

School Financing Lawsuits: The Way out of the Fog or Just Blowing Smoke?

Abstract

For thirty years, school financing lawsuits have been a tool for educational equality and adequacy. This study examines whether such successful lawsuits are statistically significant predictors of increased educational achievement by comparing states that have had such lawsuits with those that have not. The results are decidedly neutral: lawsuits are not (yet) an effective predictor of increased student achievement or a narrower achievement gap. This could be for three reasons: state legislatures have reacted to the lawsuits in wildly varying ways, remedies have not had time to work, and the lawsuits focus too much on money alone.

Introduction

In 1973, the Supreme Court of the United States held in *San Antonio Independent School District v. Rodriguez* that there is no federal, constitutional right to education.¹ In the wake of *Rodriguez*, school districts and civil rights groups nationwide began to file cases in state courts based on state constitutional provisions. From the beginning, *Rodriguez* and its state-level kin were brought in order to help close the achievement gap between largely white suburban children and poor, inner-city or rural, mostly minority students. In recent years, as cases have shifted to focus on educational adequacy, the aim has become to improve achievement for all students. Now, more than twenty years and millions of dollars in litigation costs later, it is time to examine whether this strategy works. Given that children's advocates had such great hopes for the "right to education" as a means of improving education, it is now crucial to investigate whether such hopes were well-founded. So, has the achievement gap narrowed or student achievement risen more sharply in states with court-adjudicated constitutional rights than in states without them?

¹ 411 U.S. 1, 35 (1973).

In short, no. Merely having an adjudicated right to education is not a statistically significant predictor of larger growth in student achievement or of more narrowing of the achievement gap for any group of students. The one exception is that growth for the inclusive group of “all students” on the eighth grade math test was higher in “rights” states (significant at the 0.10 level in all three analyses, see Chart 2 and Tables 4 & 5). The regressions, even with multiple variables, were rarely effective in explaining more than half of the variation between states except for in the Latino-white gaps (see Table 6), but this could be due to the small number of observations in this category.

Background

The state cases filed since the 1970s all aimed to change state funding structures that disadvantaged racial and economic minorities, and they fell along two lines of argument: disparate funding among districts violated the state’s equal protection guarantees and the funding system prohibited students in low-wealth districts from receiving an adequate education, respectively referred to as equality and adequacy claims. To date, there have been 11 successful equality claims and 20 successful adequacy claims covering 25 total states.² While there are significant differences in the legal bases and policy implications of equality and adequacy cases, this analysis treats them the same to provide an adequate sample size.

The continued or renewed pursuit of victory in these cases is a key tool in the fight for improving educational access and opportunity for students concentrated in low-wealth areas and underperforming schools. Effective tools are desperately needed given how stark the achievement gaps were and how wide they remain. In 1973, the gap in math scores between white students and black and Latino students respectively was 35 and 23 points for nine-year-

² Nat’l Access Network, Teachers’ Coll., Columbia Univ., <http://www.schoolfunding.info/litigation/litigation.php3> (last visited May 29, 2007). Adequacy states include Alaska, Arizona, Arkansas, Kansas, Kentucky, Maryland, Massachusetts, Missouri, Montana, New Hampshire, New Jersey, New York, North Carolina, Ohio, South Carolina, Texas, Vermont, Washington, West Virginia and Wyoming. Equality states include Alabama, Arizona, Arkansas, California, Connecticut, Missouri, Montana, New Hampshire, New Mexico, Tennessee, and Wyoming.

olds, 46 and 35 points for thirteen-year-olds, and 40 and 33 points for seventeen-year-olds.³ In 1975, the gap in reading scores between white students and black and Latino students respectively was 35 and 34 points for nine-year-olds, 36 and 30 points for thirteen-year-olds, and 52 and 41 points for seventeen-year-olds.⁴ In recent years, these gaps have narrowed some but remain troubling.⁵

There is substantial debate in the literature regarding whether increased funding will improve student achievement.⁶ Because school funding lawsuits focus on additional money as the remedy for poor educational outcomes, they have been criticized along the same lines.⁷ Much of this debate centers on evidence that a great deal of students' achievement is determined by their home environments and schools have little opportunity to impact students, particularly in reading.⁸ However, there are no published studies reporting the differences in student achievement based on a state's educational rights status.

Because all states have experienced growth in student scores and a narrowing of the achievement gaps, I compared the rates of change between states on the basis of their rights status to isolate the effects of the court decision.

Data

I examined data from the National Assessment of Educational Progress (NAEP) for 1992 and 2005 at the state level.⁹ This data consists of a randomized sample from public schools in states that elected to participate each year. The Institute for Education Sciences at the U.S.

³ INST. FOR EDUC. SCIS., U.S. DEP'T OF EDUC., NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (1996).

⁴ *Id.* The mean test scores are in the mid-200s, and these differences represent about one standard deviation.

⁵ In 2005, the gap was around 0.7 standard deviations. *Id.*

⁶ See, e.g., Eric A. Hanushek, *The Impact of Differential Expenditures on School Performance*, 18 EDUC. RESEARCHER 45, 47 (1989).

⁷ See Michael Heise, *State Constitutional Litigation, Educational Finance, and Legal Impact: An Empirical Analysis*, 63 U. CIN. L. REV. 1735 (1995).

⁸ See generally JAMES COLEMAN ET AL., EQUALITY OF EDUCATIONAL OPPORTUNITY SURVEY (1966).

⁹ Data is available from the Institute for Education Sciences, U.S. Department of Education, at www.nces.ed.gov/nationsreportcard/. 1992 is the first year for which state-level data is available.

Department of Education creates and administers the tests and maintains the data, which is publicly available. The NAEP was created in the early 1970s to provide an accurate picture of student achievement in America. 1992 was the first year data were reported at the state level. Because it is criterion referenced and consistent across states and over time, it is widely regarded as the gold standard for measuring student achievement. It is also the only such consistent exam that employs random sampling to provide an accurate picture of the academic health of all students.¹⁰ In 1992 Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington did not participate on a large enough scale to provide state-level data. In 2005, all states participated. I used data for the fourth grade reading and math and eighth grade math tests because those were the available data from 1992. In each case, the unit of analysis is the state because the scores reported by IES are the mean scores for the relevant students in the state's sample.

I converted raw data into growth scores by calculating the difference between 2005 and 1992. I examined data for all students and students grouped by ethnicity (white, black, and Latino). Since not all states reported data for all ethnic groups, there are additional missing variables in each of these categories (see Table 2). Additionally, I calculated the narrowing of the black/white and Latino/white gaps by subtracting the minority group's mean score from the mean score for whites in each year and then finding the difference over time. These procedures created a total of eighteen dependent variables, six for each of the three tests.

In the twenty-five states that have had some form of court-required funding change, the mean year that such changes were implemented was 1997, the median year was 1998, and seventeen states implemented their changes between 1992 and 2006, with four having implemented changes earlier, two implementing them in 2006, and three without changes to date. However, because the quality of the changes implemented by each state varies greatly, the state's status as having had or not having had a successful educational rights lawsuit is a more

¹⁰ For example, some researchers use S.A.T. data, but the sample of students taking that test is highly self-selective and thus provides a poor measure by which to compare student groups over time or between states.

Table 1: Successful lawsuits by state

State	Type of suit	Year of decision	Code	State	Type of suit	Year of decision	Code
Alabama	Equity	1993	Yes	Nebraska			No
Alaska	Adequacy	2001	Yes	Nevada			No
Arizona	Both	1994	Yes	New Hampshire	Both	1993(a) 1997(e)	Yes
Arkansas	Both	1983(e) 2001(a)	Yes	New Jersey	Adequacy	1994	Yes
California	Equity	1971	No	New Mexico	Equity	1973	No
Colorado			No	New York	Adequacy	2003	Yes
Conneticut	Equity	1977	No	North Carolina	Adequacy	2004	Yes
Deleware			No	North Dakota			No
Florida			No	Ohio	Adequacy	1997	Yes
Georgia			No	Oklahoma			No
Hawaii			No	Oregon			No
Idaho			No	Pennsylvania			No
Illinois			No	Rhode Island			No
Indiana			No	South Carolina	Adequacy	2005	No
Iowa			No	South Dakota			No
Kansas	Adequacy	2003	Yes	Tennessee	Equity	1993	Yes
Kentucky	Adequacy	1989	No	Texas	Adequacy	1989	No
Louisiana			No	Utah			No
Maine			No	Vermont	Adequacy	1997	Yes
Maryland	Adequacy	1996	Yes	Virginia			No
Massetcucetts	Adequacy	1993	Yes	Washington	Adequacy	1978	No
Michigan			No	West Virginia	Adequacy	1996	Yes
Minnesota			No	Wisconsin			No
Mississippi			No	Wyoming	Both	1995	Yes
Missouri	Both	1993	Yes				
Montana	Both	1989(e) 2005(a)	No				

discrete variable. Therefore, I coded each state as either a rights or no-rights state on the basis of court decisions. The seventeen states coded as rights states all had court decisions on the merits¹⁰ of the cases between 1992 and 2005. These decisions were either from the state's highest court or were settled or mooted before the appeal was complete.¹¹

¹⁰ Procedural and interlocutory decisions, such as those that verify that a state's constitution grants a right to education, were not considered because they do not answer the critical question of whether the plaintiff students actually received an inadequate or unequal education.

¹¹ In some states, like West Virginia, the trial court decided that the state's funding system was inadequate but before the state's highest court could affirm or reserve that decision, the legislature acted in response to the lower court's verdict thereby making the controversy moot and ending the appeal.

Table 2: Descriptive statistics for dependent variables: growth in mean NAEP score from 1992-2005

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
4th grade math scores					
All students	41	18.32	4.66	9	28
White students	41	18.76	4.15	9	27
Black students	34	24.47	5.56	11	35
Narrowing of the black-white gap	34	5.03	4.08	-3 ¹²	12
Latino Students	20	21.40	5.52	13	29
Narrowing of the Latino-white gap	20	2.70	4.34	-6	11
4th grade reading scores					
All students	41	2.61	4.27	-6	13
White students	41	4.49	4.31	-4	14
Black students	34	4.24	5.68	-7	18
Narrowing of the black-white gap	34	-0.88	4.52	-12	8
Latino Students	20	6.75	8.23	-5	24
Narrowing of the Latino-white gap	20	1.85	7.32	-9	18
8th grade math scores					
All students	41	10.54	5.37	1	24
White students	41	12.00	5.07	2	26
Black students	31	14.71	6.11	1	26
Narrowing of the black-white gap	32	1.41	4.59	-8	16
Latino Students	16	13.19	7.32	2	26
Narrowing of the Latino-white gap	16	2.25	5.09	-6	11

Data source: National Assessment of Educational Progress

To isolate the effect of the court decision, I used four other independent variables: log of growth in per capita annual income, log of growth in per pupil spending, the proportion of education funding provided by the state, and prior per pupil spending.

For the first variable, the log of growth in annual per capita personal income for each state, the raw data came from the 1992 and 2005 State Personal Income analyses from the Bureau of Economic Analysis. This data is collected through a variety of measures and includes all income received by residents of each state divided by the number of residents therein. These data are the standard used by federal government agencies and researchers to make

¹² A negative number in narrowing of the gap indicates that the gap between mean scores for the two student groups grew during the time period rather than shrank.

Table 3: Descriptive statistics for independent variables

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Equity or adequacy suit between 1992 and 2005	50	0.34	0.48	0	1
Change in median income, 1992-2005, log	50	9.49	0.17	8.97	9.85
Change in per pupil spending, 1992-2004, log	50	7.92	0.30	7.13	8.53
State share of education spending, 1992	50	0.48	0.15	0.09	0.90
Average annual per pupil spending, 1988-1992, in thousands	50	5.39	1.41	3.08	9.30

Source: Income data from State Personal Income Reports, Bureau of Economic Analysis; education funding data from Common Core of Data, National Center for Education Statistics

interstate comparisons regarding the economic well-being of the states and regions.¹³ The calculated variable controls for differences in prices and cost-of-living between states because it shows proportional growth over the period of study. If educational achievement is a normal good that can be purchased, there should be an income effect whereby increased income is accompanied by increased educational attainment.

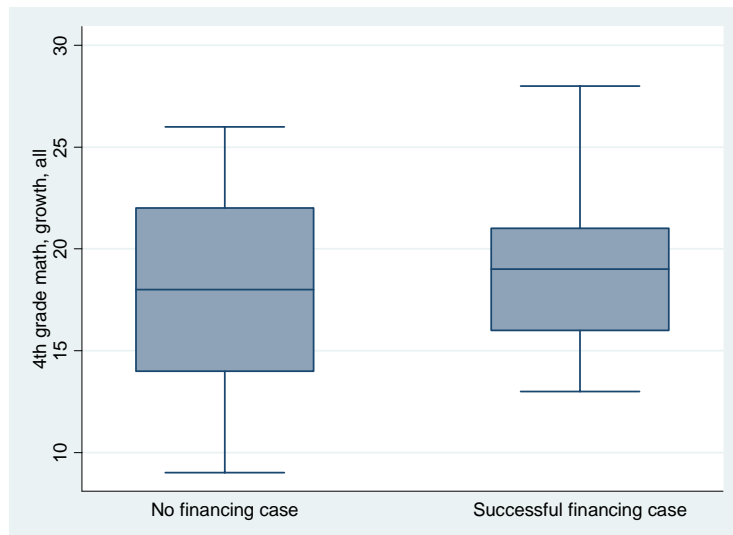
The other independent variables were computed from data in the Common Core of Data compiled by the National Center of Education Statistics. Per pupil spending is the critical confounding variable for two reasons: first, increased spending is the key outcome of education financing lawsuits; second, because educational inputs cost money, it makes sense that more money can buy more education. This variable is a calculated average equal to total state current expenditures on education divided by the total number of students enrolled in the public school system for the year. The logged variable is the natural log of the difference in 2004¹⁴ and 1992 data to provide an adjusted figure that focuses on growth.

¹³ BUREAU OF ECON. ANALYSIS, SPI METHODOLOGY: INTRODUCTION (2005), *available at* <http://www.bea.gov/regional/pdf/spi2005/01%20Introduction.pdf>

¹⁴ This is the most recent year for which CCD data is available.

The proportion of funding provided by the state is a measure of how centralized education financing is in each state. The data come from 1992 as a baseline. This is an important control variable because the more centralized the funding is, the more impact a court decision focused at the state level can have. Finally, prior spending is the average annual per pupil spending from 1988-1992 in thousands and is designed to control for different preferences between states for education. That is, a state that “prefers” more education would have higher spending levels throughout, including in the period before the study.

Chart 1: Growth in mean score for all students on the 4th grade math test by state’s rights status



Data source: National Assessment of Educational Progress

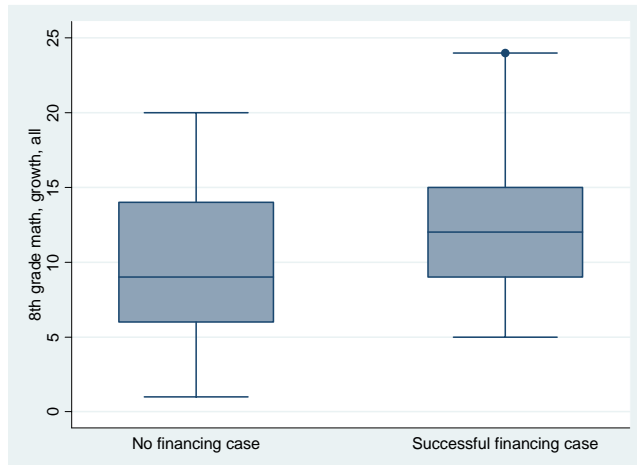
Analysis

At first glance, the data seem to show that rights states had more growth in student achievement than no-rights states (see Chart 1). However, on further examination, the differences between the types of states were rarely statistically significant.

I conducted two types of statistical analysis on each of the eighteen variables studied. The first analysis was a difference in difference analysis for the mean growth in scores or narrowing in a gap between rights and no-rights states. For the majority of variables, the difference is in the expected direction: rights states had higher growth and more narrowing of the

gaps than did no-rights states (see Chart 2 and Table 4). In only one case, however, was this difference statistically significant at the 10% level: eighth grade math scores for all students. This is an interesting result because none of the ethnic sub-groups had significant results; it is unclear what is influencing this result at the aggregate level.

Chart 2: Growth in mean score for all students on the 8th grade math test by state's rights status



Data source: National Assessment of Educational Progress

In the fourth grade reading scores, scores for white and black students grew less in rights states than in no-rights states. In general, the differences between rights and no-rights states as well as the size of the point growths in each state were smaller for the reading test than for either of the math tests, including more negative entries (i.e., cases where 2005 scores were lower than 1992 scores). This may reflect the fact that reading achievement is more influenced by home environments and is therefore harder for schools to influence.¹⁵

The second type of analysis I performed was a graduated series of linear regressions using all five independent variables (sample results in Tables 5 & 6).¹⁶ From a total of 90 regressions, only seven explained more than half the variation between the types of states (i.e., $R^2 > 0.50$), and in many cases, the regression explained less than 10% of the difference. A state's

¹⁵ See COLEMAN, *supra* note 8.

¹⁶ For consistency with the other growth variables, the dependent variables here were the log of the score growth variables used in the diff-in-diff analysis. The results (in terms of R^2 and significance) were not particularly different with the non-logged variable. These tables are representative of the overall results. Full results are reported in the Appendix.

Table 4: Difference in score growth between rights and no-rights states¹⁷

4th grade math scores			
Dependent variable	Diff. in Means ¹⁸	Std. Dev.	P-value
All students	-1.58	1.47	0.15
White students	-1.13	1.40	0.21
Black students	-1.21	1.81	0.26
Narrowing of the black/ white gap	-0.47	1.48	0.38
Latino Students	-3.00	2.73	0.15
Narrowing of the Latino/ white gap	-2.81	2.48	0.15
4th grade reading scores			
Variable	Diff. in Means	Std. Dev.	P-value
All students	-0.27	1.32	0.42
White students	0.20	1.38	0.56
Black students	0.89	1.82	0.69
Narrowing of the black/ white gap	1.38	1.62	0.80
Latino Students	-1.79	4.75	0.36
Narrowing of the Latino/ white gap	-1.64	4.45	0.36
8th grade math scores			
Variable	Diff. in Means	Std. Dev.	P-value
All students	-2.77	1.71	0.06*
White students	-1.95	1.67	0.13
Black students	-1.43	2.38	0.28
Narrowing of the black/ white gap	0.12	1.92	0.52
Latino Students	-4.67	4.40	0.16
Narrowing of the Latino/ white gap	-2.26	3.09	0.25

Data source: National Assessment of Educational Progress

status was a statistically significant predictor of score growth in only a handful of cases, mostly from the eighth grade math test. Again, the results for all students on the eighth grade math test were significant at the 10% level in four out of five regressions. The narrowing of both racial gaps

¹⁷ In all analysis tables, *p<.10, **p<.05, ***p<.01

¹⁸ A negative number here indicates that rights states had more growth than no-rights states; a positive number indicates the opposite.

was significant at the 5% level in the regression without additional variables, but that significance disappeared for the black/white gap and was reduced to the 10% level for the Latino-white gap when the income variable was added.

Table 5: Regression results for 8th grade math scores, All students

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .08	2.059 (0.123)	0.376* (0.211)				
R ² = .08	4.558 (5.271)	0.394* (0.217)	-0.264 (0.557)			
R ² = .08	3.85 (5.65)	0.39* (0.22)	-0.31 (0.58)	0.15 (0.39)		
R ² = .09	5.69 (6.63)	0.38 (0.22)	-0.47 (0.66)	0.14 (0.39)	-0.45 (0.83)	
R ² = .13	12.95 (8.71)	0.39* (0.22)	-1.08 (0.81)	-0.17 (0.46)	-0.25 (0.84)	0.15 (0.12)

Data source: National Assessment of Educational Progress

The state's status was significant at the 5% level in narrowing the Latino-white gap in both fourth grade tests. On the math test, it was significant in the regression without additional variables, and on the reading test, it was significant in the regression including all the variables which explained nearly all the variation (90%), however it had a negative coefficient. In fourth grade reading scores, the prior spending variable was significant twice: at the 5% level for all students and at the 1% level for the Latino-white gap.

Table 6: Regression results for 4th grade reading scores, Latino-white gap

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .03	1.37 (0.41)	0.42 (0.78)				
R ² = .05	-9.46 (24.96)	0.20 (0.96)	1.14 (2.62)			
R ² = .51	-24.55 (20.16)	-0.42 (0.78)	1.01 (2.02)	2.07 (0.82)		
R ² = .53	-35.29 (29.99)	-0.43 (0.83)	2.02 (2.92)	2.11* (0.87)	1.45 (2.84)	
R ² = .90	4.58 (17.37)	-1.27** (0.45)	-1.30 (1.63)	0.37 (0.58)	2.48 (1.43)	0.86*** (0.20)

Data source: National Assessment of Educational Progress

Income growth and spending growth were each significant once. For the Latino-white gap on fourth grade math test, income growth was significant at the 5% level in the second regression (two independent variables). For white students on the fourth grade reading test, spending growth was significant at the 10% level in the regression with all the variables, but it had a negative coefficient.

Discussion

At this point in time, it does not appear that a state's having had a successful educational rights lawsuit is a strong predictor of improved achievement for any group of students and there is no discernable causal effect. The lack of a strong correlation between a state's rights status and its students' growth in achievement is likely due to the insensitivity of the status variable, and could also be explained by the effect of time and the impact of money. First, among the states with successful lawsuits, there is substantial variation in how the suit has translated into policy change. For example, in Massachusetts, the state legislature enacted a sweeping reform act less than a week after the state supreme court found the current funding system unconstitutional.¹⁹ From 1992 to 2004, per pupil funding nearly tripled in the state's highest poverty districts.²⁰ On the other hand, Ohio has suffered a ten-year series of five supreme court decisions with no legislative action of note.²¹ In this study, however, both Ohio and Massachusetts were considered rights states. Because the status variable does not capture these differences, the non-significant results likely have a high degree of internal validity. That is, these results are probably accurate given what was measured.

Because of the variable's insensitivity, however, these results should not be generalized without caution. That is, simply because there is not a statistically significant difference in differences does not mean that an educational rights lawsuit is not a useful tool for advocates. While the comparison of group means showed no significant differences among the types of

¹⁹ *McDuffy v. Sec'y of Executive Office of Educ.*, 615 N.E.2d 516, 555 (Mass. 1993).

²⁰ See NAT'L CENTER FOR EDUC. STATISTICS, COMMON CORE OF DATA (1992 & 2004).

²¹ See Nat'l Access Network, *supra* note 2.

states, in each data set, there were a few states that outperformed the national average mean improvement for each ethnic group. While only 40% of states had implemented educational changes by 2005 because of educational rights cases, 80% of the states that outperformed the means for every ethnic group were rights states.

In fourth-grade math, the five outperforming states were California (Y),²² Maryland (Y), New York (Y), Rhode Island (N), and Texas (Y). In fourth-grade reading, the six outperforming states were California (Y), Florida (N),²³ Maryland (Y), Massachusetts (Y), New York (Y), and Texas (Y). In eighth-grade math, the four outperforming states were Florida (N), Massachusetts (Y), New Jersey (Y), and Texas (Y). California, Florida, Maryland, Massachusetts, and New York appear twice in this list while Texas appears in all three data sets. While this is an obviously small set of data points, the disproportionate representation of educational rights states may indicate a more nuanced picture of the role of such rights in improving educational outcomes.

Since the dependent variable here was admittedly crude, more sensitive status variables might show significant differences among states. Such variables include how long the legislature waited to enact a change, the percentage increase in per pupil funding for the highest poverty districts, and the existence of a follow-up lawsuit alleging non-compliance.

Second, because the court cases and the implementation of their remedies take considerable time and because education is a complex process that is difficult to change overnight, the lack of time between many decisions and the 2005 NAEP could also explain why rights status was not a statistically significant predictor of improved achievement. It is not

²² California was coded as a no-rights state in this study because the date of its decision in *Serrano v. Priest*, 5 Cal.3d 584 (1971), significantly predated the period of study, and a subsequent case, *Williams v. California*, was settled in late 2004, without time to impact the 2005 test scores. It is however, noted as a “yes” here because these cases have had an important impact on the financing of education in the state.

²³ The Florida Supreme Court decided in favor of the state in the 1996 case, *Coalition for Adequacy and Fairness in School Funding v. Chiles*, 680 So. 2d 400 (Fla. 1996), which held that there were no judicially manageable standards for interpreting adequacy through the state’s constitution. In 1998, however, voters approved a ballot referendum amending the state’s constitution to include strong educational rights language. See FLA. CONST. art. IX, §1 (“It is . . . a paramount duty of the state to make adequate provision for the education of all children . . . by law for a uniform, efficient, safe, secure, and high quality system of free public schools that allows students to obtain a high quality education.”).

uncommon for a suit to be filed on behalf of grade school students and not be settled by the state's highest court until well after those students have grown up. In the seventeen states that have implanted changes following a court case, each case was decided by the state's highest court an average of three times, with each iteration of remand and appeal taking three to six years. For example, in North Carolina, the case was filed in 1994, the first decision by the state supreme court came in 1997 with a follow-up decision in 2004, and the case is still pending on remand in the Wake County Superior Court.²⁴ Likewise, in Ohio, the case was filed in 1992, first decided by the state supreme court in 1997,²⁵ with follow-up decisions in 2000,²⁶ 2001,²⁷ 2002,²⁸ and 2003,²⁹ yet no remedy has been implemented.³⁰ While the 1990s saw a large wave of successful educational rights suits, the remedies for these cases are only just now being implemented. Only eight of the states that have implemented remedies (less than half) did so more than five years before the 2005 round of NAEP testing.

In some states, the reluctance of the legislature to implement reforms has led to measures more drastic than simply doing nothing. For example, in Idaho where a 1997 case, *Idaho Schools for Equal Educational Opportunity v. Evans*,³¹ required the state to spend additional money to upgrade the facilities in low-wealth districts, the legislature passed a law in 2003 to bar the state courts from exercising jurisdiction over education financing cases. This law was later found unconstitutional,³² but the two years spent evaluating this new law was two years the state delayed implementing remedies.

Even after a state does implement changes in response to a court decision, those changes could take several years to appear as improvements in test scores because education is

²⁴ *Leandro v. State*, 488 S.E.2d 249 (N.C. 1997); *Hoke County v. State*, 599 S.E.2d 365 (N.C. 2004).

²⁵ *DeRolph v. State*, 677 N.E.2d 733 (1997).

²⁶ *DeRolph v. State*, 728 N.E.2d 993 (Ohio 2000)

²⁷ *DeRolph v. State*, 754 N.E.2d 1184 (Ohio 2001)

²⁸ *DeRolph v. State*, 780 N.E.2d 529 (Ohio 2002)

²⁹ *State v. Lewis*, 789 N.E.2d 195 (Ohio 2003)

³⁰ See *Nat'l Access Network*, *supra* note 2.

³¹ 850 P.2d 724 (Id. 1997).

³² *ISEEO v. State*, 97 P.3d 453 (Id. 2004).

a complex process. New laws must be translated into regulations and policies in each school district, which then must train its teachers and administrators on how to use the new resources. Teachers in turn must then translate that training into changes in their classrooms from which students hopefully benefit. It then takes time for momentum to gather around the new reforms before results finally show up in the scores. This process can take longer depending on what the remedy requires. For example, a new law that requires the adoption of research-based reading programs will take several years to implement because such programs have to be identified and evaluated and then program purveyors must participate in a competitive bid process even before teacher training can begin. The federal No Child Left Behind law also recognizes the delay of impact for new policies by requiring six years of failing marks before implementing serious consequences like reconstitution or new management for schools.³³

Of the six states that showed up repeatedly in the analysis of states that outperformed the improvement means for each racial group, four were education rights states. The year changes were implemented in those states is as follows: California 1986, Maryland 1996, Massachusetts 1993, and Texas 1993. In each case, these remedies were enacted almost a decade or more before the final round of tests, giving the remedies plenty of time to work. As more time passes and states and districts have the full opportunities to implement court ordered remedies, it would not be surprising if scores in other education rights states show a similar trend.

Although, as the story in California shows, remedies need to be reexamined over time. In 1986, nearly all districts in California were spending within \$100 per pupil of the state average. However, in 2004, when a new case was settled by the state, some districts were spending nearly double what others were and the poorest districts had been unable to keep pace with rising prices (especially for salaries and real estate and construction) and were found to be providing an inadequate education in terms of facilities, materials, and full staffing.³⁴

³³ No Child Left Behind Act, 20 U.S.C. §§ 6301 et seq. (2002).

³⁴ Nat'l Access Network, *supra* note 2 (explaining the settlement in *Williams v. State*).

Because Texas outscored the mean for all racial groups in all data sets, its experience may be instructive. The Texas case, *Edgewood Independent School District v. Kirby*,³⁵ was decided in 1989, earlier than most other adequacy cases, and in the early 1990s, the Texas legislature changed the state's school funding formula three times, giving more money to low-wealth schools each time.³⁶ The mid-1990s were also a time of substantial education reform in Texas with the implementation of a two new testing regimes, the first in 1991 (Texas Assessment of Academic Skills) and the second in 2003 (Texas Assessment of Knowledge and Skills). The test was changed to more accurately reflect the curriculum standards for high school, to include more writing, and to test younger students more reliably in order to end the practice of social promotion.³⁷ That it took twelve years to work out an effective system of assessment is indicative of the trickle-down effect of education reform. Taken together, the recentness of decisions and the delayed effect of reform could help explain why few significant differences were observed between the rights and no-rights states.

Third, state courts in educational rights cases have rather oddly constrained themselves to ordering the state to spend more money on low-wealth schools, and there is much debate in educational research as to whether more money is a good solution. While a few cases have set standards to define a constitutionally adequate education,³⁸ all mandated remedies have involved requiring state legislatures to spend more money on low-wealth districts or at-risk students.³⁹ The courts, often on the third or fourth appeal of a case, have frequently discussed what the additional funds should be used to buy. This is often in the context of a decision to uphold or reverse a determination made by special masters or experts appointed by the trial court to investigate the

³⁵ 777 S.W.2d 391 (Tx. 1989).

³⁶ Nat'l Access Network, *supra* note 2.

³⁷ TX. EDUC. AGENCY, TIMELINE OF TESTING IN TEXAS, *available at* <http://www.tea.state.tx.us/student.assessment/researchers.html>

³⁸ *See, e.g.*, *Rose v. Council for Better Educ.*, 790 S.W.2d 186 (Ky. 1985).

³⁹ *See, e.g.*, *Lake View Sch. Dist. v. Huckabee*, 91 S.W.3d 472 (Ark. 2002).

matter and perform a costing out study.⁴⁰ Improved physical facilities, smaller class sizes, and more qualified teachers are frequently items on the shopping list, but the courts have never yet held a state in violation of a court order for spending more money to buy the wrong things.

Ordering increased education spending may not be the most effective way for courts to ensure constitutional rights are upheld. While ordering private parties to spend money is likely the easiest remedy a court can enact, forcing a legislature to open the public coffers is much more difficult, evidenced by the number of states that have refused to pay.⁴¹ This unilateral reliance on financial awards stands in stark contrast to the federal courts' use of their "broad remedial powers" during the 1960s and 1970s to end racial segregation.⁴² During that era, courts ordered a variety of creative remedies to integrate schools ranging from determining where new schools would be built to overseeing which students would be bussed to which schools.

Currently, higher quality teachers are the one input most studies find to be key in improving student achievement.⁴³ But given current systems of teacher training and promotion it is unlikely that any amount of money thus far ordered by a court could ensure that at-risk students receive teachers of sufficient caliber. On the contrary, it would likely be more effective for a court to require that all teachers in underperforming schools meet a certain threshold of experience or effectiveness and then let the state work out how to incentivize such outcomes rather than requiring more money be spent and letting the state determine how to spend it.

Moreover, there is little evidence that simply handing schools more money does much to improve student performance.⁴⁴ Of the six states that consistently outperformed the means for improvement from 1992 to 2005, three were in the top half and three in the bottom half of states

⁴⁰ See, e.g., *id.* Costing out studies are determinations of how much a "quality" education costs. They often include factors to control for the different price of inputs in different areas as well as the different needs of different types of students. Nat'l Access Network, *supra* note 2.

⁴¹ For example, the state of New York has not yet enacted a law to allocate more funds to the New York City public schools despite several court deadlines to do so. Campaign for Fiscal Equity, www.cfequity.org (last visited May 29, 2007).

⁴² *Swann v. Charlotte-Mecklenburg Bd. of Educ.*, 402 U.S. 1, 27 (U.S. 1971).

⁴³ See, e.g., Linda Darling-Hammond, *Teacher Quality and Student Achievement: A Review of State Policy Evidence*, EDUC. POL'Y ANALYSIS ARCHIVES, Jan. 1, 2000, available at <http://epaa.asu.edu/epaa/v8n1>.

⁴⁴ See, e.g., Hanushek, *supra* note 6.

ranked by per pupil expenditure in 2003-04, the latest year for which statistics are available.⁴⁵ More money, however, is often a crucial ingredient in providing schools the opportunity to improve. For example, from 1989 to 1993, fifteen elementary schools in Austin, Texas each received an additional \$300,000 annually to improve their students' achievement. All the schools spent the money on smaller classes, but in two of the schools, smaller classes accompanied other reforms including better teacher training and new instructional methods. In those two schools, scores shot up dramatically.⁴⁶ In sum, it is not at all clear that the remedial path courts have chosen in requiring increased education spending alone is the right one for reducing educational inequalities and inadequacies.

While the existence of school funding lawsuits are not currently statistically significant predictors of a state's improvement in student achievement, with more sensitive status variables, more time, and more focused remedial interventions significant differences may emerge. Therefore, while data currently show that school funding lawsuits are not a panacea for struggling students, advocates should not abandon this strategy for bringing more resources the students and schools that desperately need them.

⁴⁵ NAT'L CONFERENCE OF STATE LEGISLATURES, PER PUPIL EXPENDITURES BY STATE, <http://www.ncsl.org/programs/educ/PupilExpenditures.htm>. Also, two of the three states in the top half, Massachusetts and New York, are in the relatively more expensive northeastern region of the country, and this ranking does not adjust for the CPI.

⁴⁶ Richard J. Murnane & Frank Levy, *Evidence from Fifteen Schools in Austin, Texas, in DOES MONEY MATTER? THE EFFECT OF SCHOOL RESOURCES ON STUDENT ACHIEVEMENT AND ADULT SUCCESS*, 93–96 (Gary Burtless ed., Brookings Institution Press 1996).

Bibliography

BUREAU OF ECONOMIC ANALYSIS, SPI METHODOLOGY: INTRODUCTION (2005), *available at* <http://www.bea.gov/regional/pdf/spi2005/01%20Introduction.pdf>

Campaign for Fiscal Equity, www.cfequity.org (last visited May 29, 2007).

JAMES COLEMAN ET AL., EQUALITY OF EDUCATIONAL OPPORTUNITY SURVEY (1966).

Linda Darling-Hammond, *Teacher Quality and Student Achievement: A Review of State Policy Evidence*, EDUC. POL'Y ANALYSIS ARCHIVES, Jan. 1, 2000, *available at* <http://epaa.asu.edu/epaa/v8n1>.

DeRolph v. State, 677 N.E.2d 733 (1997).

DeRolph v. State, 728 N.E.2d 993 (Ohio 2000)

DeRolph v. State, 754 N.E.2d 1184 (Ohio 2001)

DeRolph v. State, 780 N.E.2d 529 (Ohio 2002)

Edgewood Independent Sch. Dist. v. Kirby, 777 S.W.2d 391 (Tx. 1989).

FLA. CONST. art. IX, §1

Eric A. Hanushek, *The Impact of Differential Expenditures on School Performance*, 18 EDUC. RESEARCHER 45 (1989).

Michael Heise, *State Constitutional Litigation, Educational Finance, and Legal Impact: An Empirical Analysis*, 63 U. CIN. L. REV. 1735 (1995).

Hoke County v. State, 599 S.E.2d 365 (N.C. 2004).

INSTITUTE FOR EDUCATION SCIENCES, U.S. DEPARTMENT OF EDUCATION, NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (1996).

Idaho Sch. for Equal Educ. Opportunity v. Evans, 850 P.2d 724 (Id. 1997).

Idaho Sch. for Equal Educ. Opportunity v. State, 97 P.3d 453 (Id. 2004).

Lake View Sch. Dist. v. Huckabee, 91 S.W.3d 472 (Ark. 2002).

Leandro v. State, 488 S.E.2d 249 (N.C. 1997)

McDuffy v. Secretary of Executive Office of Education, 615 N.E.2d 516 (Mass. 1993).

Richard J. Murnane & Frank Levy, *Evidence from Fifteen Schools in Austin, Texas, in DOES MONEY MATTER? THE EFFECT OF SCHOOL RESOURCES ON STUDENT ACHIEVEMENT AND ADULT SUCCESS*, 93 –96 (Gary Burtless ed., Brookings Institution Press 1996).

National Access Network, Teachers' College, Columbia University, <http://www.schoolfunding.info/litigation/litigation.php3> (last visited May 29, 2007).

NATIONAL CONFERENCE OF STATE LEGISLATURES, PER PUPIL EXPENDITURES BY STATE,
<http://www.ncsl.org/programs/educ/PupilExpenditures.htm>.

No Child Left Behind Act, 20 U.S.C. §§ 6301 et seq. (2002).

Rose v. Council for Better Education, 790 S.W.2d 186 (Ky. 1985).

San Antonio Indep. Sch. Dist. v. Rodriguez, 411 U.S. 1 (1973).

State v. Lewis, 789 N.E.2d 195 (Ohio 2003)

Swann v. Charlotte-Mecklenburg Bd. of Educ., 402 U.S. 1 (U.S. 1971).

TEXAS EDUCATION AGENCY, TIMELINE OF TESTING IN TEXAS, *available at*
<http://www.tea.state.tx.us/student.assessment/researchers.html>

Appendix

Regression results for rights v. no-rights states

Table A1: 4th grade math scores, All students

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .03	2.84 (0.05)	0.10 (0.09)				
R ² = .05	4.61 (2.17)	0.12 (0.09)	-0.19 (0.23)			
R ² = .07	5.23 (2.31)	0.12 (0.09)	-0.15 (0.24)	-0.13 (0.16)		
R ² = .07	5.74 (2.72)	0.12 (0.09)	-0.19 (0.27)	-0.13 (0.16)	-0.13 (0.34)	
R ² = .10	8.15 (3.60)	0.12 (0.09)	-0.39 (0.33)	-0.23 (0.19)	-0.06 (0.35)	0.05 (0.05)

Data source: National Assessment of Educational Progress

Table A2: 4th grade math scores, whites

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .02	2.88 (0.05)	0.12 (0.09)				
R ² = .02	3.89 (1.94)	0.12 (0.09)	-0.11 (0.21)			
R ² = .05	4.60 (2.06)	0.08 (0.08)	-0.06 (0.21)	-0.15 (0.14)		
R ² = .05	4.17 (2.42)	0.08 (0.08)	-0.02 (0.24)	-0.15 (0.14)	0.11 (0.30)	
R ² = .06	4.98 (3.24)	0.08 (0.08)	-0.09 (0.30)	-0.18 (0.17)	0.13 (0.31)	0.02 (0.05)

Data source: National Assessment of Educational Progress

Table A3: 4th grade math scores, blacks

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .02	3.14 (0.05)	0.07 (0.09)				
R ² = .04	1.54 (2.20)	0.07 (0.09)	0.17 (0.23)			
R ² = .05	2.02 (2.39)	0.07 (0.09)	0.19 (0.24)	-0.09 (0.16)		
R ² = .10	3.90 (2.76)	0.06 (0.09)	0.03 (0.27)	-0.11 (0.16)	-0.47 (0.36)	
R ² = .13	6.20 (3.66)	0.07 (0.09)	-0.16 (0.34)	-0.20 (0.19)	-0.40 (0.37)	0.05 (0.05)

Data source: National Assessment of Educational Progress

Table A4: 4th grade math scores, Latinos

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .06	2.99 (0.07)	0.14 (0.13)				
R ² = .29	-4.88 (3.39)	-0.03 (0.14)	0.83 (0.36)			
R ² = .29	-4.80 (3.53)	-0.02 (0.14)	0.84 (0.38)	-0.03 (0.19)		
R ² = .29	-4.26 (4.57)	-0.03 (0.15)	0.79 (0.48)	-0.02 (0.19)	-0.10 (0.52)	
R ² = .30	-2.60 (5.60)	-0.04 (0.15)	0.65 (0.56)	-0.09 (0.23)	-0.06 (0.54)	0.03 (0.06)

Data source: National Assessment of Educational Progress

Table A5: 4th grade math scores, black-white gap

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .04	1.76 (0.18)	-0.29 (0.28)				
R ² = .06	-3.21 (6.66)	-0.30 (0.28)	0.52 (0.70)			
R ² = .06	-3.96 (7.52)	-0.31 (0.29)	0.49 (0.73)	0.13 (0.57)		
R ² = .09	-7.81 (8.79)	-0.36 (0.30)	0.75 (0.79)	0.23 (0.59)	1.25 (1.45)	
R ² = .14	0.35 (11.31)	-0.35 (0.30)	0.05 (1.00)	-0.10 (0.65)	1.59 (1.48)	0.17 (0.15)

Data source: National Assessment of Educational Progress

Table A6: 4th grade math scores, Latino-white gap

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .30	1.12 (0.19)	0.82** (0.36)				
R ² = .42	-16.98 (12.09)	0.37 (0.46)	1.90** (1.27)			
R ² = .45	-18.94 (12.53)	0.26 (0.49)	1.77 (1.30)	0.41 (0.51)		
R ² = .46	-23.23 (16.95)	0.25 (0.51)	2.13 (1.64)	0.46 (0.55)	0.76 (1.91)	
R ² = .48	-18.32 (19.48)	0.20 (0.54)	1.65 (1.90)	0.32 (0.62)	1.19 (2.11)	0.11 (0.19)

Data source: National Assessment of Educational Progress

Table A7: 4th grade reading scores, All students

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .01	1.45 (0.17)	-0.14 (0.29)				
R ² = .07	-6.76 (6.53)	-0.18 (0.29)	0.87 (0.69)			
R ² = .08	-8.53 (7.32)	-0.21 (0.30)	0.79 (0.71)	0.31 (0.55)		
R ² = .13	-13.02 (8.38)	-0.18 (0.30)	1.16 (0.79)	0.36 (0.55)	1.24 (1.14)	
R ² = .05	0.98 (10.14)	-0.09 (0.28)	0.01 (0.90)	-0.27 (0.59)	1.81 (1.09)	0.30** (0.14)

Data source: National Assessment of Educational Progress

Table A8: 4th grade reading scores, whites

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .00	1.59 (0.15)	-.05 (0.26)				
R ² = .00	0.07 (6.22)	-0.05 (0.27)	0.16 (0.66)			
R ² = .04	2.36 (6.56)	-0.05 (0.27)	0.34 (0.68)	-0.51 (0.47)		
R ² = .09	-2.04 (7.38)	-0.03 (0.26)	0.72 (0.74)	-0.49 (0.46)	1.27 (1.01)	
R ² = .18	7.66 (9.28)	0.02 (0.26)	-0.10 (0.87)	-0.91* (0.52)	1.72 (1.02)	0.23 (0.14)

Data source: National Assessment of Educational Progress

Table A9: 4th grade reading scores, blacks

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .10	1.82 (0.16)	-0.45 (0.28)				
R ² = .13	-3.59 (6.32)	-0.49 (0.28)	0.57 (0.67)			
R ² = .13	-2.59 (6.82)	-0.48 (0.29)	0.65 (0.70)	-0.22 (0.49)		
R ² = .16	-6.15 (8.01)	-0.49 (0.29)	0.90 (0.76)	-0.14 (0.50)	1.08 (1.25)	
R ² = .17	-4.64 (10.63)	-0.49 (0.30)	0.77 (0.99)	-0.20 (0.58)	1.17 (1.35)	0.03 (0.15)

Data source: National Assessment of Educational Progress

Table A10: 4th grade reading scores, Latinos

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .06	2.12 (0.27)	0.40 (0.49)				
R ² = .07	-2.71 (15.31)	0.29 (0.62)	0.51 (1.60)			
R ² = .07	-4.08 (17.47)	0.23 (0.71)	0.51 (1.69)	0.17 (0.82)		
R ² = .11	-15.46 (25.79)	0.23 (0.73)	1.59 (2.46)	0.20 (0.85)	1.65 (2.66)	
R ² = .53	5.22 (21.77)	-0.20 (0.60)	-0.21 (2.05)	-0.63 (0.75)	2.02 (2.08)	0.51** (0.20)

Data source: National Assessment of Educational Progress

Table A11: 4th grade reading scores, black-white gap

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .01	1.09 (0.25)	-0.17 (0.50)				
R ² = .06	-7.690 (13.09)	-0.24 (0.52)	0.92 (1.38)			
R ² = .22	-4.76 (12.81)	-0.12 (0.51)	1.33 (1.36)	-0.85 (0.65)		
R ² = .25	-6.75 (13.95)	-0.07 (0.54)	1.48 (1.46)	-0.85 (0.68)	1.03 (1.96)	
R ² = .27	-14.30 (28.17)	-0.05 (0.59)	2.25 (2.89)	-0.71 (0.86)	0.48 (2.73)	-0.11 (0.34)

Data source: National Assessment of Educational Progress

Table A12: 4th grade reading scores, Latino-white gap

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .03	1.37 (0.41)	0.42 (0.78)				
R ² = .05	-9.46 (24.96)	0.20 (0.96)	1.14 (2.62)			
R ² = .51	-24.55 (20.16)	-0.42 (0.78)	1.01 (2.02)	2.07 (0.82)		
R ² = .53	-35.29 (29.99)	-0.43 (0.83)	2.02 (2.92)	2.11* (0.87)	1.45 (2.84)	
R ² = .90	4.58 (17.37)	-1.27** (0.45)	-1.30 (1.63)	0.37 (0.58)	2.48 (1.43)	0.86*** (0.20)

Data source: National Assessment of Educational Progress

Table A13: 8th grade math scores, All students

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .08	2.059 (0.123)	0.376* (0.211)				
R ² = .08	4.558 (5.271)	0.394* (0.217)	-0.264 (0.557)			
R ² = .08	3.85 (5.65)	0.39* (0.22)	-0.31 (0.58)	0.15 (0.39)		
R ² = .09	5.69 (6.63)	0.38 (0.22)	-0.47 (0.66)	0.14 (0.39)	-0.45 (0.83)	
R ² = .13	12.95 (8.71)	0.39* (0.22)	-1.08 (0.81)	-0.17 (0.46)	-0.25 (0.84)	0.15 (0.12)

Data source: National Assessment of Educational Progress

Table A14: 8th grade math scores, whites

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .04	2.30 (0.10)	0.23 (0.17)				
R ² = .05	4.41 (4.29)	0.24 (0.18)	-0.22 (0.45)			
R ² = .05	4.78 (4.60)	0.25 (0.18)	-0.20 (0.47)	-0.08 (0.31)		
R ² = .05	4.77 (5.42)	0.25 (0.18)	-0.20 (0.54)	-0.08 (0.32)	0.00 (0.68)	
R ² = .06	7.92 (7.24)	0.25 (0.18)	-0.46 (0.67)	-0.21 (0.38)	0.09 (0.70)	0.07 (0.10)

Data source: National Assessment of Educational Progress

Table A15: 8th grade math scores, blacks

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .01	2.50 (0.15)	0.14 (0.24)				
R ² = .01	2.86 (5.85)	0.14 (0.24)	-0.04 (0.62)			
R ² = .02	2.23 (6.21)	0.13 (0.24)	-0.10 (0.65)	0.15 (0.44)		
R ² = .03	-0.31 (7.45)	0.12 (0.25)	0.08 (0.72)	0.21 (0.46)	0.75 (1.19)	
R ² = .05	3.75 (9.84)	0.12 (0.25)	-0.26 (0.91)	0.04 (0.53)	0.94 (1.24)	0.09 (0.14)

Data source: National Assessment of Educational Progress

Table A16: 8th grade math scores, Latinos

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .04	2.27 (0.23)	0.31 (0.41)				
R ² = .13	-11.17 (11.68)	0.07 (0.46)	1.41 (1.23)			
R ² = .13	-11.13 (12.17)	0.08 (0.49)	1.44 (1.37)	-0.04 (0.67)		
R ² = .21	-5.63 (13.24)	0.04 (0.49)	1.02 (1.43)	-0.11 (0.67)	-1.82 (1.75)	
R ² = .37	7.33 (14.78)	-0.09 (0.46)	-0.23 (1.54)	-0.54 (0.68)	-0.53 (1.82)	0.30 (0.19)

Data source: National Assessment of Educational Progress

Table A17: 8th grade math scores, black-white gap

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .28	1.04 (0.21)	0.95** (0.41)				
R ² = .29	-5.20 (10.81)	0.81 (0.49)	0.66 (1.15)			
R ² = .43	-14.29 (11.54)	0.53 (0.49)	0.80 (1.08)	0.98 (0.59)		
R ² = .44	-15.05 (11.96)	0.64 (0.54)	0.83 (1.11)	0.98 (0.61)	1.00 (1.77)	
R ² = .45	-18.79 (17.03)	0.68 (0.58)	1.16 (1.55)	1.15 (0.81)	0.62 (2.18)	-0.09 (0.27)

Data source: National Assessment of Educational Progress

Table A18: 8th grade math scores, Latino-white gap

Proportion explained variation	Constant	Rights status	Log income growth	Log per pupil spending growth	State share education funding, 1992	Per pupil spending 1988-1992
R ² = .44	1.66 (0.10)	0.39** (0.17)				
R ² = .46	4.49 (6.53)	0.44* (0.21)	-0.30 (0.68)			
R ² = .53	3.79 (6.71)	0.35 (0.24)	-0.41 (0.71)	0.23 (0.26)		
R ² = .76	3.20 (5.35)	0.38 (0.19)	-0.57 (0.57)	0.41 (0.23)	1.45 (0.74)	
R ² = .82	4.67 (5.66)	0.31 (0.20)	-0.72 (0.60)	0.35 (0.24)	1.68 (0.79)	0.06 (0.07)

Data source: National Assessment of Educational Progress