

POLITICAL RESPONSIVENESS AND EQUITY IN
PUBLIC EDUCATION FINANCE

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ABSTRACT

This study explores how politics affects the propensity of the American states to pursue equity in local outcomes. Using state education finance as an object of analysis, we develop a theoretical model that emphasizes the social welfare implications of equity versus allocative efficiency and distributive politics. We then hypothesize that the relative liberalism of a state's citizens and institutions should affect the weight attached to equity in the social welfare function, as well as the ability of the courts to alter those weights. Using a panel design, we explain state funding allocations to 8,048 local school districts from 1992 through 1996. The statistical results show that the relative emphasis on equity differs substantially across states based on political values. States with conservative citizens and institutions place less emphasis on revenue equity than states with liberal citizens and institutions. Judicial mandates are generally unsuccessful in producing more equal allocations, but are more successful when accompanied by receptive citizens and institutions. The larger implication is that responsiveness to political values is a major determinant of state propensity toward equalizing outcomes across local jurisdictions.

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Equity is a core value of democracy and widely studied in American politics. In this study we explore the general question of how politics affects the propensity of the American states to pursue equity in local outcomes? Within the American states substantial funding inequities exist across local school districts, and many argue that this results in disparate treatment of taxpayers, as well as differences in the quality of education. Thus, we use public education finance as an object of analysis to address the more general question.

Public education finance is decentralized in most states with heavy reliance on local revenues. Local taxing authorities differ in their ability and willingness to raise revenues for education. Wealthy districts can raise greater revenues and provide a richer educational experience for their students. Poor districts often have lower revenues, even with higher tax effort, resulting in crumbling infrastructures, underpaid teachers, and an inability to educate students with special needs.

In the interest of greater equity, all states supplement local funding through general revenues to “level-out” per pupil revenues. However, states are also often limited in their willingness to equalize funding across local districts, perhaps due to political considerations. For example, in 1996 total revenues per pupil across states ranged from \$4,946 in Utah to \$9,907 in New Jersey. Within Utah, revenues per pupil ranged from about \$3,850 to \$7,770, while in New Jersey they ranged from about \$6,430 to \$15,260. The Congressional Research Service has noted that disparities within states are often three to one from lowest to highest revenue districts (Riddle 1990). These revenue inequities result from allocation decisions by local taxing authorities and state education finance institutions acting together to produce a total funding package for each school district.

As a result of these inequities, there have been numerous court challenges to state allocation schemes. Citizen lawsuits alleging taxpayer inequity have been filed in 43 states since the landmark *Serrano* decision in 1971. As of 2001, the Supreme Courts of 17 states had overturned their systems for educational finance, but the courts had upheld the systems in another 20 states. Litigation continues in the remaining states, as well as in many of the states where courts have already ruled. For example, in

New Jersey there have been seven different versions of the *Robinson* decision, and in California three separate decisions from the *Serrano* case. Thus, the politics of education finance involves the nuance that courts often attempt to compel state democratic institutions to produce greater revenue equity across local school districts.

In this study we explore how politics affects the relative emphasis by states on achieving equity in public education. More specifically, we ask the following questions. To what extent do state democratic institutions emphasize equity versus efficiency and distributive politics in their funding allocations to local school districts? Does the relative liberalism of a state's citizens and institutions affect the emphasis by states on achieving revenue equity? How successful are the courts in compelling states to place greater emphasis on revenue equity? Does the relative liberalism of a state's citizens and institutions affect the ability of courts to compel greater revenue equity?

In addressing these questions we apply a social welfare theory of state allocations. This is followed by a discussion of data, variables, and a research design for evaluating the theoretical framework. We then report statistical results showing that states differ systematically in their emphasis on equity as a function of citizen liberalism, institutional liberalism, and judicial mandates. We also show that courts are most effective in compelling states to reallocate based on equity when the citizens and institutions of the state are receptive. We conclude with a discussion of the implications for democratic theory and the prospects for meaningful education finance reform.

A SOCIAL WELFARE INTERPRETATION OF STATE REVENUE ALLOCATIONS

In making funding allocations to local governments we can think of state education finance institutions as a central authority optimizing a social welfare function containing weighted values of equity, efficiency, and distributive politics.¹ The state legislature is usually the dominant actor in these

¹ We use the social welfare function analogy merely as an organizing framework for theoretical discussion and later hypotheses testing. However, we could easily formalize this approach with state central decision makers optimizing total state welfare by allocating between school districts on the basis of equity, efficiency, and politics. For an example of this approach see Scholz and Wood (1999). See also Nicholson (1998: 761-63) for a formal but quite intuitive discussion.

decisions. Revenue allocations are based on a formula developed and approved by the state legislature, but with assistance from the state education agency. The basis for state formulas varies widely, but usually considers such factors as local revenue, local tax capacity, economies of scale, as well as other special needs (Swanson and King 1997: 226-49). While state allocations are usually formula based, the political nature of developing and approving the formulas leaves substantial leeway for allocation systems to respond to each of these values.

Equity

State decision-makers could assign all the weight in the social welfare function to equity, by “leveling-out” revenues across districts in an *absolute* sense. However, this absolutist approach would ignore the classic moral hazard problem associated with state revenue equalization efforts. If local school districts recognize that state revenues are forthcoming up to the point of equalization, then there is no incentive for local taxing authorities to tax their own residents. Therefore, full equalization is never guaranteed, and the state allocation formula always depends on both local revenue effort and the tax capacity of the local district.

Tax capacity is the ability of citizens of the district to pay for education. Gold, Smith, and Lawton (1995: 27) report that twenty-four states use assessed property valuation in evaluating tax capacity. Nine additional states consider property valuation along with a range of other revenue sources such as user fees, investments, and bonds. An additional fourteen states consider property valuation and personal income in measuring tax capacity. The formulas whereby local revenues combine with tax capacity to determine the rate of revenue equalization vary widely.²

Another reason why absolute equalization might not be an appropriate standard is that it would ignore the special circumstances that differentiate local districts. For example, rural districts have higher transportation costs and often suffer diseconomies of scale from smaller student populations.

² Swanson and King (1997: 191-225) provide a categorization of states based on general characteristics of their revenue equalization systems.

An argument can be made that absolute equalization would penalize rural districts by not allowing for these differences. On the other hand, urban taxpayers have higher total tax bills due to higher service levels and a larger number of taxing authorities. An argument can be made that urban districts should therefore receive more state funding to compensate taxpayers for these disadvantages. There are also wide variations in the number of “special need” students across districts. Absolute revenue equalization ignores the higher costs of educating gifted, disabled, or disadvantaged students, thereby penalizing other students within a district. Thus, absolute revenue equalization would not actually bring parity of inputs.

In designing the revenue allocation system, state decision makers also face political constraints. A decision to emphasize equity over other values is itself an inherently political decision that should depend on core value and belief systems. The relative weight attached to equity by state education finance institutions should, therefore, respond democratically to the relative liberalism of a state’s citizens and institutions (e.g., see Wong 1999). Intuitively, we would expect conservative citizens and institutions to place less emphasis on achieving equity relative to other values, while liberal citizens and institutions should prefer greater equity. Also, decentralized solutions are generally associated with conservative political cultures, which are also generally averse to central control. Conversely, centralized financing by the state removes control from local school districts, a result that is more consistent with liberal political cultures.³ Therefore, we should expect variations in the relative weights attached to equity based on democratic responsiveness to citizens and cultural distinctions.

Efficiency

State education finance institutions may also consider the positive externalities associated with education in their allocation decisions. An externality occurs whenever the activities of one economic

³ We have anecdotal evidence of this effect from the struggle for school reform in New Jersey. When Democrats in New Jersey attempted to implement a court ordered finance reform measure based on achieving greater equity, Republicans responded by threatening to remove the clause in their state constitution from which the court order derived (Firestone *et al* 1997). The central concern for Republicans was that equalization required higher taxes and that local districts would lose control over their schools due to the proposed reforms.

agent affect the activities of another economic agent in ways that are not reflected in normal transactions (Nicholson 1998: 730). In this study the two economic agents are the local taxing authority and the state. In other words, a higher gain to society results if state allocation decisions take into account potential gains beyond the benefit to the local school district's residents. Reallocation based on positive externalities is generally recognized to result in greater allocative efficiency. Allocative efficiency means arranging inputs so as to produce the greatest gains for society (Nicholson 1998: 732-733).⁴

The state produces the greatest allocative efficiency by redistributing funds toward districts with higher marginal returns. Generally, educated workers have higher long-term earnings potential, and also provide a more attractive environment for business investment. By subsidizing local education the state gains the long-term benefits of a stronger economy and higher tax revenues. Since the potential for improvement is greater in districts with less well-educated citizens, the state should target these districts to produce higher marginal returns.

Additionally, an educated workforce is important to minimizing such problems as illiteracy, unemployment, poverty, and crime. Therefore, the state will spend less future money on unemployment compensation, welfare payments, law enforcement, prisons, and other effects related to low education. Accordingly, states should also target districts with high unemployment and poverty to maximize marginal gains and minimize future payments for these problems.

Allocational efficiency is a concept that is theoretically distinct from equity and distributive politics. If an allocation produces higher marginal gains for the state, relative to other possible allocations, then it should be considered allocationally efficient. Of course, illiteracy, unemployment,

⁴ There are at least two conceptualizations of efficiency that have been applied in economics (e.g., see Downs and Larkey 1986: 6-7). 1) Efficiency is a state in which it is not possible to change that state and have someone become better off with no one worse off. This is sometimes called Pareto efficiency, or with a slight change in definition Kaldor-Hicks efficiency. 2) Efficiency is arranging inputs so as to produce the greatest outputs. For example, this could involve arranging labor and capital in a Cobb-Douglas production function to produce optimal outputs at the intersection of a production possibility frontier and indifference curves. However, in our case it involves arranging state level inputs across local districts to produce the largest gain for the state. Note that when allocational efficiency exists, the outcome is also Pareto efficient.

poverty, and related anomalies are typically higher in the same districts where schools are poorly funded. Therefore, it may be difficult to distinguish between state allocations based on these more specific problems versus a thrust for revenue equalization. Still, we should control for these factors in any analysis of state efforts at revenue equalization. The question then becomes how much weight states give to equity, *independent of* these more specific factors within local school districts?

Distributive Politics

States may also reallocate resources between districts based purely on political considerations. The weight given to distributive politics in the social welfare function may be due to a genuine belief by decision makers that reallocation is somehow socially beneficial. For example, a social benefit may derive from reallocating toward districts with heavy concentrations of certain racial or ethnic groups. However, democratic decision makers need not have such normative rationale, and may allocate politically on the basis of self-interest and the reelection incentive (Ferejohn 1974; Fiorina 1977).

The state politics literature suggests that state decision makers respond to citizen preferences across a variety of policy arenas. For example, Hill and Leighley (1992) found that state welfare payments respond to the cultural conservatism of a state's citizens. Likewise, Morgan (1994) showed that the relative progressiveness of a state's tax system depends on state liberalism. Clingermayer and Wood (1995) found that state indebtedness responds democratically to the relative liberalism of a state's citizens. More generally, Erikson, Wright, and McIver (1989; see also Wright, Erikson, and McIver 1987) found congruence between citizen and government liberalism and state allocations across a range of policy areas. We should also control for political responsiveness to various group effects from local school districts as we evaluate the importance of equity in the social welfare function.

Equity, Politics, and the Courts

We noted above that revenue inequity has been the basis for challenging the education finance systems in 43 states since the landmark *Serrano* decision in 1971 (Evans, Murray, and Schwab 1997; Murray, Evans, and Schwab 1998). The California Supreme Court ruled in *Serrano v. Priest* that the gap in per pupil expenditures in Baldwin Park relative to Beverly Hills was so great that it violated the equal protection guarantees of federal and state constitutions. The court ruled that whatever the cause of disparities, in this case a large difference in local revenues, redistribution was necessary to diminish variation across districts.

In subsequent years, several lower federal courts followed California's lead. However, the U.S. Supreme Court ruled in 1973 (*Rodriguez v. San Antonio Independent School District*) that a disparity in per pupil expenditures does not violate the U.S. Constitution's equal protection clause. This majority opinion prevailed even though there was evidence that a poor district was taxing its residents at a much higher rate than an affluent district, and still generated less revenue. The *Rodriguez* decision halted attempts to equalize school funding through the U.S. Constitution. However, citizen challenges to state education finance systems have continued through state courts. Subsequent successful state court cases were largely based on state educational clauses that guaranteed "thorough and efficient" education systems. In particular, litigants were successful when they were able to show that disparities in educational funding patterns led to disparities in educational outcomes (Firestone *et al.* 1997). Since 1971 seventeen states have fallen under court order to produce greater revenue equity.⁵ This is generally achieved by mandating a larger state allocation to local school districts.

The degree to which court ordered reallocations produce greater revenue equity within states is an open question. Murray, Evans, and Schwab (1998) find evidence that some reallocation occurs in the years following a court decision. However, their analysis employs data at five year intervals and fails to

⁵ The most recent of these involves the state of New York. On January 10th, 2001 the New York Supreme Court ruled in *Campaign for Fiscal Equity vs. State of New York* that the state legislature must come up with a new education finance system or face judicial intervention.

control for a variety of factors that could explain intervening changes.⁶ The judicial politics literature strongly questions the extent to which courts can produce social change (Rosenberg 1991). Canon and Johnson (1999) detail various reasons why courts may be unsuccessful in forcing compliance.⁷ The reason most relevant to this study concerns the policy preferences of a state's citizens and institutions. As suggested by Cannon and Johnson (1999: 75), "If the policy preference [of the community] is reinforced by a judicial decision, the community is likely to react positively; if a judicial policy runs counter to a communities traditional preferences, reactions will be negative." Courts can initiate change, but must depend on compliance by central allocation authorities to produce change. Thus, this study also explores the effectiveness of courts in altering the relative weight attached by states to equity in the social welfare function.

DATA AND METHODS

To what extent does politics affect state propensities toward revenue equalization across local school districts? To what extent does politics affect the success of judicial mandates for state revenue equalization? We addressed these questions statistically by evaluating 40,490 revenue allocation decisions of the 48 contiguous states from 1992 through 1996.⁸ The sample included state allocations to all 8,098 unified school districts with size of at least 500 students.⁹ Because the data encompassed allocation decisions across five years, we employed a panel data design.

⁶ They concluded based on descriptive statistics and an econometric model that the courts made a difference. However, the five year time intervals of their data were too coarse to capture the specific timing of court decisions. Their model was also seriously underspecified in that it did not control for pre-existing trends and contained insufficient controls for the various other factors that could affect school finance decisions other than the courts.

⁷ See Canon and Johnson (1999: chapter 7) for a review of the literature.

⁸ We take these five years because this was all of the available data at the time of the study. We omit Alaska because its topography and climate produce a substantial proportion of districts requiring very high revenue. We omit Hawaii because there are no local districts.

⁹ We omit very small districts because of the substantial number with extremely high revenues. In our opinion, these outliers could not be explained simply by diseconomies of scale from district size effects. Therefore, we restricted the sample to districts larger than 500. Note that the sample still includes a large number of rural districts with small student populations relative to urban and suburban districts.

We merged several large data sets to have the necessary variables for the analysis. The Public Elementary and Secondary School District Finance Data File contains revenues, expenditures, debt, and assets for all public elementary and secondary school systems in the United States. This annual data collection is part of the U.S. Census Bureau's annual census of governments and is currently available only through 1996.

The Common Core of Data (CCD) is a program of the U.S. Department of Education's National Center for Education Statistics (NCES). The NCES annually surveys all public elementary and secondary schools, all local education agencies, and all state education agencies throughout the United States. The CCD contains three categories of information: general descriptive information on schools and school districts, data on students and staff, and fiscal data. The data on students and staff includes selected demographic characteristics.

The School District Data Book (SDDB), developed by the Mesa Group under contract to the NCES, is an electronic library consisting of 44 CD-ROMs containing social, economic, and administrative data for all public school districts in the United States. Based on the 1990 population census, the SDDB contains variables describing the demographic characteristics of the population of each district. The limitation of the SDDB is that, unlike the other two datasets, it does not change over time. Thus, we use the SDDB data under the assumption that the demographics of the population of each school district do not change very rapidly. We used the NCES school district numerical identification code to merge data from these three sources.¹⁰

The dependent variable for our analysis was the dollar amount per pupil of state revenue allocated to each local school district during each year.¹¹ This variable was generally increasing through time,

¹⁰ The information necessary to replicate our results is available at <http://www.xxx.xxx>. The original data set is quite large, occupying about 46 Megabytes of disk space in a binary format. Therefore, we provide the data in a compressed format of about 6.36 Megabytes. Also available are our program setup files, and all variable definitions as they pertain to the original data sources.

¹¹ Note that these numbers do not include the federal allocation to each district. These comprise a very small proportion of the total and are not particularly relevant to the analysis.

suggesting temporal differences in mean. Also, we were concerned about structural disparities between states in the degree of dependence on state revenues, as well as differences between systems, and other factors that would be unaccounted for by the theoretical model. For these reasons, we estimated the panel using a two-way fixed effect design with group effects for each year and each state.¹² The two-way fixed effects model normally provides a tough test in that the fixed effects are collinear with independent variables diminishing their statistical significance. However, the large sample size means this is unlikely to be much of a problem.

Understanding states' emphasis on revenue equalization requires that we control the tax capacity of a district. This is important for telling the central allocation authority the amount of effort the district is expending. Among other things, tax capacity depends on the wealth and income of the taxpayers of a district. Accordingly, we included the 1990 median home value of each district along with the 1990 per capita income of each district's residents, both in thousands of dollars. As discussed above, both variables are used by various states in their allocation formulas, so they should be strongly related to the state revenue allocation for each district.

The equity dimension was represented by own source revenue disparities across local school districts in each state and year.¹³ Controlling for tax capacity, states should allocate more revenues

¹² The two way fixed effect model we applied is given $y_{it} = \alpha_0 + \alpha_s + \gamma_t + \beta^1 \mathbf{x}_{it} + \varepsilon_{it}$, where the subscript i refers to the district, the subscript s refers to the state, and the subscript t refers to the year. In order to avoid perfect multicollinearity, we imposed the restriction $\sum_i \alpha_s = \sum_t \gamma_t = \mathbf{0}$. This is a variant of the model suggested by Greene (2000: 565). In testing

the appropriateness of the two way fixed effect model we performed the statistical tests recommended by Greene (2000: 565-566). We also evaluated the appropriateness of the analogous random effects specification using the test recommended by Hausman (1978). The two-way fixed effects specification performed better than all of the alternatives. However, there was very little difference in results between the one and two-way fixed effect models or the fixed versus random effect models. Note that our unit of analysis is the district-year, rather than the state-year. In a typical panel data design we would have group effects for each district and year, rather than for each state and year. However, our interest is in controlling for unmodeled differences in decision-making between states rather than between districts. Note also that since the number of districts differs between states, we have an unbalanced panel. This means that the standard panel corrections for autocorrelation and heteroscedasticity are inapplicable. Of course, autocorrelation is less of an issue since we are dummifying out time. Heteroscedasticity is also less problematic since revenues are in a per pupil metric.

¹³ We also considered lagged local revenues, rather than contemporaneous local revenues for this measure. The results were little changed. We decided against the lagged measure for two reasons: 1) state funding formulae typically rely on current year local tax rates, and 2) using the lagged measure threw out data unnecessarily.

toward local districts that raise less revenue per pupil relative to the average district within the state. We used a centered measure of these revenue disparities to facilitate interpretation of the results. Specifically, we included local revenues per pupil minus revenues per pupil for the average district for each state and year (in thousands). This measure gauges how far above or below in thousands of dollars each school district is from the state average in revenues. This measure of revenue distance is the key equity measure in our analysis.

The efficiency dimension was represented by three variables. The education level for citizens within a district holds a key to better long-term economic outcomes, greater tax revenue for the state, as well as other social problems. Thus, we included the percentage of each district's residents 20 years and over that did not complete high school. To reflect employment conditions within each district, we included the percentage of persons over 16 years of age who were unemployed. The poverty status of a district was represented by the percentage of students participating in the free and reduced lunch program. If efficiency is important, then the state should allocate state revenues to improve economic and social conditions *independent of* local revenue or the tax capacity of the district.

The distributive politics dimension was represented by seven variables that controlled for attributes of each district's residents. The racial and ethnic composition of each district was measured as the percent of a district's population that was African-American and the percent that was Hispanic. These groups often make social demands on the legislature, producing an expectation of larger state allocations. The rural characteristic was gauged by the percent of a district's children living in rural areas (both farm and non-farm). The urban feature was measured as the percent of a district's children living inside an urbanized area. As discussed above, both urban and rural districts have special needs that strengthen their case for larger state allocations. Central decision makers may also be more responsive to well-educated constituents. To test for this effect we included the percent of a district's citizens having a college degree or better. In contrast, we would expect less responsiveness to citizens with children in private schools, because they have typically taken the "exit" option for religious or

other reasons. Thus, we also included a measure for the percent of a district's children enrolled in private school. Additionally, political reallocation may occur along generational lines. Younger citizens with school age children have stronger need for state allocations, and may therefore make stronger demands. Therefore, we included the percentage of households in each district having children 18 years of age and under. If distributive politics is important to state allocation decisions, then we should control for all of these variables in evaluating the importance of revenue equalization.

THE BASE MODEL

Table 1 reports statistical results for a base model containing the variables discussed in the preceding section.¹⁴ This model provides a benchmark for subsequent analyses evaluating the effect of politics on the propensity of states to emphasize equity in the social welfare function. It is useful initially to interpret the base model, so that we can focus exclusively on the relation between politics and revenue equalization in succeeding sections.

INSERT TABLE 1 ABOUT HERE

Over the period of analysis the average school district raised about \$2,798 per pupil annually in local revenues, and received from the state about \$2,834.50 per pupil. The standard deviation in the state allocation was about \$1,183.17. Table 1 shows that local revenue inequalities explained a substantial proportion of these deviations. Each \$1,000 per pupil that a district fell below a state's local revenue average resulted in about \$291 per pupil of additional state money. The standard deviation of the local revenue equity measure was \$1,670. Thus, a district one standard deviation below average in local revenues received about \$486 per pupil more as a direct result of the local revenue shortfall.

¹⁴ As shown in Table 1, the base model explains about 60 percent of the variability in state allocations to local school districts. However, it is reasonable to ask how much of this is due to the fixed effects vs. the substantive variables. A model that omits the year fixed effects explains about 55 percent of the variance. A model that omits all fixed effects explains about 29 percent of the variance.

The controls for tax capacity were also significant, both substantively and statistically. Each decline of \$1,000 in per capita income for a district's residents produced a rise of about \$17.09 per pupil in the state allocation. The standard deviation in per capita income across districts was about \$4,740. Thus, a district that fell one standard deviation below average in per capita income received about \$81.01 per pupil more in state money.

With respect to home valuation, each \$1,000 decline in the median district home value produced an increase of about \$1.92 per pupil in the state allocation. The standard deviation in home values across districts was about \$53,190. Therefore, a district falling a full standard deviation below the average received about \$102.21 per pupil more in its state allocation. These results are consistent with an understanding that revenue disparities between districts are the primary rationale for state allocations, but that adjustments are also made based on income, wealth, and other factors.

To what extent did a thrust for efficiency affect state allocations? Controlling for revenue and tax capacity, we see strong evidence from Table 1 that central decision makers shifted state revenues across districts based on the educational, employment, and poverty attributes of local residents. With regard to education, each one percent increase in a district's residents lacking a high school diploma produced about \$13.92 per pupil in additional state money. On average, about 18.06 percent of all district's residents lacked a high school diploma, with a standard deviation of about 7.25 percent. Thus, a district one standard deviation above the average in high school dropouts typically received about \$100.88 per pupil in additional state money.

The results for unemployment and poverty are similarly suggestive. Each one percent increase in unemployment within a district produced an increase in state revenues of \$53.96 per pupil. The standard deviation in unemployment across districts was about 1.17 percent, so a district one standard deviation higher in unemployment received about \$63.29 per pupil in additional state money.¹⁵ With

¹⁵ Intuitively, the average unemployment rate across districts looks a bit low in Table 1. However, it should be remembered that this is an average across school districts, rather than an average across the nation. In other words, unemployment tends to be concentrated in urban districts that are typically quite large, but constitute only a few of the nation's school districts.

respect to poverty, each one percent increase in the number of students on free and reduced lunches produced an additional \$2.38 per pupil. Since the standard deviation of free and reduced lunch students was about 16.79 percent, this means that a district one standard deviation above the average in free and reduced lunch students received about \$39.92 per pupil in additional state money. These three effects combined suggest that allocative efficiency is an important, but not dominant concern of central decision makers.

Do central decision makers respond to distributive politics in their allocations of state resources? In the base model reported in Table 1, we see no evidence of political responsiveness grounded in race or ethnicity. The percent African-American variable is non-significant, and the percent Hispanic variable is incorrectly signed.¹⁶ On the other hand, all other variables suggest that distributive politics may be important in the allocation process.

The results for the urban and rural variables show that there is a bias in state allocations toward both urban and rural districts at the expense of suburban districts. Each one percent increase in relevant children living in urban and rural areas produced respectively about \$2.94 and \$1.61 per pupil in additional state revenues. Arbitrarily defining an urban district as having 80 percent or more of its students living in a highly urbanized area, such a district would receive about \$162.54 more per pupil than the average district. This is a fairly substantial effect. Again, defining a rural district as one having 80 percent or more of its students living in rural areas, such a district would receive about \$39.42 more per pupil than an average district.

Districts with a higher percentage of parents that are college educated received slightly more than other districts. Each one percent increase in residents with a college education resulted in an additional \$5.30 per pupil. The average percent college educated across all districts was about 10.46

¹⁶ The sign on the percent Hispanic variable is actually consistent with earlier research showing that Hispanics are often under-represented in the political process. See for example Meier (1991).

with a standard deviation of 7.15. Thus, a district one standard deviation above the average in citizens with a college education received about \$37.90 more per pupil in state funding.

Districts with a higher proportion of children in private schools received slightly less than other districts. Each one percent increase in the proportion of a district's relevant children in private schools resulted in a decline of about \$4.11 in the state allocation. On average across districts about 7.3 percent of relevant children attended private schools with a standard deviation of about 6.1 percent. This means that a district one standard deviation above average in private school enrollment received about \$25.07 less in state funding. This is not a large differential, but does suggest that taking the "exit" option results in weaker state level representation and negative effects for the residents who remain.

We also found evidence of a generational effect in state allocations. As the percent of households in a local district with children under 18 years of age increased, the state allocation per pupil increased. Each one percent increase produced about \$4.87 per pupil in additional state money. On average across all districts, about 38.82 percent of households had school age children, with a standard deviation of 6.98 percent. A district that was one standard deviation above the average received about \$34.03 in additional state money.

In summary, the base model in Table 1 suggests that state decision makers across the U.S. integrate the three values of equity, efficiency, and distributive politics into their revenue allocation decisions. Revenue equalization is by far the most important value affecting state allocations. However, independent of revenue equalization efforts, central decision makers also take into account the efficiency implications of their decisions, as well as distributive politics. While some of these variables operate mostly at the margins, their combined effect suggests that efficiency and politics play relatively important roles.

THE EFFECT OF POLITICS ON STATE REVENUE EQUALIZATION

Does politics affect the state propensity toward revenue equalization across local school districts within states? We evaluated this question by interacting the local revenue equity variable from the base model in the preceding section with the dynamic measures of citizen ideology and institutional liberalism developed by Berry *et al.* (1998). Their measure of citizen ideology estimates an average citizen ideology score for each state and year using the actual ideology of U.S. House of Representative incumbents (gauged by their congressional roll call voting scores) and an estimated ideology score for election challengers. Both incumbent and challenger ideologies are weighted by the support they received in the general election. State citizen ideology is assumed to be the average ideology of the electorate reflected through all House elections.

The Berry *et al.* measure of institutional liberalism aggregates the estimated ideology of the two chambers of the state legislature and the governor into a single measure. The legislative components are weighted by the proportional control of the two parties. For convenience of interpretation, we rescaled both measures to run between 0 as most conservative and 100 as most liberal.¹⁷

INSERT TABLE 2 ABOUT HERE

Column one of Table 2 reports the results for citizen ideology. The coefficient for local revenue equity now represents the revenue equalization effort of the state with the most conservative citizens. The interaction coefficient tracks variations in equalization efforts as a function of the ideology of a state's citizens. The results in the third row of Table 2 show that states with more liberal citizens emphasized revenue equity substantially more. In the most conservative state, each \$1,000 that a district fell below the state average in local revenues produced about \$103.01 in additional state money.

¹⁷ We also considered adjusting the measure for temporal instability using the Groseclose *et al.* procedure. However, we decided against this adjustment for two reasons. First, the degree of temporal instability that could occur is limited, because we only use five years of the Berry *et al.* measure. Second, the Groseclose *et al.* adjustment is typically applied to raw ADA scores, but the Berry *et al.* measure is already adjusted along other dimensions. Therefore, it is unclear that the Groseclose *et al.* adjustment is appropriate. We thank William D. Berry for providing an updated version of the measure.

In the most liberal state, however, each \$1,000 that a district fell below the state average in local revenues produced \$468.01 in additional state money. In other words, controlling for other factors *the estimated revenue equalization effort of the most liberal state (Vermont) was about 4.54 times (i.e.,*

$$\frac{\$103.01 + \$3.65 * 100}{\$103.01} = 4.54) \text{ the revenue equalization effort of the most conservative state (Oklahoma).}$$

Column 2 of Table 2 replicates this result by showing how revenue equalization varied with the liberalism of a state's political institutions. While the relationship is less striking, the third row in column 2 shows that controlling for other factors, *the state with the most liberal political institutions*

*(Maryland) allocated about 26 percent more (i.e., $\frac{\$259.33 + \$0.67 * 100}{\$259.33} = 1.26$) on the basis of local revenue*

inequity than the state with the most conservative political institutions (Montana).

These results unequivocally show that politics is an important determinant of the relative weight attached by states to equity in the social welfare function. Controlling for all other factors, states with conservative citizens and institutions are less responsive to revenue inequities. In contrast, states with liberal citizens and institutions are more responsive to revenue inequities across local school districts.

POLITICS, JUDICIAL MANDATES, AND REVENUE EQUALIZATION

How effective are the courts in mandating reallocation of state revenues based on local revenue inequity? To address this question we created an indicator variable for all states and years where education finance systems fell under a judicial mandate.¹⁸ We interacted this variable with the local revenue equity variable from the base equation.

The results from this analysis, reported in the second row of column 1 of Table 3, show that on average the overall allocation to local districts in states under judicial mandate was larger by about

¹⁸ The states under judicial mandate were Alabama, Arkansas, Arizona, California, Connecticut, Kansas, Kentucky, Massachusetts, Montana, New Jersey, Tennessee, Texas, Washington, West Virginia, Wisconsin, and Wyoming. These states were under judicial mandate for the entire period of our analysis except for Alabama (1993), Arizona (1994), Massachusetts (1993), and Tennessee (1993), which fell under court order during the years in parentheses.

\$87.18 per pupil. The equalization coefficient for states under judicial mandate, while statistically significant, was not markedly different from that of other states. In non-mandate states each \$1,000 that a local district fell below the local revenue average resulted in about \$280.30 per pupil in state money. In judicial mandate states, an additional \$23.18 per pupil was supplied. These results suggest that on average courts are not very effective in altering state's propensities toward achieving revenue equity across local school districts. The average judicial effect was to modestly increase overall spending across all districts, but little change resulted from judicial mandates due to revenue disparities.

INSERT TABLE 3 ABOUT HERE

However, Canon and Johnson (1999) suggest that the ability of courts to enforce change depends on the preferences of the community. In issuing a judicial mandate the courts are implicitly trying to impose a different social welfare function on democratic decision makers. If successful, then we would expect greater revenue equity across local school districts. On the other hand, citizen and institutional liberalism may hinder or help the courts in producing change. Specifically, we would expect conservative citizens and institutions to be less receptive toward judicial mandates for revenue equalization.

We explored whether citizen ideology and institutional liberalism affected the courts' ability to produce greater revenue equity by creating a three-way interaction between local revenue equity, judicial mandates, and citizen ideology or institutional liberalism. The sixth row of columns two and three of Table 3 report the relevant coefficient estimates. The results show that stronger citizen liberalism interacts with the courts to produce greater revenue equity. However, interpretation of these three-way interaction effects is made easier by graphing the response of local revenue equity coefficients to changes in liberalism.

Based on the results in Table 3, the graph on the left side of Figure 1 plots the differential effect of citizen liberalism on the revenue equalization coefficients for both judicial mandate and non-judicial

mandate states. We restrict the plots to the actual range of citizen liberalism for both mandate and non-judicial mandate states. For non-judicial mandate states, each \$1,000 that a district fell below the state local revenue average resulted in an additional \$131.58 for the most conservative political culture. As citizens became more liberal revenue equity increased, with the most liberal state providing \$409.52 for each \$1,000 in revenue shortfall. This is a difference in non-judicial mandate states of \$277.94 from the most conservative to the most liberal state.

INSERT FIGURE 1 ABOUT HERE

For those states under judicial mandate, the most conservative state directed about \$180.00 toward those districts raising the least in local revenues for each \$1,000 local revenue shortfall. An increasingly liberal system increased the effectiveness of judicial mandates. The most liberal state under judicial mandate directed about \$703.13 for each \$1,000 local revenue shortfall. This is a difference of \$523.13 from the most conservative to the most liberal state. The different slopes of the two lines in Figure 1 show that courts were much more effective in forcing revenue equity in states having receptive political cultures. *In the most conservative states, judicial mandates produced slightly larger reallocations across local school districts. In the most liberal states, judicial mandates produced reallocations that were about twice as large as those occurring in non-judicial mandate states controlling for all other factors.*

The graph on the right side of Figure 1 confirms this differential effect using the institutional liberalism measure. In non-judicial mandate states, the state with the most conservative political institutions directed about \$252.53 toward districts falling \$1,000 below the local revenue average. As institutions became more liberal, revenue equity increased so that the most liberal state allocated about \$308.27 toward similar districts. In judicial mandate states, the state with the most conservative political institutions allocated about \$237.16 to districts falling \$1,000 below the local revenue average. As above, revenue equity increased with more liberal political institutions to reach \$377.98 per \$1,000 local revenue shortfall for the state with the most liberal institutions. Thus, *in the most conservative states,*

judicial mandates produced no reallocations across local school districts. In states with the most liberal institutions, judicial mandates produced reallocations that were about 1.25 times as large as those occurring in non-judicial mandate states controlling for all other factors.

Thus, citizen ideology and institutional liberalism affected not only the relative weighting of equity in each state's social welfare function, but also the ability of courts to force change. The evidence in Table 3 and Figure 1 shows that courts were generally unsuccessful where the citizens and institutions were strongly conservative and averse to revenue equalization. However, they were more successful as the political environment for change was more receptive.

CONCLUSIONS

State education finance institutions respond to diverse groups and integrate multiple values in allocating resources across local school districts. As democratic decision makers, state-level representatives balance concerns for revenue equity against the need for greater allocative efficiency and distributive politics. State decision makers care about efficient allocations because education affects a plethora of other outcomes, including the economy, tax revenues, illiteracy, poverty, and crime. These effects have long-term potential electoral consequences, as do the various influences reflecting distributive politics. State decision makers place the largest weight in the social welfare function on increasing revenue equity. Nevertheless, as we discussed in the introduction, serious inequities remain in resource allocations to local school districts within states and across the nation.

These inequities exist in large part because of the overarching importance of politics to state education finance decisions. Our analysis shows that politics matters a great deal in explaining the relative emphasis on revenue equity by state decision makers. States with conservative citizens and institutions use funding schemes that place less emphasis on revenue equalization. This obviously implies more disparate educational opportunities within these states, since education quality is tied to the level of funding for local districts. States with liberal citizens and institutions place greater

emphasis on equity by sending a larger proportion of state revenue to districts with weak local tax collections and revenue bases.

Politics also matters in the ability of courts to change the relative weight attached by state decision makers to equity. On average, courts are not very effective in altering state revenue allocations toward greater equity. The typical judicial effect was to raise the overall level of school funding, but the average reallocation due to court mandates was very small. The ability of courts to force change was greater, however, when facing citizens and institutions that are receptive to change. In states with strongly conservative citizens and institutions, judicial mandates were relatively unsuccessful in diverting more state revenues to disadvantaged local school districts. In the most conservative states there was no difference between allocations for states under judicial mandate relative to those not under judicial mandate. However, in states with the most liberal citizens and judicial mandates, about twice as much reallocation occurred relative to states with liberal citizens and no judicial mandate, and about five times as much occurred relative to states with the most conservative citizens and no judicial mandate.

The preceding analysis makes clear that state allocation systems respond democratically to the relative liberalism of citizens and institutions. The irony is that this democratic responsiveness produces large inequities within and across states, an outcome largely inconsistent with democratic values. Decentralized revenue collection with supplemental allocations from the state results in institutions that are likely to remain responsive to these same forces in the future. The ability of the courts to mandate change is constrained by the same influences that produce unequal allocations in the first place. In the words of Alexander Hamilton, courts lack control of either the “sword or the purse”, and are limited in their ability to affect significant social change. Thus, authorities seeking greater equity in local outcomes are unlikely to be successful without significant institutional reform at the state and local levels.

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TABLE 1: Base Model of How Equity, Efficiency, and Politics Affect State Revenue Allocations to Local School Districts

Variable	Slope Coefficient	Mean/ Standard Deviation
Local Revenue Equity (distance from average district within state in thousands)	-291.28 (-100.27)	0.00 [1.67]
Per Capita Income	-17.09 (-8.56)	12.79 [4.74]
Median Home Valuation	-1.92 (-12.82)	70.91 [53.19]
% High School Dropouts	13.92 (14.18)	18.06 [7.25]
% Unemployment	53.96 (12.87)	2.96 [1.17]
% On Free and Reduced Lunch	2.38 (7.44)	23.73 [16.79]
% African-American	0.28 (0.98)	7.45 [17.16]
% Hispanic	-2.77 (-9.87)	4.89 [21.92]
% Urban	2.94 (19.20)	24.74 [40.33]
% Rural	1.61 (11.88)	55.58 [39.55]
% College Educated	5.30 (4.14)	10.46 [7.15]
% In Private Schools	-4.11 (-12.99)	7.30 [6.10]
% With School Age Children	4.87 (14.95)	38.83 [6.98]
Constant	2355.80 (64.08)	

N = 40,490

R²=0.60

σ_e =750.64

Note: The dependent variable is the state allocation to local school districts in each year. The mean of the dependent variable is \$2,834.50 with standard deviation \$1,183.17. The model employed a two-way fixed effect design with group effects for each state and each year. The numbers in parentheses are t-statistics. The numbers in brackets are standard deviations.

TABLE 2: The Effect of Citizen Ideology and Institutional Liberalism on State Revenue Allocations to Local School Districts

Variable	Citizen Liberalism	Institutional Liberalism
Local Revenue Equity (distance from average district within state in thousands)	-103.01 (-14.05)	-259.33 (-46.71)
Citizen/Institutional Liberalism	-14.32 (-14.81)	0.30 (0.76)
Local Revenue Equity *Citizen/Institutional Liberalism	-3.65 (-27.92)	-0.67 (-6.75)
Per Capita Income	-10.68 (-5.38)	-16.48 (-8.26)
Median Home Valuation	-0.80 (-5.20)	-1.76 (-11.63)
% High School Dropouts	18.06 (18.41)	14.11 (14.37)
% Unemployment	56.54 (13.65)	55.20 (13.16)
% On Free and Reduced Lunch	2.26 (7.17)	2.38 (7.46)
% African-American	0.39 (1.42)	0.30 (1.07)
% Hispanic	-2.72 (-9.80)	-2.79 (-9.94)
% Urban	2.97 (19.60)	2.93 (19.14)
% Rural	1.64 (12.23)	1.61 (11.85)
% College Educated	5.19 (4.09)	4.96 (3.87)
% In Private Schools	-4.25 (-13.60)	-4.10 (-12.97)
% With School Age Children	3.82 (11.78)	4.71 (14.41)
Constant	2897.05 (46.39)	2325.11 (55.82)
N=40,490	R ² =0.61	R ² =0.60

Note: The dependent variable is the state allocation to local school districts in each year. The model employed a two-way fixed effect design with group effects for each state and each year. The numbers in parentheses are t-statistics.

TABLE 3: The Effect of Citizen Ideology and Institutional Liberalism on Judicial Mandates for State Revenue Equity

Variable	Courts	Citizen Liberalism	Institutional Liberalism
Local Revenue Equity (distance from average district within state in thousands)	-280.30 (-75.82)	-131.58 (-10.44)	-252.52 (-36.07)
Court	87.18 (2.85)	90.53 (3.03)	86.15 (2.82)
Local Revenue Equity*Court	-23.18 (-4.80)	191.62 (11.68)	15.37 (1.25)
Citizen/Institutional Liberalism		-14.32 (-14.97)	0.23 (0.59)
Local Revenue Equity *Citizen/ Institutional Liberalism		-2.78 (-14.51)	-0.56 (-4.89)
Local Revenue Equity* Citizen/ Institutional Liberalism*Court		-5.80 (-19.79)	-0.96 (-3.95)
Per Capita Income	-17.61 (-8.81)	-9.84 (-5.01)	-17.09 (-8.56)
Median Home Valuation	-2.02 (-13.36)	-0.94 (-6.20)	-1.89 (-12.41)
% High School Dropouts	13.44 (13.62)	17.31 (17.81)	13.49 (13.69)
% Unemployment	54.08 (12.91)	56.38 (13.75)	54.85 (13.08)
% On Free and Reduced Lunch	2.46 (7.68)	2.57 (8.22)	2.49 (7.78)
% African-American	0.25 (0.90)	0.26 (0.93)	0.29 (.03)
% Hispanic	-2.84 (-10.10)	-2.95 (-10.73)	-2.89 (-10.32)
% Urban	2.91 (18.94)	2.79 (18.59)	2.89 (18.83)
% Rural	1.65 (12.13)	1.89 (14.23)	1.65 (12.17)
% College Educated	5.19 (4.05)	7.94 (6.28)	5.04 (3.92)
% In Private Schools	-4.11 (-13.00)	-4.35 (-14.05)	-4.11 (-12.98)
% With School Age Children	4.97 (15.22)	3.78 (11.78)	4.82 (14.74)
Constant	2345.32 (61.38)	2840.18 (45.43)	2322.24 (54.45)
N=40,490	R ² =0.60	R ² =0.62	R ² =0.60

Note: The dependent variable is the state allocation to local school districts in each year. The model employed a two-way fixed effect design with group effects for each state and each year. The numbers in parentheses are t-statistics.

Figure 1. The Effect of Citizen and Institutional Liberalism on Revenue Equalization in Judicial Mandate versus Non-Judicial Mandate States

