



*REVIEW OF AN ANALYSIS OF ARIZONA
INDIVIDUAL INCOME TAX-CREDIT
SCHOLARSHIP RECIPIENTS' FAMILY INCOME*

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Summary of Review

The report under review attempts to counter claims made by two Arizona newspapers that Arizona's tuition tax credit voucher program has largely failed to increase private school access for low-income families. The report concludes that many scholarship recipients come from families whose incomes qualify them as below the state median and even below the poverty line. The analysis is generally transparent and thorough, and the results probably do approximate the distribution of the vouchers. However, the report overstates the newspaper claims. Moreover, certain design issues—particularly the possibility of sampling bias, a lack of uniformity in data collection, and self-reported data by the voucher-granting organizations—cause some uncertainty about the final estimates of family income. The Arizona law was recently amended to require official reporting, so more definite numbers will soon be available.

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REVIEW OF AN ANALYSIS OF ARIZONA INDIVIDUAL INCOME TAX-CREDIT SCHOLARSHIP RECIPIENTS' FAMILY INCOME, 2009-10 SCHOOL YEAR

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I. Introduction

Arizona's tuition tax credit program, in operation since 1998, allows taxpayers to receive up to \$500 in tax credits when they give that much or more to School Tuition Organizations (STOs) – in essence, diverting up to \$500 of their tax payment from the state to the STO. By state statute, 90% of funds donated to an STO must be given out as “scholarships,” akin to vouchers, to allow students to attend a private school of their parent's choosing, so long as that school is supported by an STO that taxpayer-donors have sufficiently funded. Currently there are no provisions that require STOs to consider financial need when making award decisions. As of January 2011, however, the law will require STOs to consider financial need when awarding scholarships and to report the percent of scholarships they provide to low-income students.

Until that new data source is available, however, policymakers and the media have had to rely on anecdotal information about the level of support for low-income and other families. The report under review, *An Analysis of Arizona Individual Income Tax-credit Scholarship Recipients' Family Income, 2009-10 School Year*, is an attempt to contradict two Arizona newspapers that have reported the tuition tax credit program is not substantially increasing private school access for low-income families, as the law intended. The report is written by Dr. Vicki E. Murray, Education Studies Associate Director and Senior Policy Fellow at the Pacific Research Institute.¹ It is published as a Harvard University Program on Education Policy and Governance (PEPG) Working Paper.

The timing of the report is significant given the U.S. Supreme Court's forthcoming review of Arizona's tuition tax credit program.² The Court will be considering the constitutionality of using scholarship funds generated by STOs to support students attending private schools, many of which are religiously affiliated. Accordingly, the issues addressed in this report might have some tangential relevance to the Court's deliberations.

II. Findings and Conclusions of the Report

The report presents evidence that the Arizona tuition tax credit program serves more low-income students than what was suggested by the *Arizona Republic* and the *East Valley Tribune* in a series of articles in 2009. To do so, the report uses survey responses provided to the report's

author by 15 of the state's 51 STOs. Because these 15 tended to be the larger STOs, the data provided included 79.4% of all scholarships awarded in 2009. The report analyzes family income data from the STO responses and concludes that "a higher proportion of individual income tax-credit scholarship recipients come from families whose incomes qualify them as poor" (p. 15). (The "higher" is apparently meant to be relative to the implications of the newspaper reports.) The report calculates the median income from its sample of scholarship

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recipients and finds it to be "almost \$5,000 lower than the U.S. Census Bureau statewide median annual income" (p. 1). According to the report, the sample median income of \$55,458 was also "almost \$5,000 lower than the median incomes in recipients' neighborhoods, as estimated using student addresses and zip codes" (p. 1). Further, the report proclaims family incomes from two-thirds of the recipients "would qualify them for Arizona's means-tested corporate income tax-credit scholarship program, which is limited to \$75,467 for a family of four" (p. 1).

III. The Report's Rationale for Its Findings and Conclusions

The report bases its conclusions on its own analysis of family income data that were requested from the STOs. It draws upon a sample of scholarship recipients' actual and, in other cases, estimated family incomes. The report calculates the median family income from its sample and then makes comparisons to Arizona family income data by state, county, and neighborhood.

The report presents its conclusions in relation to what it refers to as "sweeping allegations" by the *Arizona Republic* and *East Valley Tribune* that "the program largely does not serve low-income students" (p. 2). The PEPG report's abstract begins, "In 2009, the *East Valley Tribune* and the *Arizona Republic* alleged that Arizona's individual income tax-credit scholarship program disproportionately serves privileged students from higher income families over those from lower-income backgrounds" (p. 1).

However, my review of the eight newspaper articles cited by the report did not turn up allegations I would consider careless or unsubstantiated (as the term "sweeping" might imply). Nor could I find a place where the articles specifically alleged "disproportionate" allocation of scholarships to privileged students. The articles did report a number of abuses associated with the tuition tax credit program. Also, when raising the issue of who is served by the program, the articles indicated that the program was not serving as many low-income students as was originally intended. But the overall tenor of the language in the articles seemed much less extreme than the PEPG report suggests.

Below are two quotes representative of the few direct references to this particular issue.

“...an *Arizona Republic* analysis found that the program is falling short in helping the poor, one of the prominent original goals.”³

“A *Tribune* investigation of the tax credits found these subsidies have largely failed to increase access to private schools for low- and middle-income students and for minorities in particular.”⁴

Probably the most sweeping statement was in a *Republic* headline (not written by the reporters): *Tuition-aid program benefits wealthy families, raises worry*. But that article itself includes careful statements such as, “Studies and interviews indicate that many students who benefit from the tax-credit scholarships are not from poor families,” and “Because the law doesn’t require tuition organizations or private schools to report who gets the scholarship aid, it is unclear how many low-income students are helped. But there are signs the number is smaller than what was intended.”⁵

IV. The Report’s Use of Research Literature

The report is a fairly straightforward analysis of scholarship recipients’ family income data. It is a direct reaction to claims made in the summer and fall of 2009 by two Arizona newspapers that the tuition tax credit program largely fails to increase private school access for low-income families. There are no attempts beyond this purpose to situate the analysis in the larger context of the school choice literature, the politics of education, or research on other tuition tax credit programs. The report largely references reports or calculations conducted by governmental agencies, such as the Arizona Department of Revenue, Arizona State Legislature, and U.S. Department of Agriculture. Eight of the 22 reference entries refer to *Arizona Republic* or *East Valley Tribune* newspaper articles that are critical of the tuition tax credit program. Not one reference derives from a peer-reviewed journal.

V. Review of the Report’s Methods

Access to accurate and complete family income data is critical to making judgments about what types of families are being served by the Arizona tuition tax credit voucher program. In the past, state regulations did not require Arizona’s STOs to report on the income status of families that receive scholarships. For this report, therefore, surveys and instructions were emailed to the 51 STOs that awarded scholarships during the 2009-2010 school year. The STOs were asked to provide family incomes and sizes for scholarship recipients for that year. It was expected that some STOs did not collect family income data or were not in a position to release such data. All STOs were asked to provide street mailing addresses and zip codes of recipients so estimates could be made based on U.S. Census neighborhood data and compared to median family incomes in like neighborhoods.

As noted earlier, only 16 of the 51 STOs (31.4%) submitted information requested by the email survey. After excluding one STO that provided scholarship data for the wrong year, the final sample of 15 STOs accounted for 79.4% of all scholarships awarded in 2009 (i.e., 19,990 of 27,657 scholarship recipients, as recorded by the Arizona Department of Revenue, Office of Economic Research and Analysis). Because the sample was non-randomly assembled and

determined by one-third of STOs willing to submit surveys, it is difficult to determine whether it is representative of the population of scholarship recipients for that year. If the STOs not responding served a substantially higher-income (or lower-income) clientele, then the results from the responding STOs would not be representative of the overall program. In fact, the two Catholic Archdiocese STOs (for Phoenix and Tucson) were among those that did respond, and these two STOs means-test and serve a lower-income population. But without further information about the included and excluded STOs, a reader cannot make an informed judgment about the extent of any selection bias.

The report also does not provide information (and the author apparently did not collect information) about the amount of scholarships that were awarded to families (or by family income level). That is, while the study identifies the number and percentage of vouchers going to families at different income levels, one can imagine a situation where higher-income families received vouchers of \$1,000 while lower-income families received vouchers of \$2,000. This would be an equitable result, responding to different needs. But one can also imagine a much less equitable situation, where lower-income families received vouchers of \$1,000 while higher-income families received vouchers of \$2,000. The report does not address these issues or possibilities.

What we do know is the sample constitutes family incomes for nearly 80% of the population of scholarship recipients. This is a very large proportion of the population and reasonably high enough to make judgments about the recipients of the scholarship program, so long as there is no substantial sampling bias at play.

The analysis relies on the accuracy of family income data voluntarily reported by STOs. While the report's author should in no way be criticized for this, the usual concerns about self-reporting apply. Beyond the issues of accuracy, there is an issue of inconsistency. No single definition or uniform measure of family income was used by the STOs. In some cases STOs reported actual family income data; in other cases they reported median or average income data by street address or zip codes, and in yet other cases they reported some combination of this information. The most useful findings would be based on a common measure of family income, not proxies thereof.

VI. Review of the Validity of the Findings and Conclusions

It is difficult to assess the validity of the findings and claims in the report. The analysis was generally transparent and demonstrated a concern for accuracy and thoroughness (see, e.g., footnote 15, explaining how the researcher addressed a specific data limitation). Two lingering questions remain, however. Two of these are addressed in the report itself: the degree to which the sample is representative of the population of scholarship participants, and the accuracy of the income data that were reported through the STO survey. I address both of these below, as well as offer other possible limitations.

From a scientific standpoint, the report's sampling design does not permit estimates of how likely the sample median family income differs from the median family income of the population of scholarship recipients. The report's sample was not randomly selected from the larger

population. Random selection permits the estimation of a range of values within which the “true” population median income likely falls. The range of values constitutes what is called a “confidence interval” because they are established with certain degrees of confidence. In this analysis, no confidence intervals were constructed because the sample was not drawn randomly, and it was treated by the researcher almost as a proxy for the population, given the high percentage (79.4%) of sample recipients to the population.

The report argues that the median family income for the population of scholarship recipients might actually be *lower* than what was calculated from the sample. (It does not, however, consider the possibility that sampling bias might have had the opposite effect.) It observes that the sample contains a higher percentage of Maricopa County scholarship recipients compared to

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the relative percentage of total scholarships awarded in that county (72.2% versus 62.7%), and conversely, a lower percentage of Pima County scholarships relative to the percentage of total scholarships awarded in that county (16.0% versus 23.2%). Maricopa County’s 2008 median family income is \$8,780 higher than that of Pima County. The report states that, “[w]hile this difference could be mitigated by the distribution of scholarships in more localized areas with lower median family incomes, the possibility does exist that scholarship recipient family incomes used in this analysis may be higher than the family incomes of STO scholarship recipients overall given the overrepresentation of scholarship recipients in Maricopa County” (p. 12).

This is, however, an unconvincing claim because it is based on the assumption that the difference in median family incomes for those two counties mirrors the difference in family incomes among sample scholarship recipients in those two counties. We cannot know this, due to the substantial within-county variation in family income. While the median incomes in Maricopa and Pima counties are stable measures of central tendency, there is no assurance that sample scholarship recipients are distributed evenly about those medians. And we cannot use statistical techniques to establish any degree of certainty around these estimates.

The report itself acknowledges other limitations. First, the analysis assumes the 19,900 scholarships provided by the sample of STOs went to 19,900 individual (unique) students. It is possible that a single student could receive an award from multiple STOs, which could inflate the number of students counted in the sample. It is difficult to tell in what direction this could bias the overall median income of scholarship recipients. If the sample over-represents low-income families, then the median income figures are biased downwards. If the sample over-represents high-income families, the opposite would be true.

Second, because there is no uniform method for STOs to record family income data for their scholarship recipients, there is no assurance here that they are all using the same definition of

family income. It is difficult to tell in what way this would affect the estimates, but the report contends that its use of 2008 income rather than 2009 or 2010 income would suggest estimates are conservative. Self-report surveys suffer from all sorts of biases, including social desirability bias (reporting what the public would most welcome). Just as a study that surveys school principals on finances or school culture has limitations, so too does this study that relies on agency directors to self-report family income data of their scholarship awardees. These biases may be mitigated by the specific nature of the data requested, which likely lessens subjective judgments and interpretations, but the problem may still exist.

Lastly, and most significantly, privacy concerns prevented some STOs from providing family income data by recipient. Instead they provided proxies for family income. One STO that accounted for one-fourth of the survey sample “provided student counts by zip code, with average taxable income amounts and average family sizes for the students in those zip codes” (p. 13). That is, the STO reported the average income for its voucher recipients within each of the zip code areas served. This leads to inaccuracy, but the report contends, with some justification, that the use of averages (means) here, rather than medians, may have inflated the income figures—since means are sensitive to extremes. That is, if just two or three recipient families had very high incomes, it would inflate the average. A more accurate characterization of what is “typical” would be determined by the median. The report concludes that it “is therefore likely that this STO’s averages make the family income of scholarship recipients in this survey appear higher than they actually are...making this analysis more conservative” (pp. 13-14).

Again, overall the report makes a good-faith effort to be transparent about methods and to offer caveats around findings. But certain design issues—particularly relevant to sampling and data collection—present limitations that cause some uncertainty about the estimates of family income.

VII. Usefulness of the Report for Guidance of Policy and Practice

The PEPG report makes a reasonable attempt to determine the income status of families receiving scholarships through the Arizona tuition tax credit voucher program. Currently STOs are not required to publicly report the income status of their scholarship recipients, so no one could yet conduct a complete analysis of these data, including the two newspapers criticized in the report.⁶ The approach used in the PEPG report—surveying STOs directly to collect as much individual scholarship recipient income data as possible—is sensible and appears to have been well executed. The validity of the report’s claims remains uncertain, however, due to questions about the accuracy and the representativeness of the responses. New provisions in the law that take effect in January 2011 require more transparency in the reporting of scholarship information, including the percentage of low-income recipients. The time to truly make a determination about the income levels of recipients will occur following the statutory requirement of collecting these data, starting next year.

Notes and References

1 Murray, V. E. (2010). An Analysis of Arizona Individual Income Tax-credit Scholarship Recipients' Family Income, 2009-10 School Year. Cambridge: Harvard University Program on Education Policy and Governance (Working Paper). Retrieved October 23, 2010, from http://www.hks.harvard.edu/pepg/PDF/Papers/PEPG10-18_Murray.pdf.

2 Arizona Christian School Tuition Organization, Petitioner v. Kathleen M. Winn, et al. Oral arguments scheduled for November 3, 2010.

3 Hansen, R. J., & Kossan, P. (2009, August 1). The Tuition Tax Credit: Tuition-aid benefits wealthy families, raises worry. Arizona Republic. Retrieved November 1, 2010, from <http://www.azcentral.com/news/>

4 Gabrielson, R., & Reese, M. (2009, August 7). Rigged Privilege: A Tribune investigation into Arizona's Private Schools Tax Credit Program: Some charities most generous to executives. East Valley Tribune. Retrieved November 2, 2010, from <http://www.eastvalleytribune.com/>

5 Hansen, R. J., & Kossan, P. (2009, August 1). The Tuition Tax Credit: Tuition-aid benefits wealthy families, raises worry. Arizona Republic. Retrieved November 1, 2010, from <http://www.azcentral.com/news/>

6 In defense of the newspapers, they did not make claims devoid of evidence. The newspapers simply reported that the tuition tax credit program was not serving low-income families, as originally intended. As one piece of evidence, the Arizona Republic reported that the executive director of the Arizona Scholarship Fund in Mesa said "about 70 percent of her scholarships in 2008 went to those who are not considered low-income and at least 9 percent of those who could be considered wealthy." And that, "Overall, her organization targets the middle class." Incidentally, the Arizona Scholarship Fund was the third largest scholarship producer in the report's sample of STOs (see Table 1 of the PEPG report).

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