

# School Finance and Courts: Does Reform Matter, and How Can We Tell?

BRUCE BAKER

*Rutgers University*

KEVIN WELNER

*University of Colorado at Boulder*

**Background/Context:** *School finance litigation has often prompted funding reforms, but what happens as a result is the subject of considerable dispute.*

**Purpose:** *This article explores design problems encountered in studies examining the nature and effects of those reforms.*

**Analysis:** *After describing the development and current status of school finance litigation, the authors explore methodological complexities associated with estimating the effects of state school finance reforms. Then, following a review of the research literature that provides the most direct and empirically rigorous evaluations of the achievement effects of these reforms, the authors critique a growing body of weaker but nonetheless influential literature focused on attacking school finance reform and more generally on discrediting judicial involvement in public schooling and finance litigation. In the article's final section, the authors review school finance reform in the four states analyzed in an influential recent book by Hanushek and Lindseth, taking a second look at what the book's authors concluded were disappointing outcomes.*

**Conclusions:** *Methodological complexities and design problems plague finance impact studies. Although there are high-quality studies covering these issues, the research appearing to have the greatest influence in media coverage and policymaking is often advocacy-oriented and of lesser quality.*

High-quality empirical research can guide policy. However, due to the disconnect between the research base and policymaking, that potential is

often squandered. The mere existence of careful, rigorous research makes little impact if policymakers remain oblivious or if lesser-quality work is more effectively communicated and advocated. This article offers an important case study of this phenomenon, focused on popular understandings of the effects of school finance reforms that are prompted by litigation.

Kansas City, Missouri and the state of New Jersey have long been the most frequently cited illustrations for two key talking points: *courts should stay out of education reform*, and *money is not the solution to educational shortcomings*.<sup>1</sup> Such arguments were built largely on two reports from the Cato Institute, a think tank favoring limited government and reduced spending on public education. In a prominent new book called “Schoolhouses, Courthouses, and Statehouses,” Eric Hanushek and Al Lindseth reiterate the New Jersey argument and add three new jurisdictions to the cast of purported failures: the states of Wyoming, Kentucky and Massachusetts.<sup>2</sup> Coinciding with its publication, this book was cited approvingly in a majority opinion of the U.S. Supreme Court (*Horne v. Flores*, 2009), and it has been distributed widely by sympathetic organizations and individuals. In short, this new book is an example of research that is effectively communicated and advocated and is therefore influencing discourse and policy. As we explain in this article, however, the book uses analyses that are as problematic as those of Cato. More generally, this article explores the design weaknesses of finance reform impact studies. We first explain the development and current status of school finance litigation in the United States. We then describe the daunting methodological complexities associated with estimating the effects of state school finance reforms. Next, we review the research literature that provides the most direct and empirically rigorous evaluations of the effects of state school finance reforms on student outcomes. We then note the growing body of advocacy literature that uses relatively weak analyses to attack school finance reform in general and, more specifically, aims to discredit judicial involvement in public schooling and finance litigation. While this article examines the full body of research, we give particular attention to the new book by Hanushek and Lindseth; we review the complexities of school finance reform in those states that are cast as failures by Hanushek and Lindseth, and we take a second look at outcomes in those states.

To ground our discussion of all this research – strong and weak, influential and overlooked – we examine the challenges of identifying and using outcome measures that are appropriate to each unique state reform. Overall, existing research tells us a great deal about the long-term successes of litigation in reshaping the landscape of school finance, but this knowledge is not reflected in many key policy discussions.

The question under review in this article is not the broad “Does Money Matter?” question that was hotly debated in the 1990s, nor is the question simply whether judicial rulings overturning state school funding systems are “good.” Rather, the question is whether judicially prompted, significant and sustained state school finance reforms that alter the level or distribution of *resources* available across a state’s public school children subsequently alter the relative level or distribution of measurable student *outcomes*. That is, does increasing (and sustaining) the relative level of school funding increase the relative level of student outcomes? Moreover, does increasing the equity by which resources are allocated (and sustaining that equity) across children within states increase the equity of student outcomes?

In addition, this article explores the public debate about the merits and effects of court-prompted finance reform, presenting a case study that briefly explores policy discourse to illustrate the powerful effect that well-marketed but lower-quality research can apparently have on policy-making.

#### THE CURRENT CONTEXT

Many scholars describe school finance litigation as occurring in three major waves – an imprecise, but useful, shorthand. The first wave, in the late 1960s and early 1970s, entailed challenges to school funding equity in federal court and was based on the Equal Protection Clause of the 14th Amendment to the U.S. Constitution. It ended abruptly with the Supreme Court’s ruling in *San Antonio Independent School District v. Rodriguez* in 1973. The Court decided that education is not a fundamental right under the U.S. Constitution and that wealth is not a ‘suspect classification,’ and it therefore allowed state systems whereby school funding varied across local school districts as a function of local control over property taxation.

The second wave, which emerged concurrently with the first, focused on state constitutions rather than the federal constitution. Plaintiff groups argued that disparities in funding across school districts – largely resulting from differences in property tax revenues – ran afoul of state equal protection and education clauses. This approach had limited success, with courts in six states overturning their school finance formulas while 13 other state formulas were upheld (Baker, Green & Richards, 2008, p. 86). The beginning of the third wave, which was also based on state constitutional provisions, is usually marked by the 1989 Kentucky Supreme Court’s decision in *Rose v. Council for Better Education*. That case shifted the focus toward “adequate” education funding, where adequacy

was defined in terms of funding sufficient to produce adequate student outcomes. *Rose* was followed by several successful third wave challenges throughout the 1990s and early 2000s.<sup>3</sup>

Nevertheless, the successes of the 1990s have given way to some judicial reluctance to engage (Welner & Gebhardt, forthcoming). From 2007 through 2009, there were some signs of a waning of political will on the part of some state courts to rule against state legislatures or to maintain oversight of school funding as part of existing remedial processes. State courts in Arizona (*Espinoza v. State*, 2008), Oklahoma (*Oklahoma Education Association v. State*, 2007), Missouri (*Committee for Educational Equality v. State of Missouri*, 2009) Nebraska (*Nebraska Coalition for Educational Equity and Adequacy v. Heineman*, 2007), South Dakota (*Davis v. State of South Dakota*, 2009),<sup>4</sup> and New Jersey (*Abbott v. Burke*, 2009) upheld as constitutional their states' existing state school funding formulas, rejecting claims by plaintiffs that those funding systems deprive poor and minority children of much-needed resources. While the degree of funding inequities and inadequacies varies widely in these six states, the overall sense from the decisions rendered in these cases was one of judicial retreat and deference to the politics of legislative decision-making.

In this regard, consider the following passage from the 2009 *Abbott* decision of the Supreme Court of New Jersey: "The Court sees no reason or basis for it to second-guess the extraordinarily complex education funding determinations that went into the formulation of the many moving parts to this funding formula" (p. 2). Ironically, the Nebraska Supreme Court dismissed as 'non-justiciable' a finance challenge two years earlier, offering as its rationale the lengthy New Jersey litigation: "the landscape is littered with courts that have been bogged down in the legal quicksand of continuous litigation and challenges to their states' school funding systems" (*Nebraska Coalition for Educational Equity and Adequacy v. Heineman*, 2007, p. 183).

One might expect such judicial timidity to have increased following the sharp economic downturn that began in mid-2008 and placed increased scrutiny on state budgets and expenditures across the board, and on elementary and secondary education spending in particular. However, three decisions handed down in late 2009 and early 2010 suggest that the earlier trend toward retreat has not continued. In *Lobato v. State* (2009), the Colorado Supreme Court held an adequacy challenge to be justiciable and sent the case back to the trial court. In *McCleary v. State* (2010), the trial court in the Washington found that state's finance system unconstitutional because it is "not correlated to what it actually costs to operate this State's public schools" (p. 53, para. 220). And in *Connecticut Coalition for Justice in Education Funding, Inc. v. Rell* (2010), the Connecticut

Supreme Court decided that the issue of whether education funding legislation makes “suitable provision” for education is justiciable.

Interestingly, these last three cases were decided in the wake of an adverse 2009 U.S. Supreme Court opinion – the Court’s most direct engagement on school funding in decades. A federal district court in Arizona had ordered the state, pursuant to the federal Equal Educational Opportunities Act of 1974,<sup>5</sup> to provide more resources to assist English language learner students. The Supreme Court in *Horne v. Flores* reversed an appellate decision that had upheld the district court’s injunction, sending the case back to the district court for further fact-finding. In doing so, the majority opinion offered in *dicta* (meaning that the language was not necessary for the Court’s main holding) several statements about school funding. The opinion, authored by Justice Alito, asserted that “the weight of research” demonstrated that “local reforms, much more than court imposed funding mandates, lead to improved educational opportunities” (*Flores*, 2009, p. 2604, citing the new Hanushek and Lindseth book).<sup>6</sup> The Alito opinion also states that there is “a growing consensus in education research that increased funding alone does not improve student achievement” and “[e]ducation literature overwhelmingly supports reliance on accountability-based reforms as opposed to pure increases in spending” (p. 2603, citing, among others, two additional works from Hanushek).<sup>7</sup>

There is certainly some basis for Justice Alito’s (and Dr. Hanushek’s) contentions. The weight of research does in fact support toppling the straw man that “increased funding alone [improves] student achievement.” However, the reality that funding alone works no magic is perfectly consistent with the conclusion that funding is necessary for success as well as the conclusion that better funding increases the likelihood of success. By focusing on the straw man argument, the Court failed to engage with these more serious contentions. As set forth in a 1995 report from the National Academy of Education, the weight of research shows that educators need knowledge, expertise, and “substantial resources for putting into practice the changes demanded by [standards-based] reforms” (McLaughlin, Shepard & O’Day, 1995, p. 64). “Unequal resources,” the report explains, contribute “to unequal results on high-stakes tests...” (p. 11).

While the Alito opinion in the *Flores* case posits a dichotomy between resources and accountability-based reforms, the National Academy of Education report explains the inter-relationship between the two: “Merely declaring higher expectations without implementing concomitant changes in curriculum, instructional practices, and resources may

doubly victimize students if and when they fall short of the standards” (p. 12). The authors cautioned,

Between communities and even within the same schools, students of differing circumstances have differential access to experienced and knowledgeable teachers, to computers and books, and a classroom atmosphere focused on learning; in some communities even the most rudimentary requirements of clean, safe, and healthy school facilities are not met (McLaughlin et al., 1995, p. 11).

The Alito opinion in *Flores* chooses to build an argument on the empty truth that funding that is funneled into dysfunctional programs or otherwise wasted will not make a significant impact on student outcomes. But the weight of scholarship takes a very different approach, looking at funding as a necessary component of successful reform. The elements of quality schooling cited in the indented quotation above from the National Academy of Education report simply cannot be purchased without money.

That the Supreme Court issued a finding that appears to be poorly grounded in the overall research base is less noteworthy than the Court’s reliance on the alternative research of Hanushek and others. The arguments made by the *Flores* Court are representative of a powerful part of the public and policy discourse around funding. As explained later in this article, the challenge to mainstream scholarship that was repeated by Justice Alito also appears to be influencing more and more state courts. Moreover, it arose as part of a concerted advocacy effort that pushed this research to the fore of the policy debate.<sup>8</sup>

#### THE CHALLENGES OF ESTIMATING THE EFFECTS OF SCHOOL FINANCE LITIGATION AND REFORM

At its simplest, evaluating the effects of litigation on state school finance reform would involve constructing a measure of “school finance litigation” and a measure of “student outcomes” in a straightforward causal model:

School Finance Litigation → Student Outcomes

Yet, as education researchers and other scholars have long understood, the mere declaration of a reform is only loosely coupled with the actual implementation of the reform (Rowan, 1990; Weick, 1976). This reality is

seen, for instance, in numerous randomized trials of comprehensive school reforms where researchers have become increasingly sensitive to the extent that models are (and are not) being fully implemented (see; Bifulco, Duncombe, & Yinger, 2005; Borman, Hewes, Overman, & Brown, 2003; Datnow, 2005; McCaslin & Good, 2008; Vernez, Karam, Mariano, & DeMartini, 2006). State school finance reforms are similarly complex to measure, and they involve a multitude of intermediate steps that must be carefully evaluated.

For example, school finance litigation may be initiated (filed) by any person or entity with standing that feels aggrieved by state school finance systems.<sup>9</sup> Plaintiffs might therefore be poor and minority children in systematically underfunded school districts (see *Abbott v. Burke*, 1985), or they might be residents of affluent suburbs challenging the constitutionality of minimum required property taxes or tax-and-expenditure limits, where state constitutions speak to these issues (see *West Orange-Cove Consolidated ISD v. Nelson*, 2005; *Unified School District No. 229 v. State*, 1994), or they might even be the poorly funded school districts themselves (see *Montoy v. State*, 2005b). They might represent all or nearly all of a given state's children or districts (see *Committee for Educational Equality v. State of Missouri*, 2009) or they might represent only a subset (see *Campaign for Fiscal Equity, Inc. v. State of New York*, 2003). The focus of any resulting judicial order would vary accordingly, and a researcher's subsequent analyses should also take those specifics into account. An analysis will be misleading if it measures for outcomes unrelated to the court order.

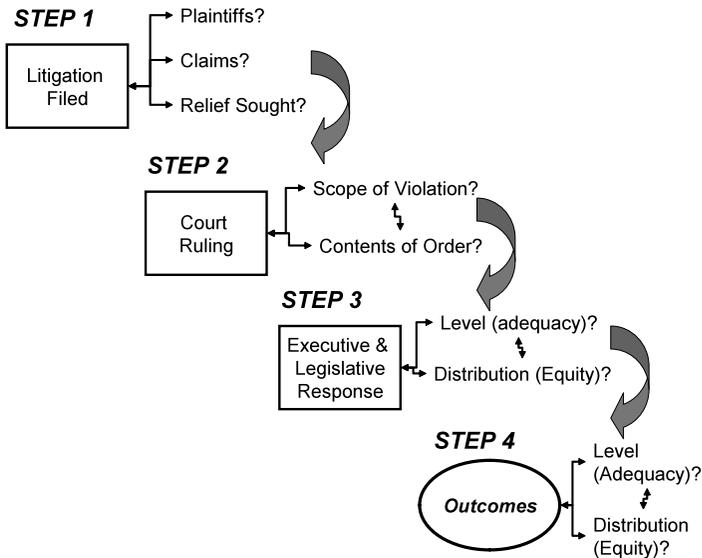
Further, each state legislature is going to respond differently to a court order. Some will act in good faith; others will balk. Some may respond by raising the overall level of funding but forgoing improvements to equity across different groups of children. Others may address equity but not overall funding, while still others will do both or neither. Even when the orders are followed by good faith responses, legislatures may later back away or decrease the state's investment in the reform. Changes implemented immediately following judicial orders may, in fact, fade quite rapidly. Any researcher who hopes to accurately characterize the effect of reforms on outcomes must first accurately characterize the reforms themselves.

Looking at outcomes following an "adequacy" reform, the researcher would investigate whether a state as a whole, by being more competitive on spending relative to neighboring states or national norms, improved its relative competitiveness. In contrast, a researcher looking at outcomes following an "equity" reform would investigate the relative competitiveness of schools, districts, and ultimately children within the state and ask,

among other things, whether poor and minority children have closed achievement gaps with their more affluent and majority peers if the state has made efforts to close funding gaps.

Examining within the black box that has *School Finance Litigation* as the input and *Student Outcomes* as the output, we see a four-step process, each step of which must be considered by careful researchers.

Figure 1



First, if litigation is filed, the researcher should take into account the nature of the plaintiffs, the nature of the legal claims, and the nature of the relief sought. Second, the litigation has an outcome, and – assuming a court determination that the current finance system is unconstitutional – the researcher should consider the scope of the legal violation as well as the contents of the remedial order, which may focus on adequacy, equity, or a combination of the two and which may focus on the entire state or just a subset of districts. Third, the researcher should note the response (if any) by the state legislature and governor. As with the court order, the legislation may focus on adequacy, equity, or a combination of the two and may focus on the entire state or just a subset of districts. Only at this point is the researcher ready to move to the fourth step and examine student outcomes – and the outcomes measured should be appropriately linked to the researcher’s best understanding of the earlier steps. If,

for example, the remedial order and the legislation are directed toward equity but not adequacy, then the researcher should expect to find a closed achievement gap but not necessarily higher overall achievement.

In connection with all these steps, the researcher should take into account the time period that the reforms are most likely to affect. Imagine that litigation is filed in year T and that the trial court finds the system unconstitutional in year T+2 and immediately issues a remedial order, but the appeals continue until year T+4. The legislature then passes a finance reform in year T+6, which is implemented over a period of 3 years: T+7 through T+9. Over what period of time should the researcher look for student outcome changes? The situation is even more complicated if the reform legislation is viewed by the plaintiffs as insufficient and is again challenged successfully in court, spanning years T+7 through maybe T+11, when the legislature passes a more extensive reform. This dynamic can also be complicated by subsequent legislative changes to the reform law (often weakening it or reducing available funding).

The problem of including pre-reform years as ‘treatment’ years is particularly serious when one considers that the researchers would be evaluating those pre-reform conditions in states that are being (successfully) sued for unconstitutional finance systems. That is, the researcher would be measuring the inequitable and inadequate pre-reform conditions that presumably led to the litigation and judicial decree and then attributing those conditions to treatment that has not yet taken effect.

The researcher must also be careful to ensure that the outcome measure and the students measured are those likely to receive the reform’s benefit. If the reform benefits elementary-aged students, then the achievement tests of high school students should not be included in the analysis (until the benefitted students advance to high school). If the reform is aimed at English-language learners, then only those students should be expected to benefit.

Below, we flesh out these various challenges, looking first at the difficulties of making and using concrete categories of litigation and legislation. Following that discussion, we examine the challenges of identifying an appropriate outcome measure, time frame, and counterfactual.

## CHARACTERIZING AND “MEASURING” LITIGATION AND FINANCE REFORM

Over the years, several scholars have attempted to construct classification schemes and simplified categorical indicators of “school finance litigation” and to then evaluate the effects of that litigation (see, e.g., Murray,

Evans, & Schwab, 1998). As an independent measure, “school finance litigation” has often been reduced to a win/loss indicator, focusing specifically on whether the school finance system was declared unconstitutional by the highest state court to rule in the litigation.

Yet this alone is problematic, since effective judicial action can take many other forms. Consider two examples. In 1992, a Kansas state trial court judge issued a pre-ruling in favor of the plaintiffs but then convened a conference of the parties and urged them to reform school funding, threatening to declare the system unconstitutional if the action went forward (see Baker & Imber, 1999). The funding system was marginally reformed, increasing resources to low-wealth districts and capping expenditures on higher-wealth districts. Higher-wealth districts then sued, challenging the revised system in part for its weighted distribution scheme and expenditure caps – policy elements that the Kansas Supreme Court declared constitutional (upheld) in 1994 (Green & Baker, 2005). As we discuss below, new litigation was then filed in 1999 by the low-wealth districts that had originally challenged the formula ten years earlier, resulting in a ruling by the state supreme court in their favor after six more years (in 2005). Another difficult-to-categorize state is Ohio, where the state Supreme Court in 2002 (*DeRolph III*) declared that the state school finance system was unconstitutional – as had been declared by that state’s courts for years – but the court nevertheless dismissed the case on the grounds that the state’s courts could do little else to fix it.

These two cases are not alone in their uncategorizable complexity, but they are illustrative. Moreover, another difficulty arises around attempts to delineate school finance litigation as either “equity” or “adequacy” litigation (Springer, Liu, & Guthrie, 2009). That is, a commonly used typology attempts to distinguish between cases where courts focus on the overall level of resources available, versus cases where courts focus on the equity with which resources are distributed. As a rule, the first category of litigation is grounded in state constitutions’ education clauses, while the second category is grounded in their equal protection clauses. Yet these delineations are tenuous and are particularly complicated by the reality that much, if not most, recent school finance litigation considers both adequacy and distribution of resources.

In the discussion below, we consider the classification scheme from a recent article from Springer et al. (2009), titled *The Impact of School Finance Litigation on Resource Distribution: A Comparison of Court-Mandated Equity and Adequacy Reforms*. We use that article to illustrate and explore the distinction drawn between equity and adequacy litigation, as well as the problems that can result from researchers applying this distinction in their attempts to analyze litigation effects. While “adequacy” and “equity”

categories have been used by many school-finance researchers, the article by Springer and his colleagues is representative of a subset of that scholarship that attempts to force a clear delineation between equity and adequacy orders for empirical convenience.<sup>10</sup> Springer and colleagues attempt to build on earlier work that asks whether simple wins or losses – regardless of the type of claim – by plaintiffs in state school finance litigation led to changes in the level or distribution of funding (e.g., Murray et al., 1998).

We contend that while these categorizations are not per se ‘incorrect,’ they are somewhat crude, and this can – if researchers are not careful – have implications for the reliability and usefulness of the resulting social science analyses. Consider the decision by Springer and his colleagues to classify the above-mentioned Kansas Supreme Court decision in 2005 as “adequacy” litigation, despite the fact that the Court ruled that equity concerns were front and center. The following passage is from an opinion the court issued in 2005 describing its own opinion from earlier that year:

We further held that among the critical factors for the legislature to consider in achieving a suitable formula for financing education were “equity with which the funds are distributed and the actual costs of education, including appropriate levels of administrative costs.” We provided this guidance because “the present financing formula increases disparities in funding, not based on a cost analysis, but rather on political and other factors not relevant to education.” We also held that “increased funding will be required.” *Montoy v. Kansas* (2005b, p. 819), quoting *Montoy v. Kansas* (2005a, p. 775).

Similarly, Springer et al. (2009) classify New York’s *Campaign for Fiscal Equity* case as “adequacy” litigation because of the emphasis on increased funding for New York City, the plaintiff district in the case. It is true that the legal claims and judicial deliberation in *CFE* centered on the “adequacy” of schooling in New York City. However, increasing resources for a specific high-need district or group of districts within a state also raises key equity concerns, focused on the relative within-state position of high-need school districts. These same issues are implicated by the New Jersey *Abbott* litigation, which is also generally categorized as “adequacy” (Springer et al., 2009) even though the judicial remedies are focused on a subset of high-need districts. Further, while the *Abbott* remedies have included target funding levels (which evokes adequacy concerns), those levels were pegged to spending levels in high-wealth districts (equity con-

cerns). The New Jersey Supreme Court's operational definition of adequacy directly addressed equity.

When a researcher classifies a given case as 'adequacy' and looks for overall improvements in achievement outcomes even though the remedial order is largely directed at equity concerns, that researcher may be overlooking possible effects that are very important. This helps explain why research will generally not find a simple, direct link between a legal claim and an outcome effect; the research must look inside the black box and consider actual reforms. Statistical measurement of reform effects arising from an 'adequacy' case may ultimately reveal the primary result of improved fiscal equity, and vice versa. In those instances, it is particularly important for researchers to explore the actual reform process and understand how the legal action prompted a set of policy reactions that then led to changes in finance practices. That is, it is vital for researchers to link the original legal claim to student outcomes *through* the change process – through the reforms implemented in response to the claim.

To illustrate these dangers, consider a recent study by Greene and Trivitt (2008). Using a version of Springer, Liu and Guthrie's classification scheme, they take the very problematic leap of evaluating the direct relationship between student outcomes and rulings by category (equity and adequacy).<sup>11</sup> Greene and Trivitt, at one point, do raise the key questions: whether a judicial order necessarily leads to reform legislation, as well as whether equity orders lead to equity solutions and whether adequacy orders lead to adequacy solutions. However, while they raise such questions, the authors do not follow by including statistical tests concerning these issues. Rather, using dummy variables for whether a judge issued an "equity" or "adequacy" ruling, plus a handful of state contextual measures, Green and Trivitt test for direct statistical relationships between their dummy variables (type of ruling) and their student outcome measures. Their models never incorporate any measures of the actual reform legislation. Accordingly, the resulting empirical analysis addresses only whether a direct link exists between the occurrence and type of a judicial order and changes in outcomes relative to "other" states, regardless of what has gone on in those states.

The Greene and Trivitt article, published in a special issue<sup>12</sup> of the *Peabody Journal of Education*, proclaimed that the authors had empirically estimated "the effect of judicial intervention on student achievement using standardized test scores and graduation rates in 48 states from 1992 to 2005" and had found "no evidence that court-ordered school spending improves student achievement" (p. 224, emphasis added). The authors claim to have tested for a direct link between judicial orders regarding state school funding systems and any changes in the level or

distribution of student outcomes that are statistically associated with those orders. That is, the authors asked whether a declaration of unconstitutionality (nominally on either equity or adequacy grounds) alone is sufficient to induce change in student outcomes. The study simply offers a rough indication of whether the court order itself, not “court-ordered school spending,” affects outcomes. It certainly includes no direct test of the effects of any spending reforms that might have been implemented in response to one or more of the court orders.

Based on Greene and Trivitt’s analysis one might fairly argue that judicial orders, in and of themselves, have unclear effects. Unfortunately, the authors leapt to a far broader main conclusion, that “court ordered spending” had no effect. Given that their analysis never measured “spending,” this conclusion was unwarranted.

This analytic approach, in addition to including no measures of whether school finance reforms were actually implemented, fails to address the nature of any reforms that were in fact implemented. It also fails to address any relevant reform activities in the comparison (non-judicial-intervention) states during that time period. Collectively, these research design problems resulted in a set of ungrounded and potentially misleading findings.

A comparable weakness undermines a 2009 report written by a Kansas State University economics professor, which contends that judicially mandated school finance reform in Kansas failed to improve student outcomes from 1997 to 2006 (Neymotin, 2009).<sup>13</sup> This report was particularly egregious in that it did not acknowledge that the key judicial mandate was issued in 2005 and thus had little or no effect on the level or distribution of resources across Kansas schools until 2007-08. In fact, funding for Kansas schools had fallen behind and become less equitable from 1997 through 2005.<sup>14</sup> Consequently, an article purporting to measure the effects of a mandate for increased and more equitable spending was actually, in a very real way, measuring the opposite.

A secondary problem with classifying school finance litigation as a win or loss on equity or adequacy grounds is determining the nature and effect of the reform legislation (as opposed to the court mandate). Researchers should ask whether the legislation significantly improved equity or adequacy of school funding and, if so, whether that change has been sustained over time. The importance of this last point is illustrated by the slow and recent decay of reforms implemented in Kentucky in the early 1990s (as discussed later in this article). Similarly, reforms implemented in Kansas from 1992 to 1994 rapidly decayed with increased inequities and lagging total spending until after 2005, when the state supreme court issued an order overturning the funding formula. In New

Jersey, while judicial oversight had been in place for nearly a decade since the initial court ruling in *Abbott v. Burke* (1985), substantial reforms were not ordered until the period around 1998 to 2000, with implementation taking place between 1998 and 2003. In some states, such as Wyoming (also discussed later in this article), total spending was increased significantly but disparities were largely retained – witnessing an adequacy versus equity political tradeoff that reformers deemed necessary to expedite the adoption of legislation.<sup>15</sup>

## IDENTIFYING THE APPROPRIATE OUTCOME MEASURE

Estimating the effects of school finance litigation and reform is also challenging because it is not always clear what outcomes should be examined. Most researchers have focused on changes in spending as the dependent measure in their analyses. That is, they ask whether school finance litigation has led to more equitable spending and, if so, ask whether this change was accompanied by increased overall spending (leveling up; see Murray et al., 1998) or decreased overall spending (leveling down; see Downes & Figlio, 1998). The analyses may also skip the equity question altogether and simply examine overall spending changes. Some have also attempted to evaluate whether specific responses to school finance litigation have leveled up or leveled down spending and ultimately student outcomes. This approach would, for example, uncover a legislative response of imposing tax and expenditure limitations, intended to improve equity by leveling down higher-spending districts.

Only a handful of studies have attempted to align precisely response measures with reforms. For instance, such studies would measure whether changes in the level of outcomes are linked to changes in the level of spending, or whether changes in outcome gaps are linked to changes in spending gaps. All other things being equal, for an increase in the overall level of financial support to public schools, one might expect an increase in the overall level of student outcomes:

Funding Level → Performance Level

In particular, overall spending increases at the state level might be analyzed relative to other states.

Alternatively, if the state improves equity in the distribution of resources across children within the state, one might expect improvements to equity in the distribution of outcomes:

## Funding Equity → Performance Equity

However, researchers examining this question should evaluate carefully the individuals or classes of students who might be expected to reap the benefits of improvements in funding equity – and should align outcome analyses accordingly. For example, black-white achievement gaps might not be directly addressed by improvements to funding in low-wealth school districts – particularly if the state has substantial, poorly funded rural districts serving primarily white students in addition to poorly funded urban districts serving primarily students of color. Instead, black-white achievement gaps should be evaluated specifically in relation to black-white changes in the distribution of resources.

Likewise, appropriate comparison groups should be used to analyze the achievement effects of leveling up funding in low-property-wealth school districts. This need to disaggregate outcomes according to distributional effects of school funding reforms deserves particular emphasis since it severely limits the use of the National Assessment of Educational Progress – the approach used in the recent book by Hanushek and Lindseth. The limitation arises as a result of the matrix sampling design used for NAEP. While accurate when aggregated for all students across states or even large districts, NAEP scores can only be disaggregated by a constrained set of student characteristics, and those characteristics may not be well-aligned to the district-level distribution of the students of interest in a given study.

Consider, for example, New Jersey – one of the four states analyzed in the recent book. It might initially seem logical to use NAEP scores to evaluate the effectiveness of New Jersey's *Abbott* litigation, to examine the average performance trends of economically disadvantaged children. However, only about half (54%) of New Jersey children who receive free or reduced-price lunch – a cutoff set at 185% of the poverty threshold – attend the *Abbott* districts. The other half do not, meaning that they were not direct beneficiaries of the *Abbott* remedies. While effects of the *Abbott* reforms might, and likely should, be seen for economically disadvantaged children given that sizeable shares are served in *Abbott* districts, the limited overlap between economic disadvantage and *Abbott* districts makes NAEP an exceptionally crude measurement instrument for the effects of the court-ordered reform.<sup>16</sup>

As noted earlier, the appropriate outcome measure also depends on identifying the appropriate time frame for linking reforms to outcomes. For example, a researcher would be careless if he or she merely analyzed average gains for a group of states that implemented reforms over an arbitrary set of years. If a state included in a study looking at years 1992

and 2007 had implemented its most substantial reforms from 1998 to 2003, the overall average gains would be watered down by the six pre-reform years – even assuming that the reforms had immediate effects (showing up in 1998, in this example). And, as noted earlier, such an “open window” approach may be particularly problematic for evaluating litigation-induced reforms, given the inequitable and inadequate pre-reform conditions that likely led to the litigation and judicial decree.

There also exist logical, identifiable, time-lagged effects for specific reforms. For example, the post-1998 reforms in New Jersey included implementation of universal pre-school in plaintiff districts. Assuming the first relatively large cohorts of preschoolers passed through in the first few years of those reforms, a researcher could not expect to see resulting differences in 3rd or 4th grade assessment scores until four to five years later.

#### IDENTIFYING THE COUNTERFACTUAL OR COMPARISON BASIS

Finally, it is extremely difficult to establish appropriate counterfactuals for estimating either the effects of statewide increases to funding or within-state redistribution of funding. This is a fundamental issue of causation. The research objective is to identify and measure any changes that occurred in response to the reform, as opposed to those that would have occurred had the reform not been implemented. Note that this can work in both directions. Judicially induced spending increases might lead to beneficial changes in schools at the same time that schools are hit with another, harmful policy change. Or judicially induced spending increases may correspond with other beneficial policy changes, and these other changes may be what is actually driving the measured, positive outcomes.

Consider, for example, a researcher who wants to make cross-state comparisons to measure the effects of a school finance reform. It would be a huge, unwarranted stretch to assume that the comparison states stood still, yet this is an implicit assumption in several influential analyses – including those set forth in the new book from Hanushek and Lindseth. A comparable problem arises when the treatment state itself is engaged in additional reforms (beyond finance) or is impacted by other forces known to affect educational outcomes (e.g., the current economic troubles have hit the Great Lakes states substantially harder than they have hit the Dakotas).

Moreover, while idiosyncrasies across states in organizational structure, policy context and policy changes undermine interstate baseline comparisons, the same concerns may apply to within-state analyses. Increases to funding in low-wealth or poor urban districts may do little to close

achievement gaps if neighboring, more affluent districts increase their funding commensurately, maintaining existing inequities.

### A CLOSER LOOK AT EXISTING EMPIRICAL RESEARCH

Notwithstanding the challenges set forth above, the empirical relationship between implementation of state school finance reforms and improvement in student outcomes has been the subject of significant research. Below, we describe a particularly well-crafted multi-state study, as well as ten single-state studies that merit praise. While none of these studies should be considered definitive in isolation, they together constitute a considerable research base and support the conclusion that greater funding equity and adequacy is linked to greater student achievement equity and adequacy, respectively.

Nonetheless, as set forth in the discussion following the presentation of these studies, two reports from the Cato Institute – reaching the opposite conclusion – appear to have had disproportionate policy influence. As well, the new book by Eric Hanushek and Alfred Lindseth now seems to be doing the same. In the concluding part of this section, we discuss these studies and their influence.

### REFORMS AND OUTCOMES: THE RESEARCH BASE

In terms of quality and scope, the most useful national study of judicially induced state finance reform was published by Card and Payne in 2002. They found that court declarations of unconstitutionality in the 1980s increased the relative funding provided to low-income districts. They also found that these school finance reforms had, in turn, significant equity effects on academic outcomes:

Using micro samples of SAT scores from this same period, we then test whether changes in spending inequality affect the gap in achievement between different family background groups. We find evidence that equalization of spending leads to a narrowing of test score outcomes across family background groups. (p. 49)

To evaluate distributional changes in school finance, Card and Payne estimated the partial correlations between current expenditures per pupil and median family income, conditional on other factors influencing demand for public schooling across districts within states and over time. They then measured the differences in the change in income-associated spending distribution between states where school funding systems

had been overturned, upheld, or where no court decision had been rendered. This step in their empirical analysis required blunt classification – perhaps oversimplification – of judicial decisions. However, they also evaluated whether structural changes to funding formulas (that is, the actual reforms) were associated with changes in the income-spending relationship, conditional on the presence of court rulings.

To make the final link between income-spending relationships and outcome gaps, Card and Payne evaluated changes in gaps in SAT scores among individual SAT test-takers who were categorized by family background characteristics.<sup>17</sup> Although the researchers were not able to fully account for the timing of court rulings in relation to each subsequent policy change, the study more precisely links judicial decisions, policy reforms and outcome distributions than other national studies pursuing similar research questions. Put in terms of our Figure 1, Card and Payne (2002) appear to have taken the greatest care in a multi-year, cross-state study, to establish appropriate linkages between litigation, reforms by type, changes in the distribution of funding, and related changes in the distribution of outcomes.

Notwithstanding the generally acknowledged importance of this study,<sup>18</sup> Hanushek and Lindseth (2009) never mention it in their book. In particular, the study is not discussed in the chapter in which they conclude that school finance reforms have no positive effects. Other important research has focused on single states, looked at in isolation. For instance, a Kansas study concerned the effects of reforms implemented under the earlier-mentioned “pre-ruling” by a court in 1992 (Deke, 2003). Recall that the pre-order advised the legislature that if the pending suit made it to trial, the judge would likely declare the school finance system unconstitutional (Baker & Green, 2006). The resulting reforms leveled up funding in low-property-wealth school districts, and Deke found as follows:

Using panel models that, if biased, are likely biased downward, I have a conservative estimate of the impact of a 20% increase in spending on the probability of going on to postsecondary education. The regression results show that such a spending increase raises that probability by approximately 5% (p. 275).

Among the most studied state finance reforms occurred in Michigan, which followed neither from a court ruling nor from a strong threat of litigation. But those school finance reforms addressing both equity and adequacy, known as “Proposal A,” were implemented in the mid-1990s and appear to have had an effect on academic outcomes, and the

reforms were comparable in many ways to reforms implemented following judicial rulings<sup>19</sup> (see Leuven, Lindahl, Oosterbeek, & Webbink, 2007; Papke, 2001). It is generally concluded that Michigan's Proposal A led to a leveling up of resources in lower wealth school districts, improving overall adequacy of funding for those districts as well as equity between those districts and others in the state. In the earliest study, Papke (2001) concluded:

Focusing on pass rates for fourth-grade and seventh grade math tests (the most complete and consistent data available for Michigan), I find that increases in spending have nontrivial, statistically significant effects on math test pass rates, and the effects are largest for schools with initially poor performance. (Papke, 2001, p. 821.)

Leuven and colleagues (2007), in contrast, found no positive effects of two specific increases in funding targeted to schools with elevated at-risk populations. But two additional studies found, like Papke (2001), that the increased funding had its intended effect.

In a study available online since 2003 as a working paper from Princeton University, and now accepted for publication in the journal *Education Finance and Policy*, Joydeep Roy directly estimates the relationship between implemented reforms and subsequent outcomes (Roy, 2003). He found:

Proposal A was quite successful in reducing inter-district spending disparities. There were also significant gains in achievement in the poorest districts, as measured by success in state tests. However, as yet, these improvements do not show up in nationwide tests like NAEP and ACT. (Roy, 2003, p. 1.)

Most recently, a study by Choudhary (2009) “estimate[s] the causal effect of increased spending on 4th and 7th grade math scores for two test measures – a scale score and a percent satisfactory measure” (p. 1). She “find[s] positive effects of increased spending on 4th grade test scores. A 60% percent increase in spending increases the percent satisfactory score by one standard deviation” (p. 1).

Because there was no judicial order involved in Michigan, researchers avoided the tendency to focus on or classify the reform by litigation category. Moreover, single-state studies generally avoid such problems because there is little statistical purpose in classifying litigation. Importantly, each of these studies focuses on measures of the changing

distribution and level of spending (characteristics of the reforms themselves) and resulting changes in the distribution and level of outcomes. Each takes a different approach, but attempts to appropriately align their measures of spending change and outcome change, adhering to principles laid out in our Figure 1.

Other high-quality but non-peer reviewed empirical estimates of the effects of specific school finance reforms linked to court orders have been published for Vermont and Massachusetts. For example, Downes (2004), in an evaluation of Vermont school finance reforms that were ordered in 1997 and implemented in 1998, found as follows:

All of the evidence cited in this paper supports the conclusion that Act 60 has dramatically reduced dispersion in education spending and has done this by weakening the link between spending and property wealth. Further, the regressions presented in this paper offer some evidence that student performance has become more equal in the post-Act 60 period. And no results support the conclusion that Act 60 has contributed to increased dispersion in performance. (p. 312)

Similar to the 1992 Kansas reforms, the overall effect of the Vermont Act 60 reforms was to level up low-wealth districts and increase state school spending dramatically, thus addressing both adequacy and equity.

For Massachusetts, two independent sets of authors (in addition to Hanushek and Lindseth, as noted below) have found positive reform effects.<sup>20</sup> Most recently, Downes, Zabel and Ansel (2009) found:

The achievement gap notwithstanding, this research provides new evidence that the state's investment has had a clear and significant impact. Specifically, some of the research findings show how education reform has been successful in raising the achievement of students in the previously low-spending districts. Quite simply, this comprehensive analysis documents that without Ed Reform the achievement gap would be larger than it is today. (p. 5)

Previously, Guryan (2003) concluded:

Using state aid formulas as instruments, I find that increases in per-pupil spending led to significant increases in math, reading, science, and social studies test scores for 4th- and 8th-grade students. The magnitudes imply a \$1,000 increase in per-pupil

spending leads to about a third to a half of a standard-deviation increase in average test scores. It is noted that the state aid driving the estimates is targeted to under-funded school districts, which may have atypical returns to additional expenditures. (p. 1)

Turning to New Jersey, two recent studies find positive effects of that state's finance reforms.<sup>21</sup> Alexandra Resch (2008), in research published as a dissertation for the economics department at the University of Michigan, found evidence suggesting that New Jersey *Abbott* districts "directed the added resources largely to instructional personnel" (p. 1) such as additional teachers and support staff. She also concluded that this increase in funding and spending improved the achievement of students in the affected school districts. Looking at the statewide 11th grade assessment ("the only test that spans the policy change"), she found "that the policy improves test scores for minority students in the affected districts by one-fifth to one-quarter of a standard deviation" (p. 1).

The second recent study was originally presented at a 2007 conference at Columbia University, and a revised, peer-reviewed version was recently published by the Campaign for Educational Equity at Teachers College, Columbia University (Goertz & Weiss, 2009). This paper offers descriptive evidence that reveals some positive test results of recent New Jersey school finance reforms:

**State Assessments:** In 1999 the gap between the *Abbott* districts and all other districts in the state was over 30 points. By 2007, the gap was down to 19 points, a reduction of 11 points or 0.39 standard deviation units. The gap between the *Abbott* districts and the high-wealth districts fell from 35 to 22 points. Meanwhile performance in the low-, middle-, and high-wealth districts essentially remained parallel during this eight-year period (Figure 3, p. 23).

**NAEP:** The NAEP results confirm the changes we saw using state assessment data. NAEP scores in fourth-grade reading and mathematics in central cities rose 21 and 22 points, respectively between the mid-1990s and 2007, a rate that was faster than the urban fringe in both subjects and the state as a whole in reading (p. 26).

The Goertz and Weiss paper (which was, as designed and intended by the paper's authors, the statistically least rigorous analysis of the ones

presented here) does receive mention from Hanushek and Lindseth multiple times, but only in an effort to discredit and minimize its findings. In contrast, they almost completely ignore the other above-discussed research. In lieu of relying on these studies, they support their conclusion that court-ordered funding increases have been ineffective, by pointing to two non-peer-reviewed think tank reports released by the Cato Institute in the late 1990s – studies that frequently resurface during debates about the effectiveness of judicial intervention and increased school funding. These Cato studies are explored in the following section of this article.

### THE TWO CATO STUDIES

At the time of the publication of the two Cato studies, federal courts were beginning to back off from oversight in desegregation litigation (the so-called post-*Dowell* era; see Parker, 2000), but state courts were becoming increasingly involved in managing school finance remedies. Separate authors from the Cato Institute chose to use the Kansas City Missouri School District (KCMSD, the site of a desegregation remedy) and the state of New Jersey (the site of a school finance case) as the poster children for why such judicial interventions can never work – why they lead only to massive increases in spending with no positive effects.

These two Cato reports have taken on a status within school finance discussions approximating popular urban legends, and they commonly resurface at opportune moments (see discussion in Green & Baker, 2006).<sup>22</sup> For example, in a Hoover Institution commentary regarding school funding litigation in New York State, Hanushek (2002) noted:

One need only look at the results in Kansas City. A school desegregation ruling in the 1980s began a period of more than a decade when the schools had access to virtually unlimited state funds. The dreams of school personnel did not translate into any measurable gains in student performance, even as their schools moved to the very top of national spending.

Hanushek and Lindseth (2009) make this same claim on multiple occasions in their recent book. For instance, “Perhaps the most dramatic test of whether spending more money leads to higher achievement occurred in the Kansas City, Missouri, school district from the mid-1980s to the mid-1990s” (p. 52). They cite these claims (at least seven times) to the Cato policy paper and its author Paul Ciotti (1998): “As Paul Ciotti summed up the Kansas City debacle: ‘The results were dismal. Test scores

did not rise; the black-white gap did not diminish; and there was less, not greater, integration” (p. 53).

However, the Cato paper presents a markedly flawed analysis. It claims that the district (KCMSD) “spent as much as \$11,700 per-pupil – more money per pupil than any of the other 280 largest districts in the country,” and that it received the extra money “for more than a decade” (see Green & Baker, 2006, p. 83). Yet, as Green and Baker (2006) explained, “in either adjusted or unadjusted dollars, KCMSD ranked first nationally for only one year, 1992. In most years, KCMSD trailed Boston (MA), Rochester (NY), Pittsburgh (PA), Portland (OR) or Newark (NJ) school districts” (p. 86). Even more importantly, the Cato report also offers no counterfactual or comparison – nothing that would help readers understand other possible effects on student achievement outcomes. Nor does the report detail in any systematic way how the new KCMSD money was directed – whether it was spent in ways likely to drive higher test scores or was directed toward achieving other district goals. In fact, the authors themselves offer egregious anecdotes of elaborate “Olympic sized” swimming pools as evidence of vast, systemic waste and inefficiency. Notably, much of the short-term funding increase was indeed directed toward such infrastructure improvements and not direct classroom and related operating expenses, an approach designed as part of a magnet system intended to draw white students from the suburbs – all as discussed by Green and Baker (2006). Understood in this context, the Cato critique was of misspent money, not of increased funding.

Hanushek and Lindseth also rely on a second *Cato Journal* article from the late 1990s, as a basis for their book’s contentions about the failures of New Jersey school finance reforms: “One of the most comprehensive early studies ... found ‘no evidence of a positive effect of expenditures in New Jersey public high schools in urban districts with smaller per capita tax bases’” (p. 159).<sup>23</sup>

This particular Cato analysis is flawed in intriguing ways. On the one hand, as we show later in this article, some significant changes did occur in the level of financing of New Jersey schools in the early 1990s, and the Cato article authors specifically examine data from three school years: 1988-89, 1992-93 and 1994-95. They particularly emphasize high school outcomes (state exam and SAT scores) in 1994-95. These choices seem reasonable. The article even accounts for prior scores of the same students on the state exams.

But the article’s statistical tests consist of cross-sectional estimates of the relationship between funding (across richer and poorer districts) and test scores, controlling for prior test scores and socio-economic characteristics of the district. It offers separate models for 1988-89 and 1994-95,

as well as separate models including the average per pupil spending from 1988-89 to 1994-95, presented in relation to test scores from 1994-95. That is, for any given year, the authors test whether higher-spending schools have higher test scores, controlling for prior scores and socio-economic conditions. Finding no such cross-sectional relationships in any of their models, the authors conclude, “We find no evidence of a positive effect of expenditures on student performance in New Jersey public high schools in urban school districts with smaller per capita tax bases” (p. 98).

Yet the authors never test whether changes in the level or distribution of outcomes were associated with either of two other possible changes – in the distribution or the level of financial resources among some or all districts. That is, unlike the peer-reviewed studies we discussed in the previous section, this Cato study makes no attempt to identify the appropriate measures of either treatment or response, nor does it attempt to identify the appropriate statistical model for relating the two.<sup>24</sup> We also note that the Cato study attempted to encompass only the initial blip in New Jersey finance reform; it was never updated to include an analysis of the later, more substantial reform. This particular limitation is not a criticism of the Cato authors; instead, it is a criticism of those who continue to cite the study as authoritative.

The Cato reports, as well as the other studies noted above, merit the preceding critique because they have powerfully influenced the policy discussions of these issues and because they have provided the empirical grounding for important school finance decisions. Notwithstanding the manifest weaknesses of the two Cato reports in particular, they are still cited repeatedly by those who contend that increased education funding does not result in outcome improvements.

#### REVISITING THE “REFORM” STATES CHOSEN BY HANUSHEK AND LINDSETH

Earlier, we discussed how a recent publication from Greene and Trivitt (2008) used a superficial distinction drawn between equity and adequacy litigation, not linked to actual changes spending patterns, and we described some problems that can result when researchers injudiciously apply this equity-adequacy distinction to analyze litigation outcomes. Perhaps the most noteworthy example of this approach is the recent *Schoolhouses, Courthouses and Statehouses* book authored by Eric Hanushek and Alfred Lindseth. As noted above, the U.S. Supreme Court cited this book approvingly in *Horne v. Flores* (2009), and it has been distributed and promoted by other influential groups as well.<sup>25</sup>

*Schoolhouses* purports to undertake a detailed analysis of whether “court

interventions have helped children” (p. 145). It does so by analyzing student scores on the National Assessment of Educational Progress (NAEP) over a 15-year period for four states – Kentucky, Massachusetts, New Jersey and Wyoming – that have had “significant court-ordered or induced remedies in place the longest” (p. 146). Hanushek and Lindseth conclude that in three out of four of these states (Massachusetts being the exception), “the billions of dollars in increased spending generated by adequacy lawsuits do not appear to have substantially improved student performance” (p. 146).

*Schoolhouses* reaches this conclusion based on the following more specific findings. In Kentucky, the key finding is that white students have made some very limited progress on NAEP relative to other states over the 15-year period, while black students have regressed compared with the rest of the country. In Wyoming, scores for white students did not keep pace with the rise in national scores on all three NAEP tests, and scores for Hispanics also fell short in 2 of the 3 categories. In New Jersey, the increase in scores for black students was marginally better than the national averages, but most of that gain came in the last two years, raising the question in the minds of Hanushek and Lindseth about whether those scores may have been an “anomaly” (p. 161 & 166). Only in Massachusetts do the book’s authors conclude that increases in the test scores (at least for whites and Hispanics, who constitute 93% of the school population) show “evidence of significant improvement in achievement” (p. 170).<sup>26</sup>

But a closer, descriptive look at the nature and extent of reforms implemented in those four states, as well as the national assessment outcomes in those states, yields a much more nuanced picture. Our intent herein is by no means to use similar data to prove the opposite of Hanushek and Lindseth. Rather, our intent is merely to illustrate that their relatively superficial approach is not robust or reliable and that different stories may easily be told with much the same data. We also use this discussion to further illustrate the complexities in characterizing state school finance reforms.

## UNDERSTANDING AND CATEGORIZING THE REFORMS

We begin by depicting longitudinally the actual shape of school finance reforms in the four states identified by Hanushek and Lindseth as ‘adequacy’ reform states. For each state, we track two measures over time: (a) as an adequacy measure, the mean state and local revenue per pupil relative to the mean of adjacent states; and (b) as an equity measure, the partial correlation between median household income (natural log) and

state and local revenues per pupil (natural log), conditional on enrollment and enrollment squared (natural log) and regional variation in competitive wages measured by the National Center for Education Statistics Comparable Wage Index.

$$\text{State and Local Revenue per Pupil} = f(\text{Input Prices, Scale, Income})$$

We apply this equation to a national 15-year matched panel of 10,189 K-12 unified public school districts, including data from the U.S. Census Fiscal Survey (F-33) of local governments, public elementary and secondary education finances, from the National Center for Education Statistics Common Core of Data and from U.S. Census 1990 and 2000. From 1990 to 1995, we use median household income data from Census 1990, and from 1995 to 2005 we use median household income data from Census 2000. In each of these states, the majority of children attend a unified (that is, K-12) school district, though New Jersey has a much larger share in non-unified districts than the other three (however, all children in “Abbott” plaintiff districts are in K-12 unified districts).

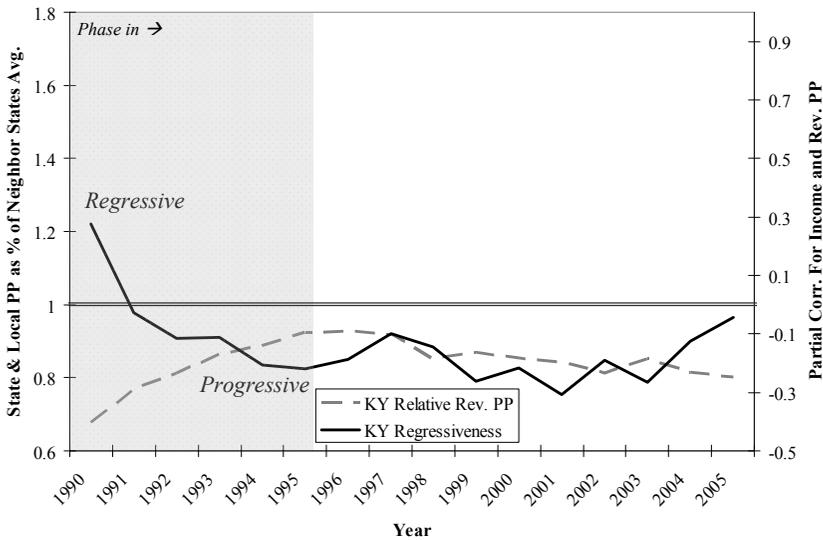
In short, the relative funding level measure characterizes the “adequacy” shifts in funding over the period, while the income elasticity characterizes the *progressiveness* or *regressiveness* of state and local revenues. That is, the second measure asks whether state and local revenues per pupil are positively related to district-level median household income (regressive) or whether state and local revenues are higher in lower-income communities (progressive) or at least equal (neutral). Further, we investigate how the relationship between income and revenues changed over time and whether that change has been sustained.

Figure 2 maps the reforms in Kentucky over the 15-year period on our two measures. Recall that the state’s reforms were prompted by a 1989 state Supreme Court case (*Rose v. Council for Better Education*), with the expectation of a five-year phase in. The straight, solid horizontal line indicates average spending relative to neighboring states (against the left axis) and serves as a marker of income neutrality (against the right axis).

Looking first at the issue of adequacy, the dashed line shows that from 1990 to 1995, Kentucky showed improvement, with the state’s average spending moving from about 65% of surrounding state spending to about 90%, although it subsequently slid back toward 80% over the next several years.<sup>27</sup> Kentucky also made immediate gains in redistribution (equity), as represented by the solid line, shifting from a regressive system to a progressive one during the same time period. Positive partial correlation coefficients, above the line, indicate a positive relationship between median household income and state and local revenue per

pupil – regressiveness. Negative values indicate progressiveness: more state and local revenue per pupil in low-income districts. As the graph shows, Kentucky has recently reverted to a relatively neutral system. Overall, the finance system shows gains in both adequacy and equity, although the equity gains appear great

Figure 2. Effect of School Finance Reforms in Kentucky

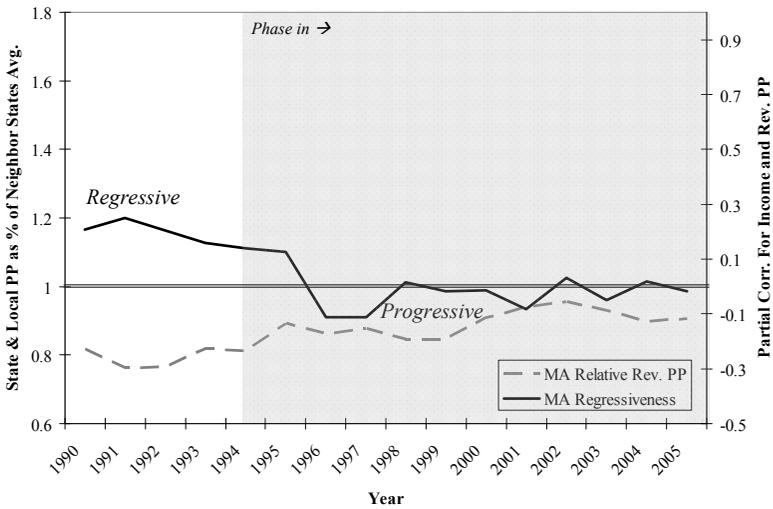


Data source: 15 year panel of match 10,181 K-12 unified school districts, using fiscal data from U.S. Census Fiscal Survey of Local Governments (F-33). Uses Median Household Income data from 1989 through 1995, and from 1999 for 1995 to 2005. Based on regression of state and local revenue (ln) as a function of (a) enrollment (ln) and enrollment (ln) squared, (b) NCES Comparable Wage Index (held at 1997 values back through 1990) and (c) median household income (slope and partial R)

Figure 3 presents the same two indicators for the Massachusetts school finance reforms, which took effect between 1995 and 1997. The reforms edged state-level funding closer to (but still below) neighboring state averages over time.<sup>28</sup> They also shifted the distribution across districts from one that was relatively regressive to one that was momentarily progressive and then stably neutral system over time.

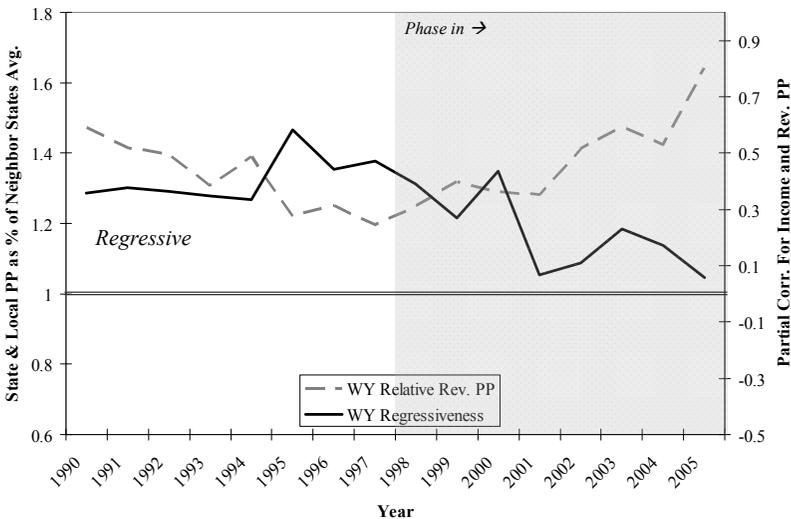
Figure 4 maps the Wyoming reforms over time. Looking at the years prior to the reforms, the figure shows Wyoming schools spending over 40% more than those in neighboring states. Approaching 1995, funding levels in Wyoming relative to neighboring states dropped precipitously, but Wyoming still spent 20% more. Following reform legislation that began to take effect around 2001, funding levels climbed back to their

Figure 3. Effect of School Finance Reforms in Massachusetts



Data source: 15 year panel of match 10,181 K-12 unified school districts, using fiscal data from U.S. Census Fiscal Survey of Local Governments (F-33). Uses Median Household Income data from 1989 through 1995, and from 1999 for 1995 to 2005. Based on regression of state and local revenue (ln) as a function of (a) enrollment (ln) and enrollment (ln) squared, (b) NCES Comparable Wage Index (held at 1997 values back through 1990) and (c) median household income (slope and partial R)

Figure 4. Effect of School Finance Reforms in Wyoming



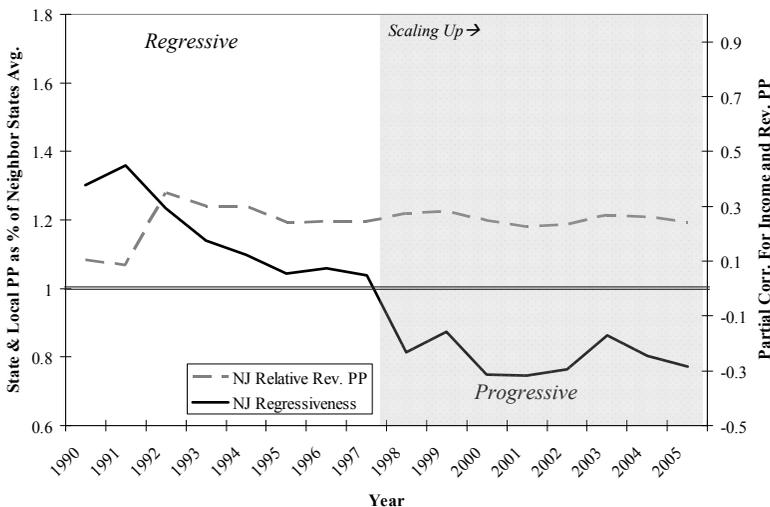
Data source: 15 year panel of match 10,181 K-12 unified school districts, using fiscal data from U.S. Census Fiscal Survey of Local Governments (F-33). Uses Median Household Income data from 1989 through 1995, and from 1999 for 1995 to 2005. Based on regression of state and local revenue (ln) as a function of (a) enrollment (ln) and enrollment (ln) squared, (b) NCES Comparable Wage Index (held at 1997 values back through 1990) and (c) median household income (slope and partial R)

original position and eventually higher.<sup>29</sup> During this time period, funding also became somewhat more neutral but remained mildly regressive. This occurred because the new Wyoming funding model, like nearly any post-litigation reform, included a multitude of political trade-offs, some of which significantly rewarded the state’s most affluent districts.<sup>30</sup>

Figure 5 shows the shape of school finance reforms in New Jersey. Early on, from 1990-1992, the chart shows a jump in spending and a jump then dip in regressiveness. Then, from 1992 to 2005, New Jersey’s relative per pupil spending (the adequacy measure) for unified K-12 districts remained fairly constant, at about 20% above the average for K-12 districts in all adjacent states. (Again, note that the unified districts include all of the poor, urban “Abbott” plaintiff districts.) That is, New Jersey has been consistently high spending, on average, throughout the period.<sup>31</sup>

In contrast, the major changes to New Jersey school finance during this period were distributional changes that occurred in 1998 and were sustained through 2005 (note also some gradual changes from 1990 to 1995). The state shifted from a regressive to a progressive system during that time. This part of the figure represents the scaling up of funding in poor urban districts relative to funding in wealthier suburbs. From 1998 to 2001 in particular, the funding for New Jersey public schools (among K-12 districts) became increasingly progressive.

Figure 5. Effect of School Finance Reforms in New Jersey



Data source: 15 year panel of match 10,181 K-12 unified school districts, using fiscal data from U.S. Census Fiscal Survey of Local Governments (F-33). Uses Median Household Income data from 1989 through 1995, and from 1999 for 1995 to 2005. Based on regression of state and local revenue (ln) as a function of (a) enrollment (ln) and enrollment (ln) squared, (b) NCES Comparable Wage Index (held at 1997 values back through 1990) and (c) median household income (slope and partial R)

## TAKING A SECOND LOOK AT THESE STATES' OUTCOMES

Table 1 and Table 2 summarize the performance on NAEP reading and math assessments. Our intent with the analyses presented in these tables is by no means to assert a causal link between the previously presented reforms and NAEP performance. In fact, such a correlation/causation fallacy underlies much of the 'money doesn't matter' literature we find so misleading. We wish merely to provide an alternative summary to that of Hanushek and Lindseth.

Looking first at Table 1, concerning reading scores, the top half presents data for all students, while the bottom half focuses just on for low-income children (eligible for subsidized lunch). In each of these subsections, we present both Grade 4 and Grade 8 data for each of the four states. The final four columns provide NAEP mean scale scores for four years, 2007, 2005, 2003, and 1998. Because some years of data are missing for some states, specifically New Jersey, we have calculated and included in the table an average yearly change in NAEP scale scores. This same presentation is then offered in Table 2, for math scores, although the years are slightly different: 2007, 2005, 2003, 2000, and 1996.

Looking at the average yearly gain column for the two tables, one can see that in 24 out of 32 cases, these four states have beaten the national average rate of annual growth. This trend is apparent whether one is looking at overall gains or at gains for low-income students. In 13 out of 16 cases, all students gained faster than did national average students. In 11 of 16 cases, low-income children improved more quickly than did low-income children nationally.

Most of the cases where children in the "reform" states did not outperform their national peers in annual growth were from Kentucky, which as we have shown previously, was backsliding on equity and overall level of funding during this period. The other two cases where a "reform" state performed less well than national average growth were for low-income students in Wyoming. However, we earlier explained that while Wyoming's level of spending stayed high, that spending was not significantly targeted to aid poor children. New Jersey and Massachusetts, which both sustained their reforms and targeted resources to low-income children, beat the national average yearly growth on NAEP in all cases.

To be clear, the positive relationship between achievement and school finance reform is best documented by more careful and refined studies, such as that carried out by Card and Payne (2002). The analyses presented here are intended only to demonstrate why more careless, correlational analyses should be taken with a grain of salt, due to their non-robustness and manipulability. While our analyses do hint at an

important relationship, they cannot go beyond that – but neither can the relationships (or lack thereof) hinted at by the analyses presented by Hanushek and Lindseth (2009). We should not claim anything more here, and they should not have claimed anything more there.

**Table 1. Summary of NAEP Reading Progress in Reform States**

	Avg. Yearly Gain	2007	2005	2003	1998
All Students					
Reading Grade 4					
National Public	0.76	220	217	216	213
Kentucky	0.55	222	220	219	218
Massachusetts	<b>1.44</b>	236	231	228	223
New Jersey	<b>1.39</b>	231	223	225	
Wyoming	<b>0.78</b>	225	223	222	218
Reading Grade 8					
National Public	0.04	261	260	261	261
Kentucky	(0.04)	262	264	266	262
Massachusetts	<b>0.50</b>	273	274	273	269
New Jersey	<b>0.59</b>	270	269	268	
Wyoming	<b>0.34</b>	266	268	267	263
FRL Eligible Students					
Reading Grade 4					
National Public	1.07	205	203	201	195
Kentucky	0.62	212	212	209	206
Massachusetts	<b>1.31</b>	214	211	210	203
New Jersey	<b>1.75</b>	210	203	203	
Wyoming	0.78	214	216	212	207
Reading Grade 8					
National Public	0.26	247	247	246	245
Kentucky	0.16	252	256	257	251
Massachusetts	<b>0.98</b>	256	256	251	247
New Jersey	<b>1.33</b>	251	252	246	
Wyoming	<b>0.35</b>	255	259	255	252

<http://www.nces.ed.gov/nationsreportcard/statecomparisons/Default.aspx>

Table 2. Summary of NAEP Math Progress in Reform States

	Avg. Yearly Gain	2007	2005	2003	2000	1996*
ALL STUDENTS						
Math Grade 4						
National Public	1.52	239	237	234	224	222
Kentucky	1.37	235	231	229	219	220
Massachusetts	<b>2.13</b>	252	247	242	233	229
New Jersey	<b>1.94</b>	249	244	239		227
Wyoming	<b>1.88</b>	244	243	241	229	223
Math Grade 8						
National Public	0.88	280	278	276	272	271
Kentucky	<b>1.10</b>	279	274	274	270	267
Massachusetts	<b>1.85</b>	298	292	287	279	278
New Jersey	<b>1.79</b>	289	284	281		
Wyoming	<b>1.11</b>	287	282	284	276	275
"Eligible Students						
Math Grade 4						
National Public	1.86	227	225	222	208	207
Kentucky	1.53	226	224	220	207	209
Massachusetts	<b>2.12</b>	237	231	226	210	213
New Jersey	<b>2.41</b>	233	227	221		206
Wyoming	<b>2.11</b>	236	236	233	219	213
Math Grade 8		2007	2005	2003	2000	1996
National Public	1.21	265	261	258	253	252
Kentucky	<b>1.37</b>	267	264	261	255	252
Massachusetts	<b>1.90</b>	275	273	261	257	254
New Jersey	<b>2.62</b>	266	262	256		
Wyoming	1.18	275	272	271	262	262

<http://www.nces.ed.gov/nationsreportcard/statecomparisons/Default.aspx>

\*accommodations not permitted

## HOW DO PAST EXPERIENCES INFORM FUTURE POLICIES?

*Unfortunately, as we show in Schoolhouses, Courthouses, and Statehouses, the courts have not done much to help. They have led to some huge funding increases – such as we saw in Kansas City in the ‘80s and ‘90s or in Wyoming or in New Jersey. But student achievement has not really responded to this funding. Indeed, it is quite ironical that the legislatures, while they have not done much to improve student achieve-*

*ment, have done a good job at putting ever more resources into the schools. When the courts decide that the legislatures have failed in the constitutional responsibilities, they also try to solve the problem with more funds.* (Hanushek, 2009, n.p.).

Until recently, Kansas City and New Jersey stood alone as the poster children for this purported failure, cited again and again by advocates of courts' abstention from education reform and of the idea that additional funding should not be provided for our current public schooling system. These arguments were built largely on two deeply flawed reports from the Cato Institute – reports that were often misrepresented as the leading research in the field. Hanushek and Lindseth have now attempted to reinforce the New Jersey storyline and have added two states to the cast of purported failures: Wyoming and Kentucky (and, depending on how one reads their argument, Massachusetts). They have done so with what we have shown herein to be comparably problematic analyses.

We concur with Hanushek and Lindseth's argument that increased funding should be accompanied by systemic reforms, even if we may disagree with them about the nature of those reforms. There does indeed seem to be convergence around this idea that substantial school improvement requires both money and changed practices. Hanushek himself has agreed on more than one occasion with the statement – “Only a fool would say money doesn't matter” (see Rebell, 2007). Perhaps the key question then is whether increased funding is a necessary first step toward systemic reform or whether that funding should, for some reason, be held back until the desired reform is underway. Or maybe the question is whether increased funding is required whether or not accompanied by systemic reform, since lack of concurrent reform strategies is no excuse for persistent deprivation. Alas, since researchers often differ with politicians about the best reforms to pursue, today's schoolchildren might spend their entire school careers waiting for agreement about the substantive reforms that must accompany increased resources.

On this point, we find it telling that the reform strategies that Hanushek and Lindseth (2009) contend should pre-empt or precede finance reform are themselves lacking in an empirical research base. They argue ardently for experimenting with open enrollment choice programs, vouchers, and performance-based pay for teachers. Yet voucher policies are ongoing in various states and districts and the other two policies have also found a receptive policy audience. The Obama administration is following the previous administration's push for school choice and performance-based pay for teachers, yet all three of these reforms ideas are supported by limited or no evidence of effectiveness.

We conclude that there is arbitrariness in how research in this area appears to have shaped the perceptions and discourse of policymakers and the public. Methodological complexities and design problems plague finance impact studies. Advocacy research that has received considerable attention in the press and elsewhere has taken shortcuts toward desired conclusions, and this is troubling. As demonstrated by our own second look at the states discussed in Hanushek and Lindseth's book, the methods used for such relatively superficial analyses are easily manipulated and do not necessarily lead to the book's conclusions. Higher quality research, in contrast, shows that states that implemented significant reforms to the level and/or distribution of funding tend to have significant gains in student outcomes. Moreover, we stress the importance of the specific nature of any given reform: positive outcomes are likely to arise only if the reform is both significant and sustained. Court orders alone do not ensure improved outcomes, nor do short-term responses.

So we now watch and wait. The new pushes for choice and teacher incentive pay may or may not result in improved student outcomes. The nation will benefit if they do. But all the while, the positive evidence on school finance reforms is far more compelling, especially with respect to the distribution of student outcomes (Card and Payne, 2002). We are not naïve to the varying political resonance of these different policy options, but we do hope that in the upcoming years the research evidence will begin to play a larger role in policymaking.

### Notes

1. See, for example, *The Economist* (1993).
2. As explained later in this article, the book acknowledges successes in Massachusetts but attributes that success to reform efforts other than the court-ordered finance reform.
3. For an extensive discussion of these cases, see Rebell (2009).
4. The trial decision, which we could not locate online, was handed down in April of 2009 and concluded that the current state system provided a "thorough and efficient" education. See [http://www.schoolfunding.info/states/sd/lit\\_sd.php3](http://www.schoolfunding.info/states/sd/lit_sd.php3). The case is pending appeal to the South Dakota Supreme Court. See [http://www.asbsd.org/media/issues/adequacy%20litigation/issue%20brief\\_davis%20v.%20state.doc](http://www.asbsd.org/media/issues/adequacy%20litigation/issue%20brief_davis%20v.%20state.doc)
5. 20 U.S.C. §§1701-1758.
6. The Hanushek and Lindseth book was submitted to the Supreme Court prior to its publication by *amici* advocating against mandated increases in school spending.
7. The four dissenting Justices pointed out that Alito's dicta stood in tension with a great deal of research (see *Flores*, 2009, p. 2628).
8. For instance, see Derbyshire (2009); Evers & Clopton (2006), Salisbury (2005), and Wooton (2009). Blogs have recently also become an important part of this effort. See Edspresso (2006).
9. The specifics of the standing requirement will differ from state to state, but the primary requirement is that the plaintiff must be someone injured or potentially injured by the conduct being challenged (*Allen v. Wright*, 1984).

10. Springer, Liu and Guthrie attempt to use the litigation classifications to discern their influence on reform legislation – on the distribution and level of funding provided to districts following a court order. They conclude that reforms following “adequacy” orders did not necessarily lead to infusion of new funds into high-poverty districts, whereas reforms following equity orders did.

11. The Greene and Trivitt article applies the classification scheme from earlier drafts of Springer, Liu and Guthrie’s forthcoming article.

12. The journal issue published papers that had been presented at a the October 30, 2007 conference hosted by the ‘Show-Me Institute,’ a Missouri organization working to promote market-based policy solutions, as well as the Truman School of Public Affairs at the University of Missouri, titled “From Equity to Adequacy to Choice.” The journal special issue consisted of a compilation of articles from witnesses who testify on behalf of the state in a challenge to the equity and adequacy of school funding in Missouri (*CEE v. State of Missouri*). See Podgursky’s (2008) introductory article to the special issue. Greene and Trivitt’s article was not part of the state’s defense but was included by invitation in this same special issue.

13. As reported in *Kansas Liberty*, an online newspaper, “Research conducted for the University of Kansas Business School’s Center for Applied Economics by Dr. Florence Neymotin, a Kansas State University assistant professor of economics, shows the massive increase of school funding in Kansas between the years 1997 and 2006 so far has had “little evidence of improving student outcomes as measured by test scores.” <http://www.kansasliberty.com/liberty-update-archive/08dec2008/study-shows-huge-education-funding-increases-have-had-no-impact>

14. Between 1997 and 2005, Kansas school districts fell from \$200 per pupil behind the national average to over \$800 per pupil behind the national average. Earlier, in 1994, Kansas was only \$84 per pupil below the national average. Data source: U.S. Census Fiscal Survey of Local Governments: Public Elementary and Secondary School Finances. Calculations by authors.

15. One extreme example of such a tradeoff occurred in the legislative adoption and judicial review of remedy legislation following *State of Wyoming v. Campbell County School District* (2001). The legislature adopted, and the court accepted, a special adjustment to compensate for higher teacher wages in the state’s most affluent school district, Teton #1 (Jackson). The adjustment drove an additional 40% funding into Jackson on an argued basis of higher costs of living, despite the state’s own evidence contradicting this supposed need. See Baker (2008).

16. If researchers were to exclude recipients of reduced-price lunch, looking at only recipients of free lunch – a cutoff set at 130% of the poverty threshold – a slightly larger percentage (57%) of children attend *Abbott* districts. But the problem remains.

17. Card and Payne provide substantial detail on their methodological attempts to negate the usual role of selection bias in SAT test-taking patterns. They also explain that their preference was to measure more directly the effects of income-related changes in current spending per pupil on income-related changes in SAT performance, but that the income measures in their SAT database were unreliable and could not be corroborated by other sources. As such, Card and Payne used combinations of parent education levels to proxy for income and socio-economic differences between SAT test takers.

18. As one indication of its prominence among researchers, as of the writing of this article, Google Scholar identified 163 citations to this article.

19. There is little reason to assume that the presence of judicial order would necessarily make otherwise similar reforms less (or more) effective, though constraints surrounding judicial remedies may.

20. As described later in this article, the Massachusetts reform had substantial elements of both adequacy and equity.

21. Again, and as described later in this article, the reform had substantial elements of both adequacy and equity.

22. The 2010 decision of the school board in Kansas City to close a large number of schools was one such occasion. See e.g. <http://blog.beliefnet.com/roddreher/2010/03/why-did-kansas-citys-public-schools-fail.html>

23. Citing Coate & VanDerHoff (1999).

24. Interestingly, this high-profile study by Coate and VanDerHoff was only published by Cato; it was never subsequently published in a peer-reviewed journal.

25. Perhaps most notably, the book has been promoted by the Education Equality Project.

26. Hanushek and Lindseth attribute the success of the Massachusetts reforms not to spending, but to the fact that the “remedial steps passed by the legislature also included a vigorous regime of academic standards, a high-stakes graduation test, and strict accountability measures of a kind that have run into resistance in other states, particularly from teachers unions” (p. 169). That is, it was not the funding that mattered in Massachusetts, but rather it was the accountability reforms that accompanied the funding.

27. Kentucky is uniquely positioned regionally between Tennessee to its south, a persistently low-spending state, and higher spending northern neighbors in Indiana and Ohio, including the Cincinnati area in Ohio. Education spending growth was significant during this period in Indiana, Ohio and West Virginia. Spending growth in Ohio occurred at least partly in response to litigation during the period – *DeRolph v. State* (1997). Litigation occurred in West Virginia decades earlier (*Pauley v. Kelly*, which became *Tomblin v. State Board of Education*) but was ongoing until its dismissal in 2003 (see *Tomblin*, 2003).

28. But, the reforms did not push Massachusetts ahead of its neighbors on average. Spending in neighboring Connecticut continued to grow steadily, but at slightly slower pace on average than Massachusetts. While no school finance decisions were rendered in Connecticut during this time, *Sheff v. O’Neill* (1996) addressed racial segregation in the Hartford area. Hartford experienced a significant boost in funding immediately following *Sheff* (1998 to 2001). In Massachusetts’ neighbors to the north, state court decisions were rendered in favor of plaintiffs – *Brigham v. State* in Vermont (1997) and *Claremont v. Governor* (1993) and *Claremont v. Governor* (1999) in New Hampshire. In Vermont, reform legislation (Act 60) immediately followed, leading to substantial leveling up of funding in property poor districts (see Downes, 2004). In New Hampshire, substantive changes to funding level or distribution have yet to occur, over ten years later. Spending increases in Vermont and Connecticut partially offset any sizeable gain in competitive position for Massachusetts.

29. Wyoming’s position is unlike that of any other state in this discussion. First, there was little judicial involvement in school finance in neighboring states. The only exception was Montana, but that state’s reform activity occurred before the window investigated herein (1989 ruling in favor of plaintiffs in *Helena Elementary School District No. 1 v. State*, 1989) and after the window (*Columbia Falls v. State*, 2005) leading to sizeable increases in funding reported in 2005 and 2007. See [http://www.schoolfunding.info/states/mt/lit\\_mt.php3](http://www.schoolfunding.info/states/mt/lit_mt.php3)). Utah has had no court intervention to date and courts in South Dakota and Nebraska declared their systems constitutional or alternatively, declared educational adequacy claims non-justiciable (*Bezdicheck v. State*, 1995, in South Dakota, *Gould v. Orr*, 1993, in Nebraska). Colorado courts only recently declared a pending adequacy claim to be justiciable, having sidestepped involvement in school funding since the early 1980s in *Lujan v. Colorado State Board of Education* (1982). Further, Wyoming’s neighbors include some perpetually low-spending states like Utah. Wyoming has far fewer students than its neighbors and

has ample annual tax revenue from natural resources, buffering the state budget from economic downturn compared to other states in its region and allowing maintenance of high public expenditure (Felix, 2008).

30. For example, Teton #1 (the Jackson area and state's most affluent district) successfully lobbied to receive and later retain a 40% cost adjustment to accommodate teacher costs, since the district is home to very high housing prices – and despite the finding that the district already had among the state's most highly qualified teaching staff (Baker, 2008).

31. New Jersey's constant position relative to neighboring states – notwithstanding the state's response to the Abbott litigation – is partly a function of relatively high spending growth in affluent suburban districts in neighboring New York State, which accelerated following 1997 with the implementation of a property tax relief program which drove significant state aid to wealthy downstate districts (Eom & Killeen, 2008). It was not until the last few years of the period under investigation that New York State came under court order to resolve funding disparities for New York City (and New York began implementing that reform legislation after the window of time investigated here). For decades, and throughout the period investigated, Pennsylvania school finance operated under no threat of judicial intervention, and maintained persistent and dramatic racial- and poverty-related disparities in funding between affluent suburban and poor urban districts in the Eastern third of the state, near New Jersey (places such as Philadelphia, Allentown, and Reading).

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BRUCE BAKER is Associate Professor in the Graduate School of Education at Rutgers University where his research focuses on education finance policy and reform and on teacher and administrator labor markets. He sits on the editorial boards of *Education Finance and Policy* and the *Journal of Education Finance*, is lead author of *Financing Education Systems* (Merrill-Prentice Hall) and numerous peer reviewed articles in outlets including *Educational Evaluation and Policy Analysis*, *Economics of Education Review*, *Education Policy Analysis Archives* and law review articles in outlets

including *Michigan Journal of Race and Law* and *Stanford Journal of Civil Rights and Civil Liberties*.

KEVIN WELNER is professor at the University of Colorado at Boulder School of Education, specializing in educational policy, law, and school reform. He is director of the National Education Policy Center (NEPC) headquartered at CU-Boulder. His recent work includes three books: *Think Tank Research Quality: Lessons for Policymakers, the Media, and the Public* (2010), *NeoVouchers: The Emergence of Tuition Tax Credits for Private Schooling* (2008), and *Education Policy and Law: Current Issues* (2008).