

The Effect of Court-Mandated School Finance Reforms of the 1990s on Distribution of District Expenditures and State Aid

PAM Honors Thesis

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INTRODUCTION AND BACKGROUND

There is no direct mention of public education in the United States Constitution. Throughout American history, issues surrounding education have largely been left for individual states to decide. In 49 states, there is a clause in the state constitution to “establish and maintain” a system of public schools (Ziebarth, 2000). In most states, schools are financed by a combination of federal aid, state aid, and local funds. According to the National Center for Education Statistics, about 8.5% of school revenues came from the federal government in fiscal year 2007 (Zhou, 2009). The remaining revenues came from the state (47.6%) and local sources (43.9%). The localized portion of school funds is often obtained through property taxes; hence, some “property rich” districts are able to finance education at higher levels than “property poor” districts.

In the United States, most students attend school in the district where they reside. According to Orfield and Lee (2005), the average White student attends a school that is 79% White, while the average Black student attends a school that is 53.8% Black. Eighty-eight percent of schools that are less than 10% White have a majority of students receiving free or reduced price lunch, while the concentration of poor students is much lower in schools that are predominately White (Orfield and Lee, 2005). Massey and Denton note, “...because poverty is associated with poor educational performance segregation also concentrates educational disadvantage” (1993, 141). As students progress through the education system, the differences in scores between students of different socioeconomic backgrounds widen (Walberg, 2001). Card and Kruger (1992a) demonstrate that decreases in the Black-White wage differential can be attributed to improvements in quality of predominantly Black schools. If poor and minority students

do not receive a quality education, they will be unable to achieve the same job opportunities as students from wealthy neighborhoods.

School finance reform aims to reduce the funding disparities between rich and poor districts and reduce the achievement gap between students from low-income and wealthy neighborhoods. If low test scores and high dropout rates among minority students are a function of underfunded schools, increased state aid should lead to school spending and student outcomes that are not correlated with median household income in the district. State funding for education is generated through state taxes, which include revenues from across the state, unlike property taxes that are solely dependent on local characteristics. States can give more aid to poorer schools by introducing new state taxes and use the revenues for education spending or by redirecting existing tax revenue streams that were originally designated for other policy areas toward education. States can also redistribute education spending so that aid is diverted from richer schools to poorer schools (Paris, 2010).

Earlier studies of school finance reform have looked at the effects of court ordered reform from the 1970s and 1980s. However, there have been many changes in school finance equalization since that time. In a study by Card and Payne (2002), 21 of the 48 mainland states had no court decision by 1992. By 2000, however, only seven states had not had court decisions regarding school finance. Additionally, many states with court decisions before 1992 had subsequent decisions that led to a change in the state's system of financing education. This paper examines the outcomes resulting from the court-ordered school finance reforms of the 1990s, by looking at changes in the relationship between median income and district expenditures and income and state aid

from 1990 to 2000. The goal is to test whether those states that changed their funding schemes have experienced a change in the relationship between median income in a district and per pupil expenditures, as well as the relationship between district median income and the amount of state aid received.

LITERATURE REVIEW

Models of School Finance Equalization at the State Level

Berne and Stieffel define wealth neutrality in school finance as the idea that, “no relationship should exist between the education of children and the property wealth (or other fiscal capacity) that supports the public funding of that education” (1999, 16).

Assuming a constant level of state aid, taxpayers in a property poor district would have to pay higher taxes to generate the same amount of revenues for schools as those in districts with higher property wealth. Proponents of school finance reform argue that the state must distribute aid in such a way that those districts that cannot raise money through property taxes can engage in the same levels of per-pupil expenditures as property-rich districts. Figure 1 (Sipple, 2009) is a basic representation of the concept of equalizing aid. In this example, each district receives an equal amount of Foundation Aid, represented by the bottom rectangle. Foundation Aid is a baseline amount of funding given to each district, regardless of district characteristics. The lower triangle represents the amount that districts are able to raise through local property taxes. If these were the only two sources of funding, wealthy districts would have much more available funding than poorer districts. However, with perfectly equalizing aid, represented by the top triangle, all districts have the same amount of funding regardless of wealth.

States’ methods for determining foundation and equalizing aid differ. Card and Payne (2002) classify school finance systems into three different categories: Flat Grant formulas (FG), Minimum Foundation Plans (MFP), and Variable Grant formulas (VG). Under the flat grant system, each school district receives a fixed grant per student from the state. Flat grant systems have no effect on equality, as each district receives the same

funding regardless of characteristics such as student poverty, race, or socioeconomic status (Card and Payne, 2002). A flat grant system would exist in a state distributing foundation aid with no equalizing aid. By 1992, only one state was still using a flat grant system exclusively (Card and Payne, 2002).

Minimum foundation plans and variable grants take the district's ability to generate local funds into account when determining state aid. States that use a minimum foundation plan calculate a foundation level of spending, or "the minimum amount the state expects to be spent per pupil in all districts" and the amount of revenue the district is expected to generate from local sources, such as property taxes (Card and Payne, 2002, 52). The state then provides the district with the difference between the minimum foundation level and local revenue levels. Variable grant systems are similar to minimum foundation plan systems, but rely on how much funding the district *actually* raises from local sources, rather than an expected value like minimum foundation plans. The state provides districts with funding to make up for differences between the target funding level and how much the district raises from property taxes. Variable grant systems promote equalization between districts, since poorer districts receive more equalizing state aid than richer districts. Additionally, some states have recapture provisions in their variable grant models that have "negative" grants for wealthier districts (Card and Payne, 2002).

States also vary greatly in the extent to which they fund education. For the 1991-92 school year, New Hampshire's contributions to school funds was only 8% of total funding, whereas New Mexico's state contributions totaled 85% of funding (GAO 1997). Figure 2 (Sipple 2009) depicts the various levels at which states finance schools.

Legal Challenges to School Finance

The California Supreme Court case of *Serrano v. Priest* (1971) is generally considered the beginning of the school finance equalization movement. In this case, parents challenged the constitutionality of the California's method of financing for schools, alleging that the disparity in resources available to districts violated Article 1 Section 7 of the California Constitution, which states, "A person may not be...denied equal protection of the laws." Parents complained that in order to raise the same amount of funds as other districts, parents in Los Angeles faced higher tax rates. Prior to *Serrano*, "Baldwin Park, a low-income city near Los Angeles, was spending \$595 for each student while Beverly Hills was able to spend \$1,244, even though the latter district had a tax rate less than half that of the former" (Kozol, 1991, 220). In 1971, the court ruled that California's system of financing education violated both the fourteenth amendment of the United States Constitution and the equal protection clause in the California state constitution (Lukemeyer, 2004). The California Supreme Court decided that the pre-*Serrano* system of funding education "insidiously discriminates against the poor because it makes the quality of a child's education a function of the wealth of his parents and neighbors" (*Serrano v. Priest*, 1971). In deciding a case similar to *Serrano*, the United States Supreme Court concluded in *San Antonio Independent District v. Rodriguez* (1973) that Texas' education finance system did not violate the fourteenth amendment's equal protection clause. Since then, court cases involving school finance have mostly been heard at the state level and have alleged that a state's system of financing education violates clauses in the state constitution.

In the 20 years following *Serrano v. Priest*, courts in 21 states declared school funding schemes unconstitutional (Card and Payne, 2002). However, a court decision does not mean overnight change. Many court decisions are not very specific, and call on the state legislature to revise the school finance system. Some states will experience new cases, in which the constitutionality of the new system is challenged. In New Jersey, a battle between the state legislature and state courts over the constitutionality of the state's system for financing K-12 education lasted nearly 30 years (Yinger, 2004). Some states' supreme courts have upheld the constitutionality of school financing on the grounds that it is not the court's responsibility to decide these matters. In a few states, legislative reform was passed without any legal challenges or the legislature developed a new finance system to settle a pending court case.

Carr and Fuhrman (1999) explore why judges have the best incentives to reform education. Although governors and legislators can gain a lot of public support by promising to improve public education, issues of finance, especially taxes, can polarize voters. Increased state aid to schools can mean higher taxes for residents, so groups such as the elderly will be likely to oppose a candidate who has or will raise taxes to improve education. Additionally, representatives from lower-wealth districts might not have as much influence in a state legislature as those from wealthier districts. Courts, on the other hand, have a responsibility to interpret the state constitution. Constituents who want to challenge a state's system of financing education may have better luck going through the judicial system than lobbying a legislator.

The history of school finance reform cases is divided into three waves (Lukemeyer, 2004). The first wave of cases, which includes *Serrano v. Priest*, alleged

that methods of financing schools violated the equal protection clause in the United States Constitution. Lukemeyer classifies the reforms of the mid-1970s through the 1980s as the second wave of court cases. Most of the plaintiffs in the second wave of cases argued that school finance systems violated clauses in state constitutions that guaranteed equal protection and provision of public education. In every state constitution, there is a clause regarding public education. Some states go into more specific details about how education will be provided, while others merely mention the responsibility of the state to “establish and maintain” schools. In some states, the language of education clauses has been used to allege that the system of financing education does not live up to the promises of the state constitution. The third wave of education finance reform cases began in 1989, with an influx of cases that challenged solely the education clauses in state constitution and placed less emphasis on equal protection clauses. Baker and Welner (forthcoming) suggest that a new pattern emerged from 2007 to 2009, with state courts arguing that it is the responsibility of the state legislature, and not the courts, to reform school finance.

There are four standards that have been used to challenge school finance systems in court (Lukemeyer, 2004). Minimum adequacy is the idea that all students deserve an education at a basic minimum level of spending. This is a similar concept to the floor level that states determine in a minimum foundation plan. Districts can spend more money per pupil or provide more services, but a minimum adequacy requirement implies that districts cannot spend below the minimum per pupil level.

The next standard is equality, simply meaning that all districts spend the same amount per pupil. Lukemeyer’s third standard, access equality, means that each district

has the potential to raise the same amount of revenues with the same tax effort.

However, this is unlikely to occur since districts have varying tax bases and residents can usually vote on property taxes (or vote with their feet by moving out of a district or state). Finally, the wealth neutrality standard states that a district's per pupil expenditure should not be directly correlated with the districts property tax base.

Most state courts have looked at adequacy and equality standards, with a select few making decisions based on access equality or wealth neutrality standards. The third wave of school finance reform has been mainly based on adequacy claims (Minorini and Sugarman, 1999). The 1989 case of *Rose v. Council for Better Education* in Kentucky is seen as the beginning of this wave, with the court determining that Kentucky's constitution entitled all students to a sufficient education that would prepare them for future academic and vocational endeavors (Schrag, 2003). *Rose* began as an equity case, but the adequacy decision spurred litigation across the nation. Subsequent third wave cases challenged the state's provision of an adequate education as expressed in the state constitution's education clause. A few cases prior to *Rose* contained some elements of adequacy, but the vast majority of cases were decided on equity grounds. Of the sixteen states experiencing reform between 1989 and 1999, four cases were decided primarily on equity grounds, whereas the remaining twelve cases were decided on adequacy grounds. Two of the four equity cases occurred in 1989, before the *Rose* decision brought the concept of adequacy into the forefront of school finance litigation.

Baker and Green (2008) note that the influx of adequacy decisions represents a greater concern for outputs to the education production function. School finance reform was no longer merely about equalization, but about providing each student with the

resources to receive an adequate education. Heise (1995) argues that the shift from equity to adequacy standards during the third wave of school finance reform can be attributed to three factors: the complexity of equity claims, the belief that equity contradicted the value of local control over schools, and the desire of large urban school districts to turn their focus away from equity arguments. He also notes, as Baker and Green suggest, that adequacy is consistent with the recent standards movement and the belief in adjusting inputs for the purpose of achieving specific outcomes, rather than for the sake of equalizing inputs.

The literature on school finance reform also differentiates between reforms that “level up” and level down.” Paris (2010) describes the difference between these two types of reforms. Leveling up refers to school finance reform that aims to bring all districts up to the level of spending of the wealthiest districts. When a state levels down, funding is redistributed so as to make the wealthiest districts spend closer to what the poorer districts spend. Hoxby (2001) argues that it is not whether a state experiences a reform that is important but *how* a state reforms its system of school finance. However, much of the literature on school finance reform focuses on the presence of a reform as the variable of interest.

Effects of Reforms on State Aid

State spending on education tripled during the 1970s (Berke et al., 1984). School districts experienced an average of a 59% increase in state aid per student between 1977 and 1992 (Card and Payne, 2002). The increase was greater (average of 85%) for states whose funding systems were declared unconstitutional than those whose systems were upheld (48%) and those states that had no decision (46%). Card and Payne found that the

amount of aid that poor districts received relative to their wealthier counterparts increased by \$300 more per pupil in states where the court had overturned a system of education finance compared to states where the court had upheld the current system or there had been no decision. This suggests that court decisions requiring states to change their funding schemes led to increased redistribution of state aid in the 1980s, with poorer districts receiving significantly more state funding than wealthy districts.

Evans, Murray, and Schwab (1999) use race as a proxy for income, since black students are more likely to attend schools in low-income districts. They find that reform led to an average increase of \$664 (in 1992 dollars) in state aid per student for black students and \$434 for white students. However, average per-pupil expenditures for white students grew relative to those for black students in states experiencing a reform. Local revenues increased for white students, whereas local revenues for black students experienced a decrease. Thus, it appears that some of the gains of increased state aid to minority students as a result of school finance reform were offset by decreases in local expenditures.

Effects of Reforms on District Expenditures

Murray, Evans, and Schwab (1998) find that court-ordered reforms reduced spending inequality by 19 to 34 percent within states between 1971 and 1996. Murray and colleagues found that while spending for those districts at the bottom of the wealth distribution increased by 11% following a court-ordered reform, patterns of spending did not change for those districts at the top of the wealth distribution. Evans, Murray, and Schwab (1999) also examine the effect of reform on private contributions. Wealthy school districts have been able to raise money through local educational foundations, but

not enough to negate the equalization achieved by school finance reform. Manwaring and Sheffrin (1997) use panel data from 1970-1990 and find that reforms led to different outcomes in different states, with some states experiencing increases in average district spending and some experiencing decreases.

Card and Payne (2002) find that “each additional dollar in state aid received by a school district leads to a 30-65 cent increase in spending” (80). More aid to poorer districts has raised the expenditures in these districts. Court-ordered school finance reform has led to greater spending equality between rich and poor school districts. States that experience court-ordered reform saw a small decrease in the correlation between family income and district spending per student, while this relationship appeared to be strengthened in states in which the system of financing education was upheld. Springer, Liu, and Guthrie (2009) find that court ordered school finance reform decreased the correlation between income and spending from 1972-2002.

Goertz and Natriello (1999) compare district expenditures in the 1989-90 school year (pre-reform) with expenditures in the 1992-93 school year (post-reform) for Kentucky, New Jersey, and Texas. They find that for the latter years, “the highest-wealth districts still spent more, on average, than the lowest-wealth districts, but the extent of disparity had decreased substantially in Kentucky (63 percent to 12 percent) and in Texas (from 29 percent to 14 percent) and moderately in New Jersey (from 29 percent to 14 percent)” (110). Although lower-wealth districts still lagged behind wealthier districts in terms of expenditures, there was a greater equality of spending in the three states Goertz and Natriello studied. Hoxby (2001) notes that greater spending-equality was reached in those states that leveled down compared to those that leveled up. She suggests that it is

harder to force a district to spend more under the leveling up model than it is for states to impose high taxes on wealthy districts as part of a leveling down model.

Does Money Even Matter?

While reviewing the literature on equalization of state aid and spending, it is important to ask the question, “Does money matter?” If parents allege that their children are not receiving an adequate education under the current financing scheme, would new methods of finance lead to better educational quality? Many studies have attempted to find the link between school expenditures and student performance. While initially scholars did not see a link between money and outcomes, more recent studies have confirmed some evidence of this relationship.

Grissmer, Flanagan, and Williamson (1998) attribute the origin of the view that money was not a determining factor of educational quality to the 1966 “Coleman Report.” This government report declared that the disparity in educational outcomes for students of different income levels was more attributable to parent and family variables than school factors. Levin (1976) believed that *Serrano* was likely to benefit teachers, who would receive higher wages, than students, who would continue to lag behind their wealthier peers. In a meta-analysis of expenditure studies, Hanushek (1989) argues that not enough studies have found statistically significant results that expenditures can improve student performance. When a district increases expenditures, the additional spending is often spent on wages for more teachers or teachers who are more educated and/or experienced. Goertz and Natriello (1999) find that low-wealth districts in Texas, Kentucky, and New Jersey used increased state aid towards staff salaries, staff development, materials and resources, programs, and facilities. Hanushek finds, “The

results are startlingly consistent in finding no strong evidence that teacher-student ratios, teacher education, or teacher experience have the expected positive effects on student achievement” (47). He recommends against using disparities in expenditures as the basis for determining school finance policies aimed at equalizing outcomes.

In another meta-analysis that included more longitudinal studies, Hedges and Greenwald (1996) contradict Hanushek, finding that a teacher who is better educated and has better verbal abilities has a positive affect on student achievement. Grissmer, Flanagan, and Williamson (1998) reference a study of disadvantaged students in Tennessee, which found that reduced class sizes led to test score gains. They conclude that while the maxim of “money doesn’t matter” may hold true for wealthier students, spending and resources can affect educational outcomes for minority and disadvantaged students. Goertz and Natriello (1999) point out that since state aid can fluctuate from year to year, low-wealth districts are more likely to spend aid on durable resources that will continue to provide value after funding is cut, such as facility improvements and technology. Card and Krueger (1992b) find that, “Men who are educated in states with higher-quality school systems earn higher economic returns for their years of schooling” (36). Attending better schools can provide lifelong benefits, including higher wages.

Card and Payne (2002) report “tentative” results for the effect of school finance reform on SAT scores. There is modest evidence showing that more equalized spending systems lead to more low-income students taking the SAT, and that there was a 5% decrease in the score gap between students from families with highly educated parents and those with little education. There is evidence that dropout rates declined in districts that would have had low spending without finance reform, but not for other districts

(Hoxby, 2001). Evans and colleagues (1999) note that there is a need for more research on court-mandated reforms' effects on a variety of student outcomes. However, there is limited data for researchers to examine this effect. Hoxby (2001) notes that there is no nationally administered test given to all students that would help researchers calculate an effect of school finance reforms on outcomes.

HYPOTHESES

Most studies of school finance reform have looked at the effects of court ordered reform from the 1970s and 1980s. However, there have been many changes in school finance equalization since 1989. In 1992, 21 of the 48 mainland states had no court decision (Card and Payne, 2002). By 2000, there were only seven states that had not had court decisions regarding school finance. Additionally, many states with court decisions before 1992 had subsequent decisions that either upheld or overturned the ruling in the previous case. I propose to examine the outcomes resulting from the court-ordered school finance reforms of the 1990s. I will examine how the third wave of school finance reform affected the relationship between district median income and state aid per pupil, as well as the relationship between median income and per pupil expenditures.

Not only did more states experience a court-mandated overhaul of their school finance systems after 1989, but many of these decisions called for more sweeping reform (Murray et al., 1997, 791). The majority of school finance reform cases in the 1990s challenged the state's provision of an adequate education for all students. Unlike the equity cases of the 1980s that solely called for redistribution of funds, adequacy decisions also set new curriculum standards. However, many adequacy cases were more concerned with providing a minimum level of funding to each district than ensuring that each

district was spending the same amount. While some adequacy decisions also incorporate equity principles, equity was not necessarily a feature of the adequacy movement.

Springer, Liu, and Guthrie (2009) find no significant difference between equity and adequacy reforms in decreasing the relationship between income and expenditures.

I predict that states whose education finance systems the state Supreme Court found unconstitutional after 1989 will experience a decrease in the association between income and district expenditures. I also predict that the association between income and state aid in a district will become more negative in reform states, meaning that poorer districts in reform states will receive more aid, on average, than wealthier districts than similar districts in a non-reform state. However, I do not expect to see as large of a magnitude of change as Card and Payne (2002), since adequacy cases were more focused on providing a minimum level of funding to poorer districts and did not contain as many provisions for equalizing funds between districts.

DATA

For dependent variables, I look at the effects of school finance reform on district spending and state aid in the 48 contiguous states. For finance data, I use the Local Education Agency Finance Survey (F-33) Data, obtained from the National Center for Education Statistics' Common Core of Data. This data contains information on revenues and expenditures for each school district in the United States. I examine districts' per pupil spending for the years 1990 and 2000, as well as state aid per student received during those years.

I use a variety of other measures as controls, such as district median household income and racial composition. I obtained this data from the School District Data Book (SDDB) from the 1990 Census and the School District Tabulation (STP2) from the 2000 Census. Information on grade span, district type (elementary, secondary, or unified), and district size comes from the 1989-90 and 2000-01 Local Education Agency Universe Survey Data.

First, I will examine the relationship between median household income and district expenditures in each state in both 1990 and 2000, by estimating the following equation:

$$Spending = \alpha + \beta_1 Income + \eta Controls + \epsilon \quad (1)$$

Spending represents per pupil expenditures in a district. The coefficient β_1 represents the relationship between spending and income when controlling for other district characteristics, such as average number of students per school, proximity to a metropolitan statistical area, type of district (elementary, secondary, or both) and racial composition (fraction of Black and American Indian students). These controls are similar

to those used by Card and Payne (2002). I also estimate the relationship between state aid per student and median household income, using the equation:

$$State\ Aid = \alpha + \beta_1 Income + \eta Controls + \varepsilon \quad (2)$$

If state aid and expenditures are completely equalized across all levels of median income, β_1 and β_2 will be equal to zero. A negative value for either coefficient would indicate that districts with lower median income levels receive more state aid or spend more. In the next equations, I look at how these values have changed between 1990 and 2000. If school finance reform made spending and state aid more equitably distributed to students of various income levels, β_1 and β_2 should become more negative over time. I also run equations 1 and 2 in a model that includes an average weight for district size.

I have divided states based on the presence and outcome of state Supreme Court rulings on school finance. I created a dummy variable for states experiencing a reform in the 1990s, with those that experienced a reform between 1989 and 1999 being coded as 1 and those whose systems were upheld during this period receiving a 0. States who experienced court decisions before this time period were coded as missing for generating this variable. I determine if a state had a reform during this period if the highest court in that state declared the system of financing education unconstitutional. A state was coded as “upheld” if the court had upheld the state’s system of financing education as constitutional. However, if the state had experienced a court-ordered reform prior to 1989, but the reformed system was challenged and upheld, I coded the state as “pre-1989.” For example, Kansas had its school finance system overturned by state courts in 1976, but in 1994, the Kansas supreme court upheld the constitutionality of the prior reform. Baker and Welner (forthcoming) note the difficulty of categorizing school

finance reforms, due to the complexity of legal challenges in states such as Kansas.

Categorizing states was further complicated by the fact that previous literature disagrees on which states should be classified as having had reforms, and whether those reforms were decided on adequacy or equity grounds.

To find the effect of reform on the association between income and finance variables, I run the regressions:

$$\Delta\beta_1 = Z_1\text{Reform} + \varepsilon \quad (3)$$

$$\Delta\beta_2 = Z_2\text{Reform} + \varepsilon \quad (4)$$

where $\Delta\beta_n$ represents the change in β_n between 1990 and 2000. Equations 3 and 4 are similar to the way that Card and Payne (2002) and Springer, Liu, and Guthrie (2009) estimate the effect of reform on inequality.

SUMMARY STATISTICS

After merging Common Core of Data files for finances and school characteristics with census data on district racial composition and median family income, I dropped districts that were not found in all of the finance, school characteristics, and census files. The remaining data set includes information for 14,205 school districts for 1990 and 14,106 districts for 2000 in 48 states. Districts eliminated from the original data set included districts not located within the 48 contiguous United States, such as districts in Alaska, Hawaii, District of Columbia, and United States Territories, as well as districts located on military bases.

Between 1989 and 1999, 16 states had their systems of finance overturned by state courts, whereas 15 states had their systems of school finance upheld. Of the approximately 14,000 districts in the sample, roughly 10,000 were located in states that experienced court decisions in this period. The breakdown of districts experiencing cases in this period was split roughly evenly between those whose systems had been reformed and upheld. In both 1990 and 2000, racial composition did not differ much, with the average school district in both the ‘reform’ and ‘upheld’ categories having about 4-5% Black students.

I dropped five districts that listed a median income below \$1,000 for each year. District median family income in the resulting data set in 1989 (in 2000 dollars) ranged from \$3,293.81 to \$196,450.60, with a median of \$39,206.85. Median income in a district for 1999, ranged from \$2,499 to \$192,787, with a median of \$37,060.50. While the low values of the minimum median income are very low, there were only eleven districts in the 1990 data and three districts in the 2000 data that had median incomes

listed between \$1,000 and \$10,000. Therefore, I do not think that these few districts with low median incomes have much of an effect on my results. A few of these districts are also dropped when I exclude districts with no reported enrollment in 1990 and 2000.

Median income does not appear to differ much between states that had their systems of education finance overturned and those that did not (Table 1). In 1990, the median amount districts spent per pupil was \$6,182.64 (in 2000 dollars). The median amount of state aid per student was \$2,725.31 in 1990 (estimated in 2000 dollars). In 2000, the median district per pupil expenditures was \$7,822.79, and the median amount of state aid per student districts received was \$4,000.22.

For states that had court decisions between 1989 and 1999, mean state aid per student was \$2,710.03 in 1990 and mean expenditures per pupil were \$7,422.30. In 2000, districts that had experienced reform had a mean state aid per pupil of \$4,236.80 and mean expenditures per pupil of \$9,080.81 (Table 2). Districts experiencing a reform between 1989 and 1999 saw, on average, a 56.3% increase in state aid per student, compared to a 45.7% increase for those whose systems were upheld by state courts and a 41.5% increase in those states with no court decision (Table 3). This result is not as extreme as that found by Card and Payne (2002), but follows the trend that districts with reforms experienced greater gains in state aid per student than the other two categories.

RESULTS

Relationship between Income and Expenditures per Pupil

First, I calculated the relationship between median income and per pupil expenditures for 1990 and 2000. To define expenditures per pupil, I created a variable dividing a district's total expenditures in a given year by the total number of enrolled students prekindergarten through twelfth grade. I ran regressions for each year finding the relationship between median income and district expenditures per pupil, controlling for factors such as racial composition in a district, location, and grades taught (Eq. 1).

On average, $\beta_1 = 0.036$ for 1990, meaning that per pupil expenditures were about \$36 higher for every additional \$1,000 in median income in a district. In 1990, median income was \$27,586.30 at the 10th percentile and \$62,553.36 at the 90th percentile (in 2000 dollars). This would mean that districts at the 90th percentile spent, on average, \$1,258.81 more per pupil than those at the 10th percentile. In 2000, median income was \$26,779.00 at the 10th percentile and \$60,125.00 at the 90th percentile. For 2000, average $\beta_1 = 0.019$, meaning that an additional \$1,000 in median family income led to an additional \$19 in per pupil expenditures. This means that districts at the 90th percentile spent \$666.92 more per pupil than those at the 10th percentile of the income distribution.

For districts that experienced reform between 1989 and 1999, β_1 decreased by 0.005 during the 1990s, meaning that gap in spending between districts was reduced by \$5 per pupil for every \$1,000 of income. Contrary to my hypothesis, states with no reform during this period, as well as those whose systems of financing education were upheld by state supreme courts, had greater reductions in inequality during this period ($\beta_1 = -0.030$). These findings differ from those of Card and Payne (2002) who found that

states in which courts found the system of school finance unconstitutional between 1971 and 1992 experienced a decrease in spending inequality while other states experienced increased inequality. However, I find that expenditures became more equal on average during the 1990s, whereas Card and Payne find greater inequality in expenditures over the 1980s.

When weighting by district size (number of pupils) in the regression equation, the reduction in inequality is slightly less, with β_1 decreasing by 0.011 for all states between 1990 and 2000. However, the relationship between income and spending looks to have decreased by \$11 for every \$1,000 in income when using this model, compared to \$5 in the unweighted model.

Relationship between Income and State Aid Per Pupil

Using Equation 2, I calculated the relationship between income and state aid per pupil. I generated a variable for state aid per pupil by dividing revenues a district received from the state in a given year divided by the total enrollment, pre-kindergarten through twelfth grade, in that district. I controlled for the same variables as in the expenditures equation.

On the whole, the relationship between income and state aid decreased during the 1990s. I found a consistent negative correlation between state aid and income, meaning that poorer districts tend to receive more state aid than wealthier districts. Again, districts with court ordered reform seemed to experience the least amount of change, experiencing no change in the relationship between income and state aid per pupil during the 1990s. Districts that did not experience a court decision in the 1990s had the greatest reduction amount of change in the relationship between income and state aid ($\beta_2 = -0.024$).

When weighting for the number of pupils in a district, $\beta_2 = -0.009$ for all states. In this model, states that experienced reforms had a slightly greater reduction in inequality ($\beta_2 = -0.008$) than those states in which the courts upheld the system of education finance ($\beta_2 = -0.006$), but states that did not experience a reform during this period still experienced the biggest shift ($\beta_2 = -0.013$).

Effect of Court Ordered Reforms

To examine the effect of reform on the distribution of spending and state aid among rich and poor districts, I calculated the effect of reform on the change in β_1 and β_2 using equations 3 and 4. These equations are similar to Card and Payne's (2002) equations for finding the effect of reforms on the same dependent variables.

Using the estimates for $\Delta\beta_1$ and $\Delta\beta_2$ from the model with the weights for pupils in a district, I find that reforms during the 1990s decreased the relationship between income and state aid by 0.003 and seemed to *increase* the relationship between income and spending by 0.005. However, neither of estimates appears statistically significant. When using the model that is not weighted, reforms seem to have increased inequality for both spending and state aid, but these coefficients are also not statistically significant (Tables 4-7).

DISCUSSION

One possible reason for the difference between my results and Card and Payne's (2002) results may be that adequacy cases had some fundamental differences from equity cases. Schrag (2003) notes that unlike previous waves of school finance reform, adequacy reforms did not seek to equalize resources but rather provide all children with the resources necessary to achieve school success. An equal distribution of resources

may not lead to an adequate education for all students. Schrag (2003) writes, “What’s numerically equal may, in fact, not be adequate to meet the requirements of a high-tech economy, the varying social and educational needs of different kinds of students, or the complex social and civic demands of contemporary society” (3).

While adequacy reforms tended to be more comprehensive in their demands for changes, they did not necessarily require a change in the distribution of funds between wealthy and poor districts. Rather, adequacy decisions often spelled out specific standards for an adequate education. In the *Rose* decision in Kentucky, Chief Justice Robert Stephens highlights the foundations of an adequate education, which include communication skills, knowledge of history, and necessary job market skills (Schrag, 2003). While a legislature will often devise a more redistributive aid plan following an adequacy case, an adequacy decision will not necessarily lead to a more equitable distribution of resources between schools.

Another possible explanation for the lack of significant effects of school finance reform could be that some of the states whose finance systems were upheld had a legislative reform that led to greater equalization. Some state legislatures preemptively created a new system of education finance to avoid litigation. Some states also had a legislative reform passed during the time a case was being heard in the courts. It is difficult to tease out exactly which states experienced reform, since some states that did not have judicial reform experienced other policy changes during this period. Also, in some states that *did* have a judicial reform, the reform was not implemented right away, due to debate in the legislature over how to fix the finance system or due to another case or further legal challenge that sought to overturn the reform ruling. Baker and Welner

(forthcoming) note that one of the greatest difficulties in analyzing the effects of school finance reform is determining when a reform has taken effect. A state may have a court order to reform its school finance system, but it could be many years before the legislature approves a new finance plan, and the new finance plan could become the subject of subsequent litigation. Schrag (2003) cites Ohio as an example of a state where an adequacy decision was not met with open arms by the state legislature. Schrag writes, “[The courts] can declare a state fiscal structure unconstitutional and order the legislature to fix it, but where the political system is reluctant, as it has been in Ohio, that can be like trying to push string uphill” (233).

Another complication is that reformed systems can look very different. Indeed, a changed system of financing education does not necessarily mean that a system that would equalize expenditures between rich and poor districts. Berry (2007) advocates moving away from the dummy variable method of categorizing between states that experienced a reform and those that did not. He argues that future research should try to find the effects of reform when looking at what specifically the reforms entailed. Card and Payne (2002) looked at changes between foundation grants, minimum foundation plans, and variable grants. They find significant results that moving from a flat grant to a variable grant program can reduce the relationships between income and expenditures and income and state aid. Hoxby (2001) also finds that whether a reform aims to increase (level up) or decrease spending (level down) in relation to tax prices can have differing effects on the drop out rate.

Despite having a greater increase in state revenues, districts in reform states actually experienced less of an increase in spending than those states whose fiscal systems

were upheld or did not face a judicial decision. Additionally, states with a reform in the 1990s did not experience as great of a reduction in spending inequality as those states that did not experience a reform. A possible hypothesis for this result could be that, following reform, wealthy districts raised more local revenues to compensate for decreased state aid. One response to Proposition 13 in California, a tax limit introduced after *Serrano v. Priest*, was the establishment of local educational foundations. These organizations allowed wealthy districts to raise funds independent of the property tax system. It is possible that wealthy districts in other states created educational foundations to generate additional revenues for schools.

While the effects of adequacy reforms on spending inequality and distribution of state aid seem somewhat ambiguous, it would be interesting to see the effect of adequacy reforms on outcomes. Unlike equity reforms that were decided on the grounds of unequal aid distribution and spending, adequacy reforms are based on the tenet that all students deserve, at minimum, a basic or adequate education. Whereas equity reforms were concerned with the distribution of inputs into the education system, adequacy reform seeks to achieve some equalization of outputs. Perhaps looking at educational outcomes, rather than inputs, would be a better way to measure the effect of adequacy reforms. However, finding a good outcome measure is very difficult, as there is no national achievement test that all students take and dropout rate data is not consistently reported between states. Studies have shown that money can improve educational outcomes for certain groups of students, but most of the current research on school finance reform concludes with the notion that we do not yet have good information about the effects of reformed fiscal systems on educational outcomes.

A Closer Look at Three States

In order to try to disentangle the complexities of adequacy reforms, I profile three states, Kentucky, Vermont, and Wyoming, that experienced state supreme court decisions in the period I study. In all three states, the existing system of financing education was overturned on adequacy grounds. However, each state took a slightly different response to designing a new education finance system.

Kentucky

The *Rose v. Council for Better Education* (1989) decision in Kentucky is credited as the beginning of the wave of adequacy cases. After the Kentucky Supreme Court declared the state's system of education unconstitutional, the state legislature passed the Kentucky Education Reform Act of 1990 (KERA). This law both changed the system of financing schools in Kentucky and set new curriculum standards. The *Rose* decision included the recommendation that certain skills, such as oral and written communication skills, be taught to all students in the state (Flanagan and Murray, 2004). The state legislature modified the standards suggested by the court and wrote KERA with a list of specific skills necessary for an adequate education.

Prior to *Rose* and KERA, Kentucky was among the states that spent the least on education, and property taxes comprised a large portion of local revenues for schools (Flanagan and Murray, 2004). Kentucky also had a long history of flat grant programs, although the state had experiment with a minimum foundation program and the "Power Equalization Program," in which districts that levied a minimum tax rate were given funding to make up the difference between the amount raised through taxes and the amount that the district with the most property wealth in that county would have raised

with the same tax rate. Flanagan and Murray (2004) claim that few districts taxed at the minimum rate for the Power Equalization Program and the program did not receive full funding from the state.

KERA established a new system of school finance in Kentucky, Supporting Education Excellence in Kentucky (SEEK). SEEK was first implemented in 1990-91. Under SEEK, the state sets a base rate per pupil that is guaranteed to each school. The SEEK formula includes weights for pupils with special needs and students receiving free and reduced price lunch, and the base is weighted higher for districts with low population density and children educated in home or hospital settings (Flanagan and Murray, 2004). The state also provides additional funds to property-poor districts (less than 150% of the state average) that raise local revenues beyond the minimum tax rate required by SEEK.

Flanagan and Murray (2004) find that KERA had an equalizing effect on school revenues in Kentucky. For the 1989-90 school year, districts at the 5th percentile of property wealth received a mean of \$4,379 per pupil in total revenues, with \$3,140 coming from the state, whereas districts in the 95th percentile had a mean of \$5,547 per pupil in total revenues, with \$2,803 coming from the state. For the 1997-98 school year, districts at the 5th percentile of per-pupil property wealth had a mean of \$6,784 per pupil in total revenues, with \$4,899 coming from the state, while districts at the 95th percentile had a mean of \$6,839 in per pupil revenues, with \$2,754 coming from the state. While spending increased across all districts in Kentucky during the period of Flanagan and Murray's study, the state increased aid to poorer districts in such a way that the inequality in spending variation was reduced. Flanagan and Murray also find a small, but insignificant effect of KERA on improving student test scores.

I find that $\Delta\beta_1 = -0.023$ and $\Delta\beta_2 = -0.034$ for Kentucky. Flanagan and Murray found that inequality was reduced in Kentucky's school finance system following KERA, but that between 1997 and 2000, the trend began to reverse. However, I find that both spending and state aid per pupil became more equal between 1990 and 2000 in Kentucky. It appears that Kentucky's attempt to provide students with an adequate education resulted in a system of education finance that was more equal across income levels.

Vermont

Vermont's school finance reform is considered one of the most dramatic in the country, and has often been compared to the reforms that California enacted following *Serrano v. Priest* (1971). Downes (2004) rejects the notion of using California as a benchmark case to study school finance reform, citing changes in demographics in California that could influence findings on the effect of school finance reform. He notes that Vermont experienced very little demographic change following large-scale school finance reforms, making it a prime example to study.

In 1997, Vermont's supreme court ruled in *Brigham v. State* that the state's school finance system was unconstitutional. The case was decided on both adequacy and equity grounds. Downes (2004) notes that the Vermont legislature had tried on two prior occasions to reform school finance before the *Brigham* case, but such reforms had failed to pass in the state senate. Less than six months after *Brigham*, the legislature passed Act 60, which set a statewide property tax rate of \$1.10 for every \$100 of property value, resulting in a grant of \$5,100 per pupil to each school (Baker, 2001). Vermont also included a provision for districts to raise additional funds through a supplemental tax levy, so long as revenues were contributed to a sharing pool. Baker (2001) notes that

some Vermonters saw Act 60 as a socialist program, and some wealthy districts found ways to avoid revenue sharing by creating private foundations. Private foundations took away an estimated \$26 million from the shared funding pool (Rebell and Metzler, 2002).

Rebell and Metzler (2002) describe the impact of Act 60 on Vermont residents. They write, “Under [Act 60], 89% of Vermont residents were eligible for decreases in their property taxes. A total of 229 districts received more money for their schools, while only 23 received less” (182). Rebell and Metzler compare a poor Vermont district, Rutland, to wealthier districts. Rutland property tax rates decreased by 7.5% and the schools were able to buy new textbooks for the first time in two decades. Ski resort towns, which have much greater property wealth than Rutland, saw taxes nearly double under Act 60, while per pupil expenditures decreased. Wealthy non-residents own many of the properties in the ski towns as vacation homes. Therefore, the Vermont legislature was not as concerned about increased tax rates in this region, since those bearing the brunt of the increased taxes could not vote in state elections.

Baker (2001) compares Vermont school finance in fiscal year 1996-97, before Act 60 was introduced, to the 1998-99 fiscal year, the first in which Act 60 was implemented. He finds that state aid per pupil increased, but not as much as in prior years. Baker does not analyze his results by different income or property wealth levels. Downes (2004) compares district expenditures from the 1997-98 year to 2000-01 and finds that Act 60 led to a weakened relationship between property wealth and district expenditures. He also finds some small evidence that student performance on a state exam became more equalized across district following the passage of Act 60.

According to my data, per pupil expenditures became more equalized across Vermont between 1990 and 2000 ($\Delta\beta_1 = -0.013$), but state aid per pupil became even more unequal ($\Delta\beta_2 = 0.084$). The negative value of $\Delta\beta_1$ supports the goal of Act 60 to decrease the correlation between wealth and district expenditures. However, I find a positive value for $\Delta\beta_2$. In looking closer at my data, I see the Vermont is a prime example of a state where property wealth and income are not perfectly correlated. Although the ski resort towns have a lot of large homes and taxable properties, the residents who live there year-round have similar median incomes to Rutland. It is possible that, in Vermont, money was redistributed from property wealthy districts to property poor districts with wealthier residents.

Wyoming

Wyoming first experienced court-ordered school finance reform in 1980, with the state supreme court ruling the state's system of financing education unconstitutional in *Washakie County School District v. Herschler* (National Access Network, 2008). In 1995, the state's highest court once again ruled Wyoming school finance unconstitutional in *Campbell County School District v. State*, a case decided on equity and adequacy grounds. Guthrie and Rothstein (1999) note that while Wyoming is sparsely populated and only has 48 school districts, the resulting school finance system is a representative model for what other states could encounter following adequacy decisions.

In 1997, the Wyoming legislature devised a "basket" of specific courses and skills that all students should learn before graduating from high school. The Wyoming Basket reform was similar to the curriculum standards passed under KERA in Kentucky. The Wyoming Basket includes such standards as an emphasis on reading, writing, and

mathematics to be taught in grades 1 through 8 and a requirement that students take four years of English courses in order to graduate from high school (Guthrie and Rothstein, 1999).

Wyoming enlisted experts to estimate how much the provision of an adequate education would cost. When the Wyoming supreme court asked the state legislature to devise a new education finance system, it required that the new system be based on the characteristics of an adequate education system, and not the state's ability to afford such reforms (Guthrie and Rothstein, 1999). The new system was phased in gradually and took full effect in the 1998-99 school year. Each district in Wyoming generates local funds through county taxes (6 mills), district taxes (25 mills), and other tax sources including railroad taxes and funds from the Taylor Grazing Act. Hoxby (2001) notes that tax rates in Wyoming did not experience much change following school finance reform.

Districts are given block grant "entitlement funds" to make up the difference between local funds raised and the cost necessary to deliver the "basket" to all students in that district. Wyoming takes characteristics into account such as students with special needs and makes adjustments for regional factors when deciding the cost of educating students in each district. If a district generates more funds through local revenues than necessary to provide the "basket," the district is subject to recapture, although very few districts in Wyoming are recapture districts (Wyoming Legislative Service Office, 2010). However, the recapture provision was not in effect until 2002-03 (Headwaters News, 2006).

I find that per pupil expenditures and state aid per pupil became more unequal in Wyoming between 1990 and 2000 ($\Delta\beta_1 = 0.106$ and $\Delta\beta_2 = 0.015$). Only one state

(Nevada, which has never had a school finance reform case) experienced a greater increase in the relationship between income and spending during this period. School finance reform in Wyoming was focused on providing students with adequate resources, and not an equitable distribution of resources. Baker and Welner (forthcoming) note that Wyoming's most property-wealthy district, located near the Jackson ski resort, was able to lobby the state for more funding due to the high cost of living in the area and the difficulty retaining teachers who could afford to live near the district. An increased demand for revenues in wealthy districts, along with the fact that the recapture provision did not take effect until 2002-03, might explain why I find an increase in state aid inequality in Wyoming.

Kentucky, Vermont, and Wyoming all took slightly different approaches to remedying their school finance systems following a court order. In each of the three states, providing students with an adequate education was a key part of reform. Kentucky experienced a more equal distribution of state aid per pupil and expenditures per pupil across income levels, while Wyoming experienced increased inequality, with wealthier districts receiving more state aid and spending more. In Vermont, spending became more equal but state aid appeared to have increased more in the favor of wealthy districts. However, Vermont is in a unique position, with the presence of ski resort destinations providing tremendous property wealth to certain districts.

CONCLUSION

Thirty-one states experienced a legal challenge to their systems of financing education between 1989 and 1999, with fiscal systems being overturned in sixteen states and upheld in the remaining fifteen. Unlike prior eras of school finance reform, the majority of the court cases of the 1990s focused mainly on adequacy standards, the idea that all students deserve a basic level of education. Rather than attempting to equalize funding between districts, adequacy reforms sought to provide districts with the necessary means to educate students to meet the minimum threshold.

I looked at the effects of the court ordered school finance reforms of the 1990s on the relationship between district median income and per pupil expenditures as well as the relationship between district median income and state aid per pupil. I found that per pupil state revenues increased by 56% in states that experienced a reform during this period, compared to 46% in states where the current fiscal system was upheld. However, changes in per pupil expenditures did not experience the same trends, with reform districts experiencing a 23% increase in expenditures, while districts in states where the system was upheld experienced a 26% increase. I do not find a statistically significant effect of reform on the redistribution of expenditures per pupil or state aid per pupil.

As with many other studies of school finance reform, I conclude with the message that there is more research needed to determine if adequacy reforms have in fact been effective in providing better educational opportunities for students in poorer districts. Future studies should also examine exactly how adequacy reforms shifted funding formulas for all states, as Card and Payne (2002) and Hoxby (2001) do with previous reform periods. Additionally, if all states reported dropout rates in compliance with the

Common Core of Data standards, studies could measure whether adequacy reforms had an effect on high school completion for low-income students.

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Appendix

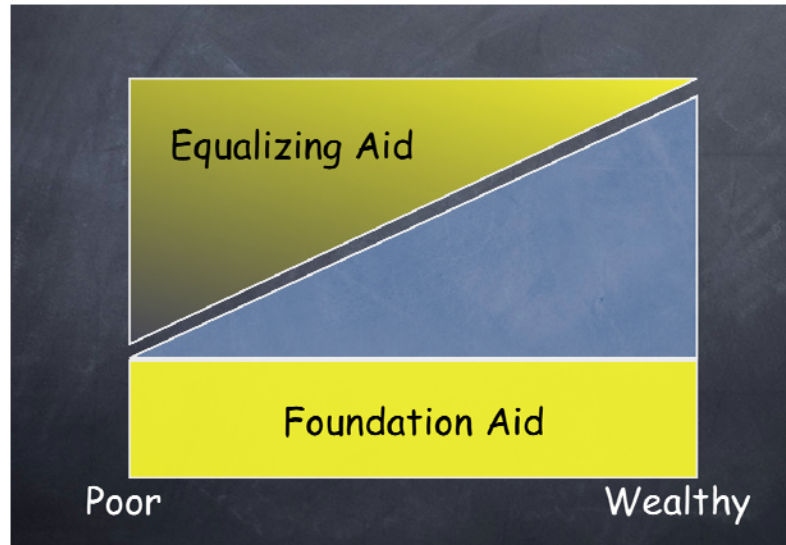


Figure 1. State Aid for Schooling, from Sipple (2009)

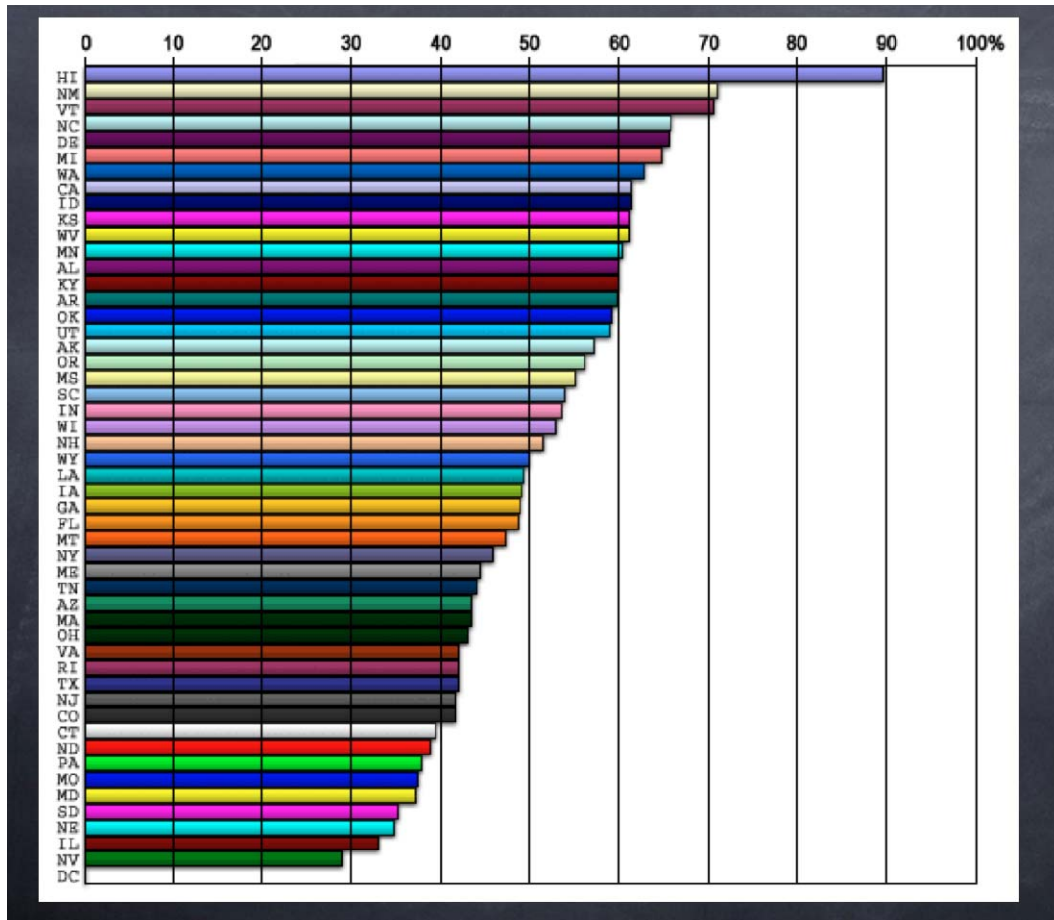
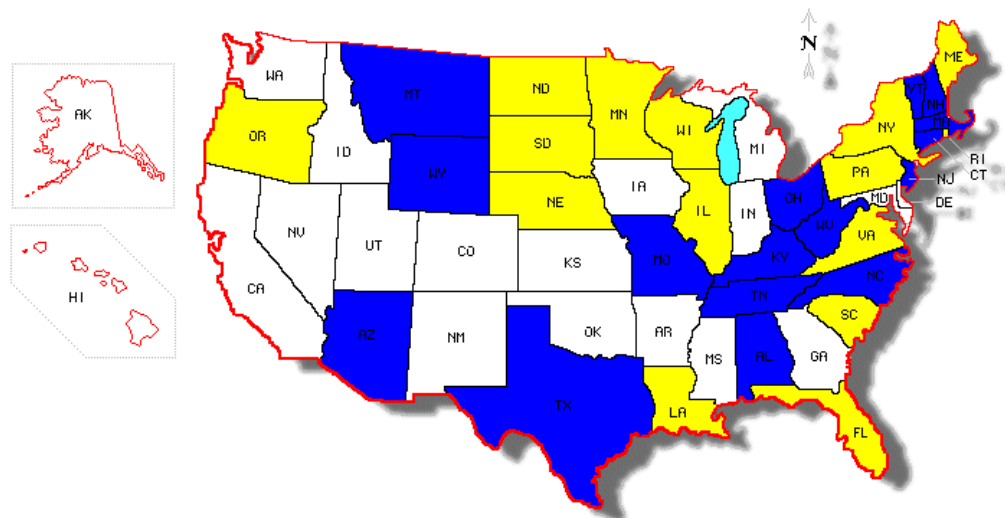


Figure 2. State Contributions to Education, from Sipple (2009)

School Finance Reform, 1989-1999

- - Reform
- - Upheld



3-19-10

Table 1: Average Median Income (in 2000 dollars), Standard Deviations in Parentheses

	Districts with court ordered reform in the 1990s	Districts where the system was upheld in the 1990s	No judicial decision in the 1990s
1990	\$44,091.90 (18,272.25)	\$43,546.63 (15,959.25)	\$39,944.11 (13,679.85)
2000	\$42,004.20 (17,727.01)	\$42,086.59 (15,396.08)	\$38,986.85 (13,663.90)

Table 2: Average Expenditures per Pupil (in 2000 dollars), Standard Deviations in Parentheses

	Districts with court ordered reform in the 1990s	Districts where the system was upheld in the 1990s	No judicial decision in the 1990s
1990	\$7,422.30 (4070.42)	\$7,510.67 (3634.12)	\$6,159.48 (3876.37)
2000	\$9,080.81 (4464.03)	\$9,459.70 (4241.47)	\$7,830.13 (2840.62)
Change	\$1,658.51	\$1,949.03	\$1,670.65
Percent Change	22.3%	26.0%	27.1%

Table 3: Average State Aid per Pupil (in 2000 dollars), Standard Deviations in Parentheses

	Districts with court ordered reform in the 1990s	Districts where the system was upheld in the 1990s	No judicial decision in the 1990s
1990	\$2,710.03 (1500.99)	\$2,807.63 (1547.94)	\$3,163.70 (2624.33)
2000	\$4,236.80 (2754.59)	\$4,090.25 (2173.43)	\$4,477.51 (1805.90)
Change	\$1,526.77	\$1,282.62	\$1,313.81
Percent Change	56.3%	45.7%	41.5%

Table 4: Average Effect of Income on Expenditures Per Pupil, Standard Deviations in Parentheses

	1990	2000	Change
All states	0.036 (0.041)	0.019 (0.043)	-0.017 (0.044)
Reform during 90s	0.035 (0.040)	0.029 (0.050)	-0.005 (0.058)
Upheld during 90s	0.051 (0.039)	0.021 (0.042)	-0.030 (0.035)
No case during 90s	0.025 (0.042)	0.007 (0.036)	-0.017 (0.036)

Table 5: Average Effect of Income on State Aid Per Pupil, Standard Deviations in Parentheses

	1990	2000	Change
All states	-0.033 (0.036)	-0.045 (0.044)	-0.012 (0.048)
Reform during 90s	-0.041 (0.055)	-0.041 (0.048)	0.000 (0.060)
Upheld during 90s	-0.033 (0.026)	-0.046 (0.026)	-0.013 (0.018)
No case during 90s	-0.025 (0.018)	-0.050 (0.055)	-0.024 (0.54)

With weights for number of pupils

Table 6: Average Effect of Income on Expenditures Per Pupil

	1990	2000	Change
All states	0.035 (0.048)	0.023 (0.039)	-0.011 (0.040)
Reform during 90s	0.036 (0.020)	0.024 (0.048)	-0.011 (0.044)
Upheld during 90s	0.045 (0.047)	0.029 (0.034)	-0.016 (0.036)
No case during 90s	0.025 (0.062)	0.018 (0.0360)	-0.007 (0.041)

Table 7: Average Effect of Income on State Aid Per Pupil

	1990	2000	Change
All states	-0.034 (0.034)	-0.043 (0.039)	-0.009 (0.035)
Reform during 90s	-0.042 (0.050)	-0.050 (0.045)	-0.008 (0.034)
Upheld during 90s	-0.037 (0.028)	-0.042 (0.023)	-0.006 (0.023)
No case during 90s	-0.026 (0.018)	-0.039 (0.046)	-0.013 (0.043)

School Finance Litigation Status, 1971-2000

REFORM	UPHELD	NO DECISION
Alabama	Colorado*	Delaware
Arizona	Florida	Indiana
Arkansas*	Georgia*	Iowa
California*	Idaho*	Mississippi
Connecticut	Illinois	Nevada
Kansas*	Louisiana	Utah
Kentucky	Maine	
Massachusetts	Maryland*	
Missouri	Michigan*	
Montana	Minnesota	
New Hampshire	Nebraska	
New Jersey*	New York	
North Carolina	North Dakota	
Ohio	Oklahoma*	
Tennessee	Oregon	
Texas	Pennsylvania	
Vermont	Rhode Island	
Washington *	South Carolina	
West Virginia	South Dakota	
Wyoming	Virginia	
	Wisconsin	

Sources: Card and Payne (2002), National Access Network (2008), Huang, Lukemeyer, and Yinger (2004), Gittell (1998)

(Asterisk indicates that court decision occurred prior to 1989).

**Changes in relationship between district median income and
expenditure/state aid per pupil, 1990-2000**

State	Change in relationship between district median income and expenditures per pupil, 1990-2000 ($\Delta\beta_1$)	Change in relationship between district median income and state aid per pupil, 1990-2000 ($\Delta\beta_2$)
Mean for All States	-0.011	-0.009
Alabama	0.012	-0.010
Arizona	-0.026	0.024
Arkansas	-0.013	-0.011
California	0.013	-0.007
Colorado	-0.012	0.024
Connecticut	-0.021	0.005
Delaware	0.005	-0.152
Florida	-0.050	0.040
Georgia	-0.046	0.003
Idaho	0.010	0.009
Illinois	-0.003	0.000
Indiana	-0.030	-0.026
Iowa	-0.001	-0.001
Kansas	-0.022	0.008
Kentucky	-0.023	-0.034
Louisiana	0.001	-0.037
Maine	-0.001	0.024
Maryland	-0.071	-0.014
Massachusetts	-0.033	-0.012
Michigan	0.006	0.056
Minnesota	-0.047	0.016
Mississippi	-0.044	-0.021
Missouri	-0.004	-0.017
Montana	-0.061	-0.021
Nebraska	0.053	-0.005
Nevada	0.132	-0.074
New Hampshire	-0.028	-0.006
New Jersey	-0.045	-0.032
New Mexico	-0.009	-0.005
New York	-0.048	-0.011
North Carolina	0.040	-0.008
North Dakota	-0.033	-0.003
Ohio	-0.016	-0.032
Oklahoma	-0.024	-0.010

Oregon	-0.022	-0.020]
Pennsylvania	-0.014	-0.019
Rhode Island	-0.041	-0.048
South Carolina	-0.053	0.015
South Dakota	0.067	-0.004
Tennessee	0.006	-0.003
Texas	0.009	-0.024
Utah	-0.011	0.020
Vermont	-0.013	0.0841
Virginia	-0.025	-0.016
Washington	-0.010	-0.017
West Virginia	-0.079	-0.070
Wisconsin	-0.031	-0.015
Wyoming	0.106	0.015

Effect of Reforms on Redistribution of Expenditures per Pupil and State Aid per Pupil

	1. Effect of Reform on Income-Spending Relationship	2. Effect of Reform on Income-State Aid Relationship
Z_n	0.005	-0.003
(Standard error)	(0.015)	(0.011)
P-value	0.737	0.797

Major School Finance Court Decisions 1971-1999

State	Court Case (Year)	Equity or Adequacy?	Outcome: Reform or Upheld?	Notes
Alabama	<i>Alabama Coalition for Equity, Inc. v. Guy Hunt</i> (1993) <i>Mary Harper Et Al. v. Guy Hunt</i> (1997)	Adequacy	Reform	Lower court ruled education system unconstitutional in 1993. In 1997, state supreme court gave legislature one year to reform system.
Arizona	<i>Roosevelt Elementary School District No. 66 v. Bishop</i> (1994)	Adequacy	Reform	Finance system ruled unconstitutional due to financing of facilities.
Arkansas	<i>Dupree v. Alma School District No. 30</i> (1983)	Equity	Reform before 1990	Led to finance equalization system. Another case tried in Chancery Court in the 1990s.
California	<i>Serrano v. Priest</i> (1971) <i>Serrano v. Priest II</i> (1976) <i>Serrano v. Priest III</i> (1986)	Equity	Reform before 1990	Known as the first big education finance case. <i>Serrano II</i> called for recapturing revenue from wealthy districts to be given to poor districts.
Colorado	<i>Lujan v. Colorado State Board of Education</i> (1982)	Equity	Upheld, before 1990	Court ruled that system of financing education did not violate equity clause and that the legislature had the role of setting policy.
Connecticut	<i>Horton v. Meskill</i> (1977) <i>Sheff v. O'Neill</i> (1996)	Equity (<i>Horton</i>) and Adequacy (<i>Sheff</i>)	Reform	Required a minimum level of expenditures. Subsequent cases have challenged <i>Horton</i> decision, but the CT Supreme Court has upheld this decision.
Delaware	No cases.	n/a	n/a	n/a

1. Classification between adequacy and equity follows sorting of West and Peterson (2007). Cases that were decided on elements of both adequacy and equity were categorized as adequacy.

Florida	<i>Coalition for Adequacy and Fairness in School Funding v. Childs</i> (1996)	Adequacy	Upheld	Ruled that finance system did not violate FL constitution.
Georgia	<i>McDaniel v. Thomas</i> (1981)	Adequacy	Upheld before 1990	Court ruled that fixing school finance was not a judicial decision, but suggested that legislative action.
Idaho	<i>Thompson v. Engelking</i> (1975)	Equity	Upheld, before 1990	Subsequent cases in the 1990s called for reform only for facilities portion of finance. Reform occurred in 2005 following <i>ISSEO v. State V.</i>
Illinois	<i>Committee for Educational Rights v. Edgar</i> (1996), <i>Lewis E. v. Spagnolo</i> (1999)	Adequacy	Upheld	Court ruled that the legislature and not the judicial system should be involved in reforming school finance.
Indiana	Case was withdrawn	n/a	n/a	n/a
Iowa	No cases.	n/a	n/a	n/a
Kansas	<i>Knowles v. State</i> , (1976) <i>Unified School District No. 229 v. State</i> (1994)	Equity	Reform, before 1990	<i>Unified</i> upheld previous reforms
Kentucky	<i>Rose v. Council for Better Education</i> (1989)	Adequacy	Reform	Considered first big adequacy case. Called for a “sufficient” education.

Louisiana	<i>Charlet v. Legislature of the State of Louisiana</i> (1998)	Adequacy	Upheld	Louisiana Supreme Court ruled that state met the minimum threshold guaranteed through the state constitution.
Maine	<i>Maine School Administrative District (MSAD) No. 1 v. Commissioner</i> (1995)	Equity	Upheld	Court decided that funding did not violate state laws on equity grounds.
Maryland	<i>Hornbeck v. Somerset County Board of Education</i> (1983)	Equity	Upheld before 1990	Court rejected plaintiff's equity claims.
Massachusetts	<i>McDuffy v. Secretary</i> (1993)	Adequacy	Reform	MA required to fund difference between district foundation budget and local contributions for low-wealth districts.
Michigan	<i>Milliken v. Green</i> (1973)	Equity	Upheld, before 1990	State supreme court found that finance system did not violate 14 th amendment
Minnesota	<i>Skeen v. State</i> (1993)	Equity	Upheld	Overturned district court ruling that school finance violated state constitution
Mississippi	No cases.	n/a	n/a	n/a
Missouri	<i>Committee for Educational Equity v. State</i> (1996)	Adequacy	Reform	Circuit court case which called for legislative reform which was later upheld by state supreme court
Montana	<i>Helena Elementary School District No. 1 v. State</i> (1989)	Equity	Reform	Legislature responded by reallocating taxes

Nebraska	<i>Gould v. Orr</i> (1993)	Adequacy	Upheld	Court ruled no cause of action and rejected challenge to finance system
Nevada	No cases.	n/a	n/a	n/a
New Hampshire	<i>Claremont School District I v. Governor</i> (1993) <i>Claremont II v. Governor</i> (1997) <i>Claremont III v. Governor</i> (1999)	Adequacy	Reform	Court ruled that education clause in state constitution required funding of an adequate education
New Jersey	<i>Robinson v. Cahill</i> , (1973), <i>Abbott v. Burke</i> (5 cases, latest in 1998)	Equity (<i>Robinson</i>) Adequacy (<i>Abbott</i>)	Reform	<i>Abbott</i> led to further revision of financing system on adequacy grounds
New Mexico	No cases.	n/a	n/a	n/a
New York	<i>Board of Ed. Levittown v. Nyquist</i> (1982) <i>Reform Educational Financing Inequities Today (REFIT) v. Cuomo</i> (1995) <i>Campaign for Fiscal Equity v. New York</i> (1995)	Equity (<i>Levittown</i> and <i>REFIT</i>) Adequacy (<i>Campaign for Fiscal Equity</i>)	Upheld	Ruled that New York's constitution did not guarantee equal funding. Opened the door for adequacy decisions that came after 2000.

North Carolina	<i>Leandro v. State</i> (1997)	Adequacy	Reform	Earlier equity case (<i>Britt v. North Carolina</i> , 1987) had been dismissed. This case focused on adequacy.
North Dakota	<i>Bismarck Public School District No. 1 v. State</i> (1994)	Equity	Upheld	Majority of state supreme court justices ruled that school finance system was unconstitutional but fell short of required supermajority
Ohio	<i>DeRolph v. State</i> (1997)	Adequacy	Reform	Ruled state's system of financing education was unconstitutional
Oklahoma	<i>Fair School Finance Council of Oklahoma v. State</i> (1987)	Equity	Upheld before 1990	Court ruled that limits on property taxes that prevented poor districts from raising funds were constitutional
Oregon	<i>Olsen v. State</i> (1976), <i>Coalition for Equitable School Funding v State</i> (1991) <i>Withers v State</i> (1995)	Equity (<i>Olsen</i>) Adequacy (<i>Coalition</i>)	Upheld	Upheld funding system as constitutional
Pennsylvania	<i>Marrero v. Commonwealth</i> (1997) <i>Pennsylvania Association of Rural and Small Schools v. Casey</i> (1998)	Adequacy (<i>Marrero</i>) Equity (<i>Pennsylvania Association</i>)	Upheld	Dismissed adequacy and equity suits.
Rhode Island	<i>City of Pawtucket v. Sundlun</i> (1995)	Adequacy	Upheld	Court ruled that legislature, not courts, were responsible for fixing problems with school finance.

South Carolina	<i>Richland v. Campbell</i> (1988) <i>Abbeville County School District v. State</i> (1999)	Equity (<i>Richland</i>) Adequacy (<i>Abbeville</i>)	Upheld	Upheld South Carolina's school finance system as constitutional
South Dakota	<i>Bedzichek v. State</i> (1994)	Adequacy	Upheld	Circuit court upheld constitutionality of finance system, plaintiff did not appeal.
Tennessee	<i>Tennessee Small School Systems v. McWherter</i> (1993)	Equity	Reform	Ruled that education system violated equal protection clause in TN constitution
Texas	<i>Edgewood Independent School District v. Kirby</i> (1989)	Equity	Reform	Found that education finance system violated education clause in state constitution
Utah	No cases.	n/a	n/a	n/a
Vermont	<i>Brigham v. State</i> (1997)	Equity	Reform	State ruled school funding system unconstitutional
Virginia	<i>Scott v. Commonwealth</i> (1994)	Equity	Upheld	Court ruled that school finance issues should be handled by the legislature, not the courts
Washington	<i>Northshore School District No. 417 v. Kinnear</i> (1974) <i>Seattle School District No. 1 v. State</i> (1978)	Equity (<i>Northshore</i>) Adequacy (<i>Seattle</i>)	Reform before 1990	Led to requirements of a per capita funding formula
West Virginia	<i>Pauley v. Bailey</i> , (1984) <i>Tomblin v. Gainer</i> (1995)	Adequacy	Reform	<i>Pauley</i> found system unconstitutional, <i>Tomblin</i> led to decision that state still needed to do more

Wisconsin	<i>Kukor v. Grover</i> (1989)	Equity	Upheld	Ruled that funding system did not violate equal protection and education clauses in WI constitution
Wyoming	<i>Washakie County School District v. Herschler</i> (1980) <i>Campbell County School District v. State</i> (1995)	Equity (<i>Washakie</i>) Adequacy (<i>Campbell</i>)	Reform	Ordered legislature to define “proper education” and to devise a formula that would guarantee funding for every child to receive a proper education.

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