach more than $58 million in 2015.

To estimate the overall impact of the credit on Arizona's budget, we must calculate the savings to taxpayers that result when parents use the scholarships to enroll their children in nonpublic schools.

First, we determine the likelihood that parents will transfer their children from public to nonpublic schools, given the availability of the credit.[26] Evidence from private scholarship programs, such as the Children's Scholarship Fund, suggests that demand for scholarships to private schools among lower-income families in urban areas exceeds the availability of scholarships by more than 90 percent.[27] However, the demand for private scholarships among lower-income families in primarily urban areas does not necessarily reflect the likely demand for scholarships in Arizona. In Arizona demand for private schools might be lower because public school choice polices already give some parents greater ability to select schools. However, other qualitative information such as polling data suggest that the majority of parents of students in public schools would enroll their children in nonpublic schools if they were financially able.[28] Moreover, our data on Arizona suggest that the current demand for scholarships exceeds supply by more than 30 percent.

Next, we must estimate the number of scholarships that will be available for students who currently attend public schools. As discussed earlier, current data suggest that 20 percent of scholarships have been given to students who would have otherwise attended public schools. In 2001 then, assuming the average scholarship remains $856 in real terms, 19,225 scholarships will be available, of which an estimated 3,845 will go to new students. If that percentage remains constant, in 2002, 4,300 new students will attend nonpublic schools, and by 2015, 12,209 new students

Our data on Arizona suggest that the current demand for scholarships exceeds supply by more than 30 percent.

Giving the scholarships to a greater number of students already attending private schools is not only irrational, it is counter to the aims and demonstrated experience of most of the scholarship organizations.

will be enrolled in private schools. As shown in Appendix 1, under these assumptions, the cost of the program for the state will grow despite new migration to private schools. That is because the state receives no new savings from subsidizing tuition for students who would attend private school without the tuition assistance. In 2001 just 15,380, or 32 percent, of the students already in private schools received scholarships. As the program grew and more scholarships became available, the number of scholarships used by students already in private school increased dramatically. According to this projection, by 2015, 94 percent of students already in private school will be receiving scholarships.

That scenario is highly unlikely to occur. As discussed previously, scholarship organizations have a strong incentive to grant scholarships to students who are not already enrolled in private schools. If a scholarship organization is affiliated with a particular school, it is rational for the organization to use its scholarships to maximize enrollment or to increase the quality of the student body. Giving scholarships to students who already attend the school achieves neither of those goals. Furthermore, every scholarship organization currently uses financial need as a criterion for allocating scholarships, and many are planning to expand their outreach programs. Giving the scholarships to a greater number of students already attending private schools is not only irrational, it is counter to the aims and demonstrated experience of most of the scholarship organizations.

It is more likely that, as use of the credit grows and more scholarships become available, the percentage of scholarships dedicated to new students will increase. In Appendix 2 we begin with the assumption that 20 percent of scholarships are granted to new students. We then assume that that percentage increases by one point each year. Therefore, in 2001, 3,845 scholarships will go to new students and in 2002, 4,515 will. This small adjustment in assumptions has a serious impact on the net cost of the program. By 2002 taxpayers begin saving money. The amount of savings continues to increase each year, and by 2008 taxpayers are saving more than $10 million each year.

Even that scenario may be too conservative. It seems reasonable to assume that existing private school students who need financial assistance already receive scholarships. Therefore, a greater portion of scholarship money will be used to help new students. On the assumption that 20 percent of the scholarships go to new students in 2001, roughly 34 percent of the students already enrolled in private school will also receive scholarships. If the portion of the existing private school population receiving scholarships grows by 1 percent per year, in 2002, 25 percent of scholarships will go to students previously in public schools. As shown in Appendix 3, this scenario significantly increases the amount of savings enjoyed by the state, as the number of new students enrolled in private school increases to 37,000 by 2015.

However, that scenario may overstate the number of scholarships available and the savings for taxpayers since it seems likely that scholarship organizations would also continue to increase the real value of the scholarships to provide more financial assistance to students in need. In Appendices 4 and 5 we assume that the scholarship amount continues to increase at a rate of 4 percent per year through 2015, making fewer, but more valuable, scholarships available each year. If we assume that the rate of increase in the percentage of scholarships going to new students is 1 percent per year, the cost of the program remains relatively flat, with yearly costs increasing from less than $1 million to $3 million in 2015. However, if we assume that the portion of new students grows more quickly, then taxpayers enjoy significant savings as a result of the tax credit.

These projections give us a sense of the likely impact of this program on Arizona's budget. It seems most likely that the effects of the tax credit will be in the range provided by estimates in Appendices 3 and 5. Given the goals of the scholarship organizations, it seems most likely that the additional money

available for scholarships will be dedicated to students who are not currently enrolled in private schools, but a portion of that money will also go to increase the value of the scholarships. Therefore, using moderate to conservative estimates of taxpayer participation, we estimate that scholarship organizations will be helping send from 11,000 to 37,000 new students to private schools by 2015. These estimates suggest that enrollment in private schools will likely increase from 5.2 percent to between 5.9 and 8.3 percent of all students in kindergarten through 12th grade by 2015. The impact of scholarships on the portion of students enrolled in private schools could also be considerably greater. Private school enrollment in Arizona declined steadily by more than 2 percent per year from 1991 to 1997. It is possible that, without the tax credit program, enrollment would have continued declining. If we assume that the rate of decline in enrollment would have continued without the credit, then just 3.7 percent of all students would be enrolled in private school by 2015. Under that scenario, the new students brought to private schools by the tax credit would be even more significant for the private school universe, increasing total enrollment by between 24 and 100 percent.

In addition, the scholarships will reduce the burden of tuition for many families that currently send their children to private schools, particularly lower-income families. In fact, according to these conservative estimates of the rate of migration from public to private schools, enough scholarships will be available to allow between 40 and 80 percent of students already in private school to also receive assistance.

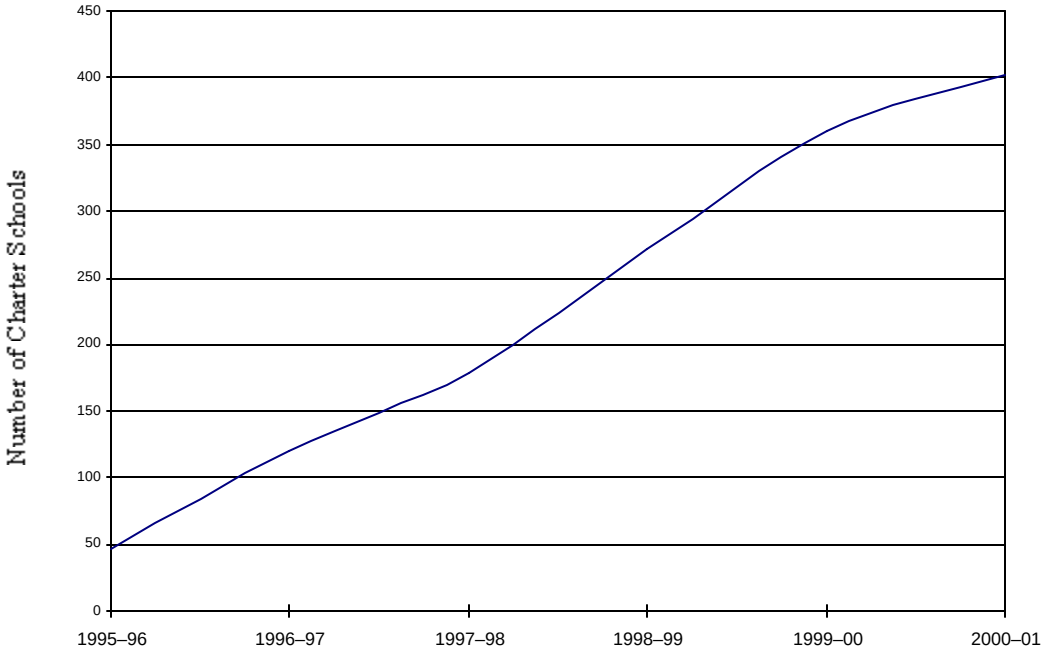
There are many other factors that will influence the impact of this program. For example, these projections assume that the cost of public school and tuition for private school remain constant in real terms. Historically both tend to grow faster than inflation. That could mean that the money taken in by scholarship organizations would provide fewer scholarships or a smaller part of tuition, which could affect the ability of families to enroll children in nonpublic schools. In particular, it seems likely that some private schools may increase their tuition since many private schools have felt underfunded and have relied on outside assistance to provide their services. However, this reduction in the savings generated by a lower number of students switching from public to private school may be offset by the increasing cost of public school education,[29] which would mean that the savings per student would also be greater.

These projections also assume that the supply of private schools will grow each year to meet the needs of the additional incoming students. In total, the expected increase in students would require between 60 and 185 private schools to open during the next 15 years, assuming that each school served roughly 200 students.[30] Although that represents a significant increase in the number of private schools, Arizona's recent experience with charter schools shows that educators can readily build new schools to meet increases in demand. As shown in Figure 7, the number of charter schools grew from 46 in 1995 to 403 for the 2000–01 school year. The experience of charter schools is not directly analogous since the state provides charter schools with capital funds and per pupil funds. However, charter school growth demonstrates that, when parents have the ability to choose schools and resources follow students, providers respond to that demand and increase the supply of alternative schools.[31]

Although factors such as delays in the increase of supply and changes in tuition could influence the impact of the program in a given year, they are not likely to significantly change the basic finding regarding the likely impact of the tax credit. We conclude that Arizona's tuition tax credit will increase the number of students in private schools—with at most a small cost to taxpayers but, more likely, significant savings to taxpayers. The extent of the impact on numbers of students and savings for taxpayers will depend on multiple factors that deserve further study.

Arizona's tuition tax credit will increase the number of students in private schools—with at most a small cost to taxpayers but, more likely, significant savings to taxpayers.

Figure 7
Charter School Growth in Arizona



Source: Center for Market-Based Education, www.azschoolchoice.org/issues_facts/cs_factsheet.htm.

Policy Implications

Given Arizona's current experience with the tax credit and conservative estimates of increased taxpayer participation rates over time, we estimate that by 2015 the tax credit will

- raise $58 million annually in donations to the scholarship organizations;
- fund between 35,000 and 61,000 scholarships each year;
- help between 11,000 and 37,000 students who would have to attend public schools in the absence of scholarships enroll in nonpublic schools of their choice;
- be revenue neutral using the most conservative estimates (11,000 new students transferring to nonpublic schools); using more optimistic assumptions, with 37,000 students transferring into nonpublic schools, taxpayers would save tens of millions of dollars per year.

The scholarship tax credit is making private schooling more affordable for low-income families and enabling those in public schools to consider private alternatives.

This analysis shows that the scholarship tax credit is making private schooling more affordable for low-income families and enabling those in public schools to consider private alternatives. Those findings are significant not just for Arizona but also for policymakers throughout the nation who want parents to have greater control over their children's education.

It is important for policymakers in other states to note the unique characteristics of the Arizona education system, which has likely influenced that state's experience with the tax credit. Most notably, Arizona has a relatively significant amount of choice in the public education system, including 20 percent of the nation's charter schools.[32] This unusual level of freedom within the public school system has

important implications for the effects of the scholarship tax credit. Caroline Hoxby of Harvard University studied the effects of district choice and the availability of private schools to determine if different types of choice are substitutes for one another. She concluded, "An increase of a standard deviation in the degree of choice among districts lowers the share of children who attend private schools by about 1 percentage point (on a base of about 12 percentage points)."[33] In other words, in a system in which parents already have some choice, an additional form of choice will have less of an impact than it would were it the only form of choice. This suggests that the impact of the scholarship tax credit in Arizona in terms of encouraging more parents to pursue private education is likely muted by the relatively significant amount of choice within the existing system. Therefore, policymakers in most other states would likely see a greater increase in demand for private schools, and thus larger savings, as a result of the tax credit.

Conclusion

From 1998 through 2000 Arizona's scholarship tax credit helped to generate more than $32 million in contributions to scholarship organizations that awarded almost 19,000 scholarships. More than 80 percent of scholarships were targeted to low-income students, and an estimated 20 percent of scholarship recipients would have had to attend public school if the scholarships had not been available. We conclude that the Arizona experience demonstrates that tax credits are a successful method of increasing parental control over school selection.

In addition, we estimated the impact of the credit on Arizona taxpayers. Although the state forgoes revenue as people exercise the credit, taxpayers save money when students who would have been educated at public expense use the scholarships to transfer to nonpublic schools. Therefore, although Arizona lost $13.7 million in 1999, we find that, once savings are taken into account, the credit was revenue neutral.

In the future, the tax credit will likely continue to generate more scholarship money, giving more students the opportunity to transfer from public to nonpublic schools and reducing the cost of public education for taxpayers. Using moderate assumptions about the growth of taxpayer participation, we estimate that by 2015 the scholarship credit will be raising $58 million for scholarships per year, funding 35,000 to 61,000 scholarships annually, and helping send 11,000 to 37,000 students who would otherwise have to attend public school to schools of their choice. The projected cost of the credit is significantly less than the savings that result from student transfers. Available data suggest that the scholarship tax credit will be a net winner for Arizona taxpayers, expanding school choice to thousands of families while saving taxpayers millions.

Available data suggest that the scholarship tax credit will be a net winner for Arizona taxpayers, expanding school choice to thousands of families while saving taxpayers millions.

Appendix 1: Projection 1: Percentage of Scholarships Dedicated to New Students Constant, Value of Scholarship Constant

Year	Public School Enrollment	Estimated Private School Enrollment[a]	Amount Collected from Tax Credit (dollars)	Amount Distributed in Scholar-ships (dollars)	Value of Scholar-ships (dollars)	Potential Number of Scholar-ships	Percentage of Scholar-ships to Old Private School Students	Number of Old Private School Students Receiving Scholar-ships	Percentage of Old Private School Students with Scholar-ships	Percentage of Scholar-ships for New Private School Students	Number of New Students in Private School	Total Private School Enroll-ment	Estimated Percentage in Private School	Savings due to Student Migration (dollars)	Net Revenue Loss (dollars)
2001	909,000	47,632	18,285,554	16,456,999	856	19,225	80%	15,380	32%	20%	3,845	51,477	5.25%	17,668,203	617,351
2002	924,000	48,418	20,446,946	18,402,251	856	21,498	80%	17,198	36%	20%	4,300	52,717	5.29%	19,756,623	690,323
2003	937,000	49,099	23,026,236	20,723,612	856	24,210	80%	19,368	39%	20%	4,842	53,941	5.34%	22,248,832	777,404
2004	949,000	49,728	25,655,067	23,089,560	856	26,974	80%	21,579	43%	20%	5,395	55,122	5.38%	24,788,909	866,158
2005	960,000	50,304	28,334,171	25,500,754	856	29,791	80%	23,832	47%	20%	5,958	56,262	5.43%	27,377,562	956,609
2006	968,000	50,723	31,064,292	27,957,863	856	32,661	80%	26,129	52%	20%	6,532	57,255	5.48%	30,015,509	1,048,783
2007	975,000	51,090	33,846,183	30,461,565	856	35,586	80%	28,469	56%	20%	7,117	58,207	5.53%	32,703,479	1,142,704
2008	977,000	51,195	36,680,604	33,012,544	856	38,566	80%	30,853	60%	20%	7,713	58,908	5.59%	35,442,205	1,238,399
2009	979,004	51,300	39,568,330	35,611,497	856	41,602	80%	33,282	65%	20%	8,320	59,620	5.65%	38,232,437	1,335,893
2010	981,012	51,405	42,510,141	38,259,127	856	44,695	80%	35,756	70%	20%	8,939	60,344	5.70%	41,074,927	1,435,214
2011	983,024	51,510	45,506,833	40,956,150	856	47,846	80%	38,277	74%	20%	9,569	61,080	5.76%	43,970,446	1,536,387
2012	985,040	51,616	48,559,207	43,703,286	856	51,055	80%	40,844	79%	20%	10,211	61,827	5.82%	46,919,766	1,639,441
2013	987,060	51,722	51,668,077	46,501,269	856	54,324	80%	43,459	84%	20%	10,865	62,587	5.88%	49,923,676	1,744,401
2014	989,085	51,828	54,834,270	49,350,843	856	57,653	80%	46,122	89%	20%	11,531	63,359	5.94%	52,982,973	1,851,297
2015	991,113	51,934	58,058,619	52,252,757	856	61,043	80%	48,834	94%	20%	12,209	64,143	6.00%	56,098,462	1,960,157

[a]Based on U.S. Department of Education data indicating that 5.24 percent of enrolled students were in private schools and assuming that that percentage would remain constant over time without the program.

Appendix 2: Projection 2: Percentage of Scholarships Dedicated to New Students Increasing, Value of Scholarship Constant

Year	Public School Enrollment	Estimated Private School Enrollment[a]	Amount Collected from Tax Credit (dollars)	Amount Distributed in Scholarships (dollars)	Value of Scholarships (dollars)	Potential Number of Scholarships	Percentage of Scholarships to Old Private School Students	Number of Old Private School Students Receiving Scholarships	Percentage of Old Private School Students with Scholarships	Percentage of Scholarships for New Private School Students	Number of New Students in Private School	Total Private School Enrollment	Estimated Percentage in Private School	Savings due to Student Migration (dollars)	Net Revenue Loss (dollars)
2001	909,000	47,632	18,285,554	16,456,999	856	19,225	80%	15,380	32%	20%	3,845	51,477	5.25%	17,668,203	617,351
2002	924,000	48,418	20,446,946	18,402,251	856	21,498	79%	16,983	35%	21%	4,515	52,932	5.31%	20,744,454	(297,508)
2003	937,000	49,099	23,026,236	20,723,612	856	24,210	78%	18,884	38%	22%	5,326	54,425	5.38%	24,473,715	(1,447,479)
2004	949,000	49,728	25,655,067	23,089,560	856	26,974	77%	20,770	42%	23%	6,204	55,932	5.46%	28,507,245	(2,852,178)
2005	960,000	50,304	28,334,171	25,500,754	856	29,791	76%	22,641	45%	24%	7,150	57,454	5.55%	32,853,074	(4,518,903)
2006	968,000	50,723	31,064,292	27,957,863	856	32,661	75%	24,496	48%	25%	8,165	58,888	5.64%	37,519,387	(6,455,095)
2007	975,000	51,090	33,846,183	30,461,565	856	35,586	74%	26,334	52%	26%	9,252	60,342	5.74%	42,514,523	(8,668,340)
2008	977,000	51,195	36,680,604	33,012,544	856	38,566	73%	28,153	55%	27%	10,413	61,608	5.85%	47,846,977	(11,166,373)
2009	979,004	51,300	39,568,330	35,611,497	856	41,602	72%	29,954	58%	28%	11,649	62,948	5.96%	53,525,411	(13,957,081)
2010	981,012	51,405	42,510,141	38,259,127	856	44,695	71%	31,734	62%	29%	12,962	64,367	6.08%	59,558,644	(17,048,503)
2011	983,024	51,510	45,506,833	40,956,150	856	47,846	70%	33,492	65%	30%	14,354	65,864	6.21%	65,955,669	(20,448,836)
2012	985,040	51,616	48,559,207	43,703,286	856	51,055	69%	35,228	68%	31%	15,827	67,443	6.35%	72,725,638	(24,166,431)
2013	987,060	51,722	51,668,077	46,501,269	856	54,324	68%	36,940	71%	32%	17,384	69,106	6.49%	79,877,881	(28,209,804)
2014	989,085	51,828	54,834,270	49,350,843	856	57,653	67%	38,627	75%	33%	19,025	70,853	6.64%	87,421,905	(32,587,635)
2015	991,113	51,934	58,058,619	52,252,757	856	61,043	66%	40,288	78%	34%	20,755	72,689	6.80%	95,367,386	(37,308,767)

[a]Based on U.S. Department of Education data indicating that 5.24 percent of enrolled students were in private schools and assuming that that percentage would remain constant over time without the program.

Appendix 3: Projection 3: Percentage of Old Private School Students with Scholarships Increasing, Value of Scholarship Constant

Year	Public School Enrollment	Estimated Private School Enrollment[a]	Amount Collected from Tax Credit (dollars)	Amount Distributed in Scholarships (dollars)	Value of Scholarships (dollars)	Potential Number of Scholarships	Percentage of Scholarships to Old Private School Students	Number of Old Private School Students Receiving Scholarships	Percentage of Old Private School Students with Scholarships	Percentage of Scholarships for New Private School Students	Number of New Students in Private School	Total Private School Enrollment	Estimated Percentage in Private School	Savings due to Student Migration (dollars)	Net Revenue Loss (dollars)
2001	909,000	47,632	18,285,554	16,456,999	856	19,225	80%	15,380	32%	20%	3,845	51,477	5.25%	17,668,203	617,351
2002	924,000	48,418	20,446,946	18,402,251	856	21,498	75%	16,118	33%	25%	5,380	53,797	5.40%	24,719,295	(4,272,349)
2003	937,000	49,099	23,026,236	20,723,612	856	24,210	70%	16,836	34%	30%	7,374	56,473	5.59%	33,882,226	(10,855,990)
2004	949,000	49,728	25,655,067	23,089,560	856	26,974	65%	17,549	35%	35%	9,425	59,152	5.78%	43,306,868	(17,651,801)
2005	960,000	50,304	28,334,171	25,500,754	856	29,791	61%	18,255	36%	39%	11,535	61,839	5.97%	53,003,980	(24,669,809)
2006	968,000	50,723	31,064,292	27,957,863	856	32,661	58%	18,915	37%	42%	13,746	64,469	6.17%	63,163,955	(32,099,663)
2007	975,000	51,090	33,846,183	30,461,565	856	35,586	55%	19,562	38%	45%	16,023	67,113	6.38%	73,627,711	(39,781,528)
2008	977,000	51,195	36,680,604	33,012,544	856	38,566	52%	20,115	39%	48%	18,451	69,646	6.61%	84,784,551	(48,103,947)
2009	979,004	51,300	39,568,330	35,611,497	856	41,602	50%	20,669	40%	50%	20,933	72,233	6.84%	96,188,916	(56,620,586)
2010	981,012	51,405	42,510,141	38,259,127	856	44,695	47%	21,225	41%	53%	23,470	74,875	7.08%	107,844,518	(65,334,377)
2011	983,024	51,510	45,506,833	40,956,150	856	47,846	46%	21,784	42%	54%	26,062	77,573	7.32%	119,755,172	(74,248,339)
2012	985,040	51,616	48,559,207	43,703,286	856	51,055	44%	22,345	43%	56%	28,710	80,327	7.56%	131,924,717	(83,365,510)
2013	987,060	51,722	51,668,077	46,501,269	856	54,324	42%	22,908	44%	58%	31,416	83,138	7.81%	144,357,055	(92,688,978)
2014	989,085	51,828	54,834,270	49,350,843	856	57,653	41%	23,473	45%	59%	34,180	86,008	8.06%	157,056,150	(102,221,880)
2015	991,113	51,934	58,058,619	52,252,757	856	61,043	39%	24,041	46%	61%	37,002	88,937	8.32%	170,025,997	(111,967,378)

[a]Based on U.S. Department of Education data indicating that 5.24 percent of enrolled students were in private schools and assuming that that percentage would remain constant over time without the program.

Appendix 4: Projection 4: Percentage of Scholarships Dedicated to New Students Increasing, Value of Scholarship Increasing

Year	Public School Enrollment	Estimated Private School Enrollment[a]	Amount Collected from Tax Credit (dollars)	Amount Distributed in Scholarships (dollars)	Value of Scholarships (dollars)	Potential Number of Scholarships	Percentage of Scholarships to Old Private School Students	Number of Old Private School Students Receiving Scholarships	Percentage of Old Private School Students with Scholarships	Percentage of Scholarships for New Private School Students	Number of New Students in Private School	Total Private School Enrollment	Estimated Percentage in Private School	Savings due to Student Migration (dollars)	Net Revenue Loss (dollars)
2001	909,000	47,632	18,285,554	16,456,999	856	19,225	80%	15,380	32%	20%	3,845	51,477	5.25%	17,668,203	617,351
2002	924,000	48,418	20,446,946	18,402,251	890	20,671	79%	16,330	34%	21%	4,341	52,759	5.29%	19,946,590	500,356
2003	937,000	49,099	23,026,236	20,723,612	926	22,383	78%	17,459	36%	22%	4,924	54,023	5.34%	22,627,325	398,911
2004	949,000	49,728	25,655,067	23,089,560	963	23,980	77%	18,464	37%	23%	5,515	55,243	5.40%	25,342,837	312,230
2005	960,000	50,304	28,334,171	25,500,754	1,001	25,465	76%	19,353	38%	24%	6,112	56,416	5.45%	28,082,945	251,226
2006	968,000	50,723	31,064,292	27,957,863	1,041	26,845	75%	20,134	40%	25%	6,711	57,434	5.50%	30,838,201	226,091
2007	975,000	51,090	33,846,183	30,461,565	1,083	28,124	74%	20,812	41%	26%	7,312	58,402	5.55%	33,599,845	246,338
2008	977,000	51,195	36,680,604	33,012,544	1,126	29,307	73%	21,394	42%	27%	7,913	59,108	5.61%	36,359,770	320,834
2009	979,004	51,300	39,568,330	35,611,497	1,171	30,398	72%	21,887	43%	28%	8,512	59,811	5.66%	39,110,494	457,836
2010	981,012	51,405	42,510,141	38,259,127	1,218	31,402	71%	22,296	43%	29%	9,107	60,512	5.72%	41,845,113	665,028
2011	983,024	51,510	45,506,833	40,956,150	1,267	32,323	70%	22,626	44%	30%	9,697	61,207	5.77%	44,557,286	949,547
2012	985,040	51,616	48,559,207	43,703,286	1,318	33,165	69%	22,884	44%	31%	10,281	61,897	5.83%	47,241,188	1,318,019
2013	987,060	51,722	51,668,077	46,501,269	1,370	33,931	68%	23,073	45%	32%	10,858	62,580	5.88%	49,891,489	1,776,588
2014	989,085	51,828	54,834,270	49,350,843	1,425	34,625	67%	23,199	45%	33%	11,426	63,254	5.93%	52,503,331	2,330,939
2015	991,113	51,934	58,058,619	52,252,757	1,482	35,251	66%	23,266	45%	34%	11,985	63,920	5.98%	55,072,289	2,986,330

[a]Based on U.S. Department of Education data indicating that 5.24 percent of enrolled students were in private schools and assuming that that percentage would remain constant over time without the program.

Appendix 5: Projection 5: Percentage of Old Private School Students with Scholarships Increasing, Value of Scholarship Increasing

Year	Public School Enrollment	Estimated Private School Enrollment[a]	Amount Collected from Tax Credit (dollars)	Amount Distributed in Scholar-ships (dollars)	Value of Scholar-ships (dollars)	Potential Number of Scholar-ships	Percentage of Scholar-ships to Old Private School Students	Number of Old Private School Students Receiving Scholar-ships	Percentage of Old Private School Students with Scholar-ships	Percentage of Scholar-ships for New Private School Students	Number of New Students in Private School	Total Private School Enroll-ment	Estimated Percentage in Private School	Savings due to Student Migration (dollars)	Net Revenue Loss (dollars)
2001	909,000	47,632	18,285,554	16,456,999	856	19,225	80%	15,380	32%	20%	3,845	51,477	5.25%	17,668,203	617,351
2002	924,000	48,418	20,446,946	18,402,251	890	20,671	78%	16,118	33%	22%	4,553	52,970	5.31%	20,919,945	(472,999)
2003	937,000	49,099	23,026,236	20,723,612	926	22,383	75%	16,836	34%	25%	5,547	54,646	5.41%	25,489,545	(2,463,309)
2004	949,000	49,728	25,655,067	23,089,560	963	23,980	73%	17,549	35%	27%	6,431	56,158	5.49%	29,548,572	(3,893,505)
2005	960,000	50,304	28,334,171	25,500,754	1,001	25,465	72%	18,255	36%	28%	7,210	57,514	5.55%	33,128,444	(4,794,273)
2006	968,000	50,723	31,064,292	27,957,863	1,041	26,845	70%	18,915	37%	30%	7,930	58,653	5.62%	36,439,212	(5,374,920)
2007	975,000	51,090	33,846,183	30,461,565	1,083	28,124	70%	19,562	38%	30%	8,562	59,652	5.67%	39,340,488	(5,494,305)
2008	977,000	51,195	36,680,604	33,012,544	1,126	29,307	69%	20,115	39%	31%	9,192	60,387	5.73%	42,239,341	(5,558,737)
2009	979,004	51,300	39,568,330	35,611,497	1,171	30,398	68%	20,669	40%	32%	9,730	61,029	5.78%	44,707,068	(5,138,738)
2010	981,012	51,405	42,510,141	38,259,127	1,218	31,402	68%	21,225	41%	32%	10,177	61,582	5.82%	46,763,377	(4,253,236)
2011	983,024	51,510	45,506,833	40,956,150	1,267	32,323	67%	21,784	42%	33%	10,539	62,050	5.85%	48,427,231	(2,920,398)
2012	985,040	51,616	48,559,207	43,703,286	1,318	33,165	67%	22,345	43%	33%	10,820	62,436	5.88%	49,716,813	(1,157,606)
2013	987,060	51,722	51,668,077	46,501,269	1,370	33,931	68%	22,908	44%	32%	11,023	62,745	5.89%	50,649,579	1,018,498
2014	989,085	51,828	54,834,270	49,350,843	1,425	34,625	68%	23,473	45%	32%	11,152	62,980	5.90%	51,242,289	3,591,981
2015	991,113	51,934	58,058,619	52,252,757	1,482	35,251	68%	24,041	46%	32%	11,210	63,145	5.91%	51,511,006	6,547,613

[a]Based on Department of Education data that 5.24% of enrolled students were in private schools and assumes that it would remain constant over time without the program.

Notes

The authors would like to thank Professor Paul Peterson, director of the Program on Education Policy and Governance at Harvard University, and Mary Gifford, formerly with the Goldwater Institute and now director of leadership development at the Mackinac Center for Public Policy, for their assistance.

1. Quoted in Brian Griesbach, "Board Members Give Opinions on Court Tax Credit Ruling," *Fountain Hills (Arizona) Times,* February 3, 1999.

2. Increased competition is associated with changes in school district behavior and may be linked to improvements in school quality and efficiency and to student performance as measured on standardized tests. For example, Caroline Hoxby of Harvard University studied the natural variations in the level of competition between school districts in the country. Holding other factors such as socioeconomic status constant, she found that an increase of one standard deviation in the amount of competition in an area is associated with a two percentage point increase in student math and reading scores and a 17 percent decrease in per pupil spending. That evidence suggests that competition makes schools more efficient; in other words, schools do more with less. Caroline M. Hoxby, "Analyzing School Choice: Reforms That Use America's Traditional Forms of Parental Choice," in *Learning from School Choice,* ed. Paul E. Peterson and Bryan C. Hassel (Washington: Brookings Institution, 1998), pp. 143–44.

3. Jeffry L. Flake, "Tuition Tax Credits: Free at Last! Free at Last!" Goldwater Institute Perspectives on Public Policy no. 97-14, June 12, 1997. For more information on how education tax credits can infuse the education system with market forces, see Andrew J. Coulson, "Toward Market Education: Are Vouchers or Tax Credits the Better Path?" Cato Institute Policy Analysis no. 392, February 23, 2001; and Darcy Olsen, Carrie Lips, and Dan Lips, "Fiscal Analysis of a $500 Federal Education Tax Credit to Help Millions, Save Billions," Cato Institute Policy Analysis no. 398, May 1, 2001.

4. We collected information from 20 of the 34 scholarship organizations. We conducted phone interviews with 20 organizations, and 10 of those organizations also completed the written survey.

5. The Center for Market-Based Education is part of the Goldwater Institute in Phoenix, Arizona.

6. The surveys were sent out by the Center for Market-Based Education to 303 private schools, 112, or 37 percent, of which responded.

7. The scholarship organizations may have different definitions of "low-income," and a precise breakdown of scholarship recipients by income is not available. However, the organizations' clear intent was to provide assistance to those families most in need.

8. We focus our estimate of the fiscal impact of the tax credit on 1999 since that is the only year for which information is complete. Our interviews focused on the distribution of the most recent scholarships. We do not have an accurate estimate of the percentage of scholarship recipients in 1998 who would have otherwise attended public school, so estimating the overall fiscal impact of the tax credit for 1998 is impossible. And, since most of the money collected in 2000 will be used to fund scholarships for the 2001–02 school year, the revenue effect of the tax credit for 2000 will be known only when those scholarships are allocated. We know that $17.2 million was raised by scholarship organizations in 2000 as a result of the tax credit; however, we will not know the savings generated by the scholarships until those scholarships are distributed.

9. Arizona Department of Revenue, Office of Economic Research and Analysis, "Arizona's Individual Income Tax Credits for Schools," in *Final Report of 1998 Credits,* October 2000, p. 1.

10. Arizona Tax Research Association, "Prop. 301 & Education 2000," ATRA Analysis, n.d., p. 4, www.arizonatax.org.pdf/prop301analysis.pdf.

11. Center for Market-Based Education, www.cmbe.org/extra_info.htm.

12. See *Kotternman v. Killian,* No. CV-97-0412-SA, http://www.supreme.state.az.us/opin/pdf99/cv970412.pdf. See also Center for Market-Based Education, www.cmbe.org/extra_info.htm.

13. It is important to note that the legal challenge to the tax credit most likely reduced taxpayer participation during 1998, the first year the credit was available. The challenge probably discouraged taxpayer participation, as the credit was not yet guaranteed, and it discouraged scholarship organizations from seeking donations. Although it is typical for a tax credit program to have increased use after the first year, the dramatic increase in participation in Arizona's tuition tax credit from 1998 to 1999 is likely exaggerated by the limited use of the provision during the 1998 tax year. The Arizona Department of Revenue notes, "Not only was there apprehension on the part of the public as to whether or not this credit would be upheld, but many tuition organizations did not actively solicit contributions because of the uncertainty." Arizona Department of

Revenue, Office of Economic Research and Analysis, "Arizona's Individual Income Tax Credits for Schools," p. 1.

14. Eighty-four percent of those donors filed claims for the tax credit. Ibid., pp. 3–5.

15. Center for Market-Based Education, "Easy Does It," *Extra Credit: Arizona Tuition Tax Credit News 2,* no. 2 (February 2000): 1.

16. Trent Franks, interview with author, March 22, 2001.

17. Mary Gifford, Center for Market-Based Education, interview with author, February 2001.

18. There is no estimate of the average income of scholarship recipient families; however, according to our interviews with representatives of the scholarship organizations, those groups sought to help the neediest families.

19. David Breneman, *Liberal Arts Colleges: Thriving, Surviving or Endangered?* (Washington: Brookings Institution, 1994), p. 39.

20. The private schools that responded to our survey may differ from the overall private school universe. For example, it is possible that larger schools responded to the survey more frequently than did smaller schools since the large schools would be more likely to have the administrative capacity and time to complete a survey. It is also possible that the responding schools were more likely than the nonresponding schools to have scholarship beneficiaries and therefore were more interested in and responsive to the survey.

21. U.S. Department of Education, *Digest of Education Statistics 2000* (Washington: Government Printing Office, January 2001), NCES-2001-034, Table 169, http://www.nces.edu.gov/pubs2001/digest.

22. Monsignor Edward Ryle, interview with author, March 8, 2001.

23. This is the estimate of the expenditure per pupil in public elementary and secondary schools in the fall of the 1997–98 school year, according to the U.S. Department of Education, *Digest of Education Statistics 2000,* Table 169. Although it is likely that the expenditure per pupil has increased since that time, in order to conservatively estimate the state's current and future savings, we assume that per pupil spending remains constant.

24. Bureau of the Census, "Projections of the Total Population of States: 1995 to 2025," www.census.gov/population/projections/state/stpjpop.txt.

25. Married taxpayers are more likely to have children and to have higher incomes than are single individuals, so this probably underestimates their proportion of contributions to scholarship organizations.

26. One common method of estimating the likely change in demand for a good when there is a change in the price is to consider how demand typically varies and to quantify that relationship as the "price elasticity of demand," or the percentage change in demand that is typically associated with a given percentage change in price. The most rigorous study estimating the price elasticity of demand for private school is Barry R. Chiswick and Stella Koutroumanes, "An Economic Analysis of the Demand for Private Schooling," *Research in Labor Economics* 15 (1996): 209–37. Although studies estimating the elasticity of demand are helpful for understanding the dynamic relationship between the price and the demand for private school, their usefulness for estimating the likely effects of the tax credit in Arizona is limited. Chiswick and Koutroumanes's analysis uses data on the variation in tuition prices throughout the country. The response to the natural variation in prices in different states is likely to be different from the effects of a program providing scholarships primarily to low-income parents. For a discussion of the problems associated with using this information to project the impact of the Arizona project, see Jennifer Jacoby and Carrie Lips, "The Arizona Private School Tuition Tax Credit: Increasing Access, Promoting Competition," Kennedy School of Government, Harvard University, April 3, 2001 (on file at the Kennedy School or available upon request).

27. To be eligible for a scholarship, families must be below 270 percent of the poverty line and willing to contribute at least $1,000 year toward their child's education. In 1998 parents of more than 1.25 million students applied to the Children's Scholarship Fund in the hopes of receiving a scholarship. Although the fund could afford to award scholarships to only 40,000 children, the number of applications suggests that there is a significant demand for financial assistance among lower-income families. This demand was particularly pronounced in urban districts. In fact, the fund estimates that 33 percent of eligible parents applied in Washington, D.C., 26 percent in Atlanta, 20 percent in Los Angeles, 44 percent in Baltimore, and 29 percent in New York. See Ted Forstmann, "Break Up the Education Monopoly," *Wall Street Journal,* September 9, 1999; Joseph A. Califano Jr., "A Gauge of Distress with Public Schools," *San Francisco Chronicle,* May 6, 1999; and Richard A. Melcher and Aaron Bernstein, "Itching to Get Out of Public Schools," *Business Week,* May 10, 1999.

28. See, for instance, Keating Holland, "Poll: Americans Generally Favor School Vouchers, But Unsure of Bush Plan," CNN/USA Today/Gallup Poll, January 10, 2001; and "On Thin Ice: How Advocates and Opponents Could Misread the Public's Views on Vouchers and Charter Schools," Public Agenda, New York, 1999, p. 13.

29. Recent history suggests that spending on K-12 education will increase at a rate greater than inflation. For example, total revenue available for K-12 education in Arizona increased 59 percent in the last decade. After adjusting for increases in the number of students, the overall increase was 10.4 percent. Michael Hunter and Mary Gifford, "School Finance Primer," Goldwater Institute, February 2000. Proposition 301, the legislation that increased the donation for married couples to $625, also increased educational spending through guaranteed automatic inflation-adjusted growth in base-level school funding, excess utilities funding, school building deficiencies funds, and other adjustments. The total increase in funding from Proposition 301 will be approximately $350 per pupil. Arizona Tax Research Association, p. 4.

30. The average private school enrolled 191 students during the 1993–94 school year, the last year for which a nationwide estimate is available. U.S. Department of Education, National Center for Education Statistics, *Schools and Staffing in the United States: A Statistical Profile, 1993–94,* p. 23, http://nces.ed.gov/fastfacts/display.asp?id=55.

31. The assumption that the supply of private schools will increase to meet demand is supported by the findings of economists such as Chiswick and Koutroumanes: "The supply curve for private schooling is assumed to be perfectly elastic in the long run, although in the short run the supply curve may be upward rising because of limitations in factor mobility." Chiswick and Koutroumanes, p. 217. However, in the short term, there may be a lag between the increase in demand and the increase in supply. Private schools are not a good that can be quickly produced to meet sudden surges in demand. It requires time to hire teachers; purchase supplies; and, when there is a large enough increase, to locate or build a new school. Although there may be a temporary shortage in supply, the market will respond over time to a sustained increase in demand by increasing supply.

32. Center for Market-Based Education, www.azschoolchoice.org/issues_facts/cs_factsheet.htm. For a discussion of the unique characteristics of Arizona's education system, see Jay P. Greene, "The Educational Freedom Index," Manhattan Institute Civic Report no. 14, September 2000. Greene created an "education freedom index" based on the availability of charter school options, government-funded vouchers, the level of restrictions on home schooling, the ease with which a family can relocate to qualify for a different public school, and the choice of different public schools without relocating. Greene concluded that Arizona has the highest level of educational freedom of any state in the nation. For example, Arizona scored 4.84 on Greene's index for the availability of charter schools, and the next closest state, Michigan, scored 1.96.

33. Hoxby, p. 145.

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