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State School Finance System Variance Impacts on Student Achievement: Inadequacies in School Funding

Authors: Michael J. Hoffman, Ed.D., Richard L. Wiggall, Ed.D., Mary I. Dereshiwsky, Ph.D., Gary L. Emanuel, Doctor of Arts

Affiliation: Northern Arizona University

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Introduction

Adequate funding for the nation's schools to meet the call for higher student achievement has been a litigious issue. Spending on schools is a political choice. The choices made by state legislatures, in some cases, have failed to fund schools adequately and have incited school finance lawsuits in almost all states. These proceedings are generally brought to compel state legislatures to fulfill their state constitutional responsibilities to children and their families for the appropriation of fiscal resources to fund public education. Furthermore, student and school accountability measures that carry sanctions enforced by the states can be said to set up a reciprocation of duties. This reciprocal duty is where schools have the responsibility of providing effective instructional environments and the states have the responsibility of allocating sufficient resources to schools to provide educational opportunities for students to meet state achievement goals (Schrag, 2003).

Examining the relationship of funding to levels of student achievement can reveal deficits in state school finance policy that will require redress if states and their public school districts are to attain commonly acknowledged goals of increased student achievement indicating improves readiness for college and future careers.

Background

After equal educational access issues were decided by the U.S. Supreme Court in 1954 with *Brown v. Board of Education* the focus on equity of school funding across communities began and then necessarily transformed into a push for adequate funding, since what is mathematically equal may not be sufficient to meet the educational needs of students.

Equity cases, spearheaded nationally by *San Antonio Independent School District v. Rodriguez (*1973), sought redress from the disparities in school funding generated by disparate property tax bases from district to district. The *Rodriguez* (1973) case was broadly based on the premise that students were being deprived of equal protection rights under the Fourteenth Amendment. School funding lawsuits were pushed to state courts by the ruling in *Rodriguez (*1973) that asserted public education was not a right under the U.S. Constitution. Equity cases in the states had the general effect of the introduction of equalization formulas into state school finance systems. One of the more prominent cases was *Serrano v. Priest* (1976) in California. Also known as *Serrano II,* since the original case was overturned by *Rodriguez* (1973), *Serrano* (1976) led the way for most states into revamping their school finance structures to be more equitable or spurred further litigation in states that did not reform their school funding structures.

In Arizona, the equity case of *Shofstall v. Hollins* (1973) was unsuccessful; however, the Arizona legislature introduced an equalization formula in the school finance system spurred by the success of the *Serrano II* and the ruling by the California Supreme Court that its school finance system was unconstitutional. A parallel fiscal equity case in New Jersey, *Robinson v. Cahill* (1970), transformed into a series of adequacy cases beginning with *Abbott v. Burke* (1985) prompted by the alleged failure of the New Jersey legislature to provide an adequate school-funding scheme in compliance with judicial orders (Schrag, 2003).

The wave of adequacy lawsuits was showcased by Kentucky's *Rose v. Council for Better Education* (1989). *Rose* (1989) is considered the seminal lawsuit in funding adequacy efforts even though there had been adequacy cases in Washington and West Virginia where the court struck down school financing systems on an adequacy basis in favor of the plaintiffs (Hanushek & Lindseth, 2009; *Pauley v. Kelly*, 1979; *Seattle School Dist. No. 1 v. State of Washington*, 1978). Since then, lawsuits challenging states' methods for providing adequate funding to meet student academic achievement criteria have been brought to bear in 45 of 50 states (National Access Network, 2010).

One of the first adequacy cases based solely on disparities in school facility funding was decided in Arizona. *Roosevelt Elementary School District No. 66 v. Bishop* (1994) targeted inequities in the state finance system that plaintiffs alleged caused vast disparities in school facilities between property-rich and property-poor districts. The inequities that were uncovered between districts by litigation in the state courts eventually compelled the Arizona legislature to remedy the disparities by mandating criteria for adequate facilities. A statute expanded funding mechanisms for capital projects and items from voter-approved bonds that were serviced by locally raised property taxes to a program that relied on established statewide school facility standards and state-level funding (Hunter & Gifford, 2000). However, the funding to provide such facilities has not fully materialized. In 2009, a moratorium was placed on most facilities funding and a dearth of facilities funding continues with the passage of the 2012 Education Budget Reconciliation Bill (Joint Legislative Budget Committee, 2012).

Adequacy and Production-Function Studies: Two Sides of the Same Coin

Determining what is an adequate level of funding for schools is a contentious political issue. When litigation over school finance systems are brought to the courts the plaintiff usually cites evidence through some type of research study. Adequacy lawsuits typically have costing-out or adequacy studies that propose a level of funding needed by schools to provide sufficient educational opportunities for their students. In some cases, a production-function study is also used to demonstrate how resources and outcomes are linked. Adequacy studies predict or forecast how much funding would be necessary to achieve desired outcomes. The cost-function approach to estimating adequate levels of funding uses a type of multiple regression analysis that attempts to identify a level of per-pupil spending necessary to produce a given level of performance that incorporates adjustments that might entail socioeconomic status, special needs, second language acquisition, class size and input prices (e.g., teacher salaries). Production-function studies, in school finance, evaluate how differing resources have affected student outcomes. Production-function analysis often uses the same variables as the cost-function approach; however, the production-function approach uses student performance as the independent variable, a reversal of the cost-function equations.

Using School Inputs and Outputs as Gauges of Adequacy

Costing-out or adequacy studies have been performed for a majority of states for various contexts. In New York City, one of the nation's most populous schools districts, the *Campaign for Fiscal Equity (CFE) v. New York* (1995) the plaintiffs successfully made their claims using both inputs such as class size and teacher salaries as well as outputs in the form of students' scores and graduation rates. The consideration of both inputs and outputs helped reduce some of the ambiguity entwined with adequacy studies where only inputs were used Schrag, 2003). This ambiguity had been criticized by many scholars as "throwing money at the problem," since student outcomes in light of differences in funding were not considered in proposals of adequate funding (Hanushek, 1991; Odden et al., 2004).

One of the reasons that differences in funding were not considered in the initial wave of adequacy studies was that there was scant empirical data available where changes in funding were studied in relation to student achievement. That has changed drastically over time and there have been numerous studies, including meta-analyses, conducted that provide such information for adequacy studies (Ferguson, 1991; Glasman & Biniaminov, 1981; Hedges et al., 1994). For instance, Ferguson's 1991 study of almost 900 districts in Texas contains strong evidence that higher spending for instructional equipment and teachers has a strong positive influence on students' test scores.

In Arizona, an English Language Learner Cost Study was completed in February 2005 under the auspices of the National Conference of State Legislatures (NCSL). This study focused on resolving the incremental costs of providing an adequate education for ELLs to find specifically where and how the costs for ELL programs surpass the costs of similar services provided to English-proficient students. Based on the state panel's models districts would have needed to increase their incremental expenditures per ELL student by $1,115 for students in grades K-2 and by $777 for students in grades 3-12 in order to implement the recommendations[1] (National Conference of State Legislatures, 2005). Current funding for ELLs through Arizona's school finance formula per pupil weights is about $340, which equates to about $285 in 2005 dollars.[2]

A broader, large-scale school funding adequacy study was conducted for Arizona in 2004. The Rodel Charitable Foundation of Arizona sponsored a school-finance adequacy study that was conducted by Allan Odden, Lawrence O. Picus, and associates (2004), which prompted a 2005 report published by the Rodel Foundation in 2005 titled *Lead with Five*. Odden, et al. (2004) used an evidence-based methodology combined with a professional judgment approach to conduct the Arizona school finance adequacy study. The report noted that if all the funding called for in the recommendations were instituted it would represent a 34% increase in school funding.

Testing the outcomes of the implementation of adequacy studies is not often possible since, most times, the recommendations have not been funded or initiated. In some states, like Arizona, the equalization formula generally negates a study in funding differentials since it allocates the same amount of funds per type of pupil. Statutory limits on school budgets and taxing authority lock in these allocations. Pupil types provide exceptions using student weights that provide some

[1] Based on 2005 dollars.
[2] Consumer Price Index Calculator http://data.bls.gov/

additional funds for students in certain groups such as special needs students, ELLs, and high school students as well as compensations to small, rural districts for increased expenses due to isolation issues. Nevertheless, districts essentially have an equal per pupil allocation for school expenditures. However, in Arizona, state statutes have provisions for school districts to exceed the equalization base through local school funding referendums for maintenance and operations (M&O) overrides and bonds for capital improvements.

Examining Impacts of Funding Differences on Student Achievement in One State

A 2013 dissertation study by Hoffman exploited the funding disparities introduced into the school finance system by voter-approved budget limit exemptions in Arizona. The study examined the impact of expenditures beyond the equalization base on student math scores on the state's annual assessment, Arizona Instrument to Measure Standards (AIMS). These increased expenditures are made possible by successful district override and bond elections and are funded by increased local (district) property taxes. In addition, the relationship between success rates of school elections and districts' socioeconomic indicators were examined using hierarchical multiple regression (HMR) that incorporated free-and-reduced lunch (FRL) program eligibility percentages as well as assessed valuation per pupil (AVPP) as prediction variables. While the study included all public school districts in Arizona it did not include charter schools since Arizona state law does not provide authorization to charters for holding funding elections or raising funds through local taxation.

Fiscal impacts on student math scores were examined using a two-way analysis of variance (ANOVA) to identify effects of the independent variables, expenditures beyond the equalization base, or Revenue Control Limit (RCL) , made possible by successful overrides and bond referendums, on the dependent variables, mean AIMS math scale scores from 2007-2012 in 3rd, 5th, 8th, and 10th grades. The second independent variable was categorical in nature, representing district type, and will not be discussed in this paper. Tukey's post hoc tests were used to compare student achievement in math across district funding categories characterized as high, medium, and low spending districts (Hoffman, 2013).

There were significant effects found for M&O override and general obligation bond debt service expenditures on AIMS math scale scores in the grade levels studied. The exception was for M&O overrides and third grade scores, where a significant difference was not found. Comparisons between districts based on M&O and debt service expenditure categories of low, medium, and high funding beyond the equalization base resulted in significant difference in students' AIMS math achievement, with districts securing more resources significantly outperforming those with less voter-authorized resources. Low funded districts in the M&O override analysis scored significantly lower on AIMS math tests at all grade levels than medium and high funded districts. M&O override expenditures accounted for 20.6% of the variability in 10th grade AIMS math scores, with those districts receiving more M&O funding due to successful overrides having significantly higher AIMS math scores.

Debt service expenditures, resulting from successful bond elections, had significant effects on AIMS math scale scores for all grade levels studied. When comparing general obligation bond debt service expenditure categories a significant difference was found between and across all categories (low, medium, and high) at all grade levels studied. The mean AIMS math scale

scores for each category show trends in differences such that the higher the district is funded and expends for general obligation bonds, the higher the math scores tend to be. Debt service expenditures account for between 11% of the variability of AIMS math scores at the high school level and 26% of the variability at fifth grade, with eighth grade and third grade falling in the middle of that range with 19% and 24% of the variability, respectively, explained by debt service expenditures.

When examining the relationship of districts' socioeconomic indicators and success rates of local school funding elections the HMR showed that the average district free-and-reduced lunch eligibility percentage was a significant lone predictor of success rates measured in dollars above the Revenue Control Limit (RCL) for K-3/K-12 Special Program override elections and bond referendums. The regression analysis also demonstrated that the primary assessed valuation per pupil (AVPP) was a significant lone predictor of success rates for M&O overrides and bond referendums.

Implications for Policy

Adequate funding is a necessary precondition for organizations to secure the resources required to accomplish their goals and satisfy state mandates. Foundational funding allocated by legislatures may be inadequate for many school districts across the country to meet expectations of student achievement especially with the advent of Common Core standards and their accompanying assessments which has significant costs in professional development and district technology infrastructure (Arizona School Boards Association, 2013; National Conference of State Legislatures, 2013).

Districts that serve significant numbers of students from families living in poverty often have a higher proportion of "difficult to educate" students. These difficult to educate students come to school with numerous needs that must be addressed in order for these students to meet various expectations such as reaching academic proficiency. Meeting the academic needs of students from poor families often requires additional funding to provide more intervention and support (Baker, 2012; Grubb, 2009; Odden, Picus, Fermanich, & Goetz, 2004). An equitable state funding system might be easier to implement, but will not be as effective as one that takes student differences into account. Differentiation of resources according to student need is crucial for the funding apparatus to have the desired effect and that "funding per pupil will need to vary so that all students can learn to high proficiency standards" (Odden et al., 2004, p. 11).

The results of Hoffman's 2013 study reveal that disparities of funding for both operations and facilities have a significant impact on student math achievement. It stands to reason that if Arizona districts were expending at adequate levels to provide educational opportunities then local funding increases in some districts would not have significant impacts on math scores since once a district is spending adequately then providing additional monies would meet with diminishing returns.

This argument has been brought forth before and has been criticized from the perspective that districts use those funds in various ways and that more money alone cannot account for increased achievement (Hanushek, 2007). This criticism partially makes the point that adequate funding is necessary for schools to increase student achievement since it is through the provision of

appropriate programs by skilled educators that student achievement is increased -- and both programs, and skilled people to run them, cost money. Without necessary funds, how a school uses those funds is a moot point. Consequently, it comes to two basics premises as to why legislatures are reluctant to fund a state's schools adequately. Either it is a lack of trust in school administrators using additional monies appropriately once they are available, or that when it comes to allocating state resources the need for a high-quality state public education system is not high on the list of legislative priorities.

Districts that are able to expend more funds to pay more teachers, hire more instructional aides, provide more extensive professional development, buy more supplies, better maintain and expand buildings, purchase new equipment and technology tend to have significantly higher student scores which are usually linked to improved readiness for college and careers (Hoffman, 2013).

Furthermore, if states move forward with implementing school performance funding plans based on school district ratings this will force further inequities into school finance models and would penalize lower scoring districts with lower funding – making the gap between minimal and adequate funding for these high-needs schools even greater. Currently, only Michigan and Arizona have actual legislation in place for this funding model, but many states are considering it (Michigan Department of Education, 2013; Arizona Revised Statutes, 2013; Mesecar and Soifer, 2013).

Since student achievement had been linked to levels of funding in studies cited here and in others across many states it makes good sense for policymakers to create a stable source of adequate revenue to allow districts to effectively plan and implement appropriate programs to meet students' academic needs. Adequate, stable funding for education is a prerequisite for supporting higher levels of learning and achievement for students in all public schools.

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