Balancing Conflicting Policy Objectives: The Case of School Finance Reform

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Abstract - Public policy decisions often require the establishment of a balance between conflicting objectives. Pursuit of this balance is evident in changing fiscal relationships between states and local governments, particularly in the area of public school funding. Trends toward greater state funding responsibilities have generated conflicts associated with diminished local control over traditionally local decisions. A fundamental tradeoff between equity and efficiency objectives in the provision of public education underlies the political tensions inherent in altering school funding responsibilities.

A major school finance reform implemented in Kansas in the early 1990s provides an opportunity to observe the consequences of a significant shift in state-local fiscal relations, and the conflicts associated with balancing redistribution efforts and local government desire for autonomy. In 1992, Kansas adopted a school funding reform that transfers most public school funding decisions - both taxing and spending - to the state. A political compromise struck in Kansas - the *local option budget* - serves as a major concession to local control, and it reduces the severity of the constraints inherent in Kansas' highly centralized reform. An assessment of the Kansas reform indicates that equity – defined as equalized, cost-adjusted per pupil expenditures across districts – has been enhanced by the reform, and that the local option budget compromise can be viewed as a moderate price to pay for what it permits: political acceptance of a highly centralized, explicitly redistributive government initiative.

Public policy decisions frequently require the establishment of a balance between conflicting objectives. This is especially true for many current state policy efforts, particularly with regard to funding for public education. This policy area, which dominates state-local fiscal relationships, has been subjected to substantial challenges in recent years. While local governments have traditionally exercised significant control over public education policy, that control is increasingly constrained by recent state efforts - often prompted by court action - to alter the distribution of public education resources.

As a result, the fiscal relationship between states and local governments is undergoing significant changes, characterized by substantial shifts toward more centralized models of funding public education. The shifts to greater state funding responsibility have generated conflicts associated with diminished local control over local government activities. Underlying the political tensions of shifting responsibilities is a fundamental tradeoff between equity and efficiency objectives in the provision of public education. The principal factors driving increased state centralization are court-ordered improvements in inter-district funding equity and local opposition to the property tax. However, public finance theory suggests that centralization may reduce efficiencies associated with providing services "closer to the people", where the conformity between citizen preferences and the services provided can be strengthened (Tiebout, 1956; Oates, 1972). Thus, states are striving to balance conflicting equity and efficiency objectives - the benefits associated with enhanced equity of education opportunity vs. the efficiency costs that may result from erosion of local budget control.

A major school finance reform in Kansas in the early 1990s provides an opportunity to broaden our understanding of the dynamics associated with managing such conflicting objectives. In 1992, the State of Kansas adopted a school funding reform which transfers significant public school funding decisions - both taxing and spending - to the state. However, the legislature attempted to balance the mandated equity changes with concessions to the concept of continued local fiscal control. While the

concessions are important in preserving some local voice in a traditional local function, they also could threaten the major objective of the reform - equalized educational opportunity for all students.

We begin with an overview of the common equity standards proposed for school finance systems and their compatibility with efficient provision of educational services. Since state courts have often served as the catalyst for finance reform, we briefly review the evolution of court decisions and how court action framed the nature of the Kansas reform. We then describe the Kansas system - pre and post-reform - and how the legislature balanced competing equity (centralization) and efficiency (local control) goals. Using data from before and after the reform, we evaluate how these changes have affected various equity objectives. Our initial hypothesis was that the most important of the local control concessions - a local option budget provision - would help to provide a continued local role in education, but would lead to significant weakening of the relative equity goals stressed by the court. Our analysis suggests that, in fact, the local option budget has so far generated only moderate reductions in relative equity, and that it may provide a fairly successful strategy for states to not only resolve the state-local conflict, but also to balance the equity and efficiency objectives of education reform.

EQUITY STANDARDS AND COURT INTERVENTION

In 1991, 40 percent of total local (i.e., sub-state) government spending in the U.S. was dedicated to elementary and secondary education, by far the largest share of local budgets. However, the local role in financing education has dropped steadily in the last several decades. In 1960, local governments provided 59 percent of total non-federal public school funds, with states supplying 41 percent. By 1992, the local share had dropped to 50 percent of non-federal funds, while the other half was provided by the states (R.Fisher, 1996). Thus, the financing balance between states and local governments has been altered considerably, with states assuming increasing fiscal responsibility for public elementary and

secondary education (Duncombe and Johnston, forthcoming). In most states, the impetus for these changes has stemmed from court cases challenging the equity of local financing, and the rise of tax revolts particularly focused on local property taxes. While the history of education finance litigation has been well documented, the matching of court orders and particular equity objectives has received much less attention.

Competing Equity Standards

The education finance literature has outlined several key questions that need to be answered in defining an equity standard for a school finance system (Berne and Stiefel, 1984 and Monk, 1990). First, what should be equalized--expenditures, resources or outcomes? Most school reforms and court litigation have focused on expenditures as the object of equalization. However, expenditures, which mix input prices with input quantity, provide a poor measure of the underlying resources used by a school district or the outcomes of the process. To move from expenditures to resources or outcomes requires accounting for cost differences either due to input prices (teachers' salaries) or factors affecting the learning environment and capacity of students, such as family background and student characteristics (Duncombe, Ruggiero and Yinger, 1996).

Besides identifying the object of equalization, a standard or benchmark needs to be defined for assessing progress in achieving equity goals. In practice, the implicit standard behind the most common state school aid formula--the foundation formula--is an *absolute standard*. This standard is consistent with the notion that there are certain basic skills which are of broader interest to the public, and which justify public subsidy of a minimum level of resources or outcome level. Educational equity could also be defined in terms of achievement of some *relative standard* of equity where differences in resources or outcomes between school districts are kept within some bound. For example, resources in districts in the

top decile should not be any greater than 50 percent more than districts in the bottom decile. The extreme version of a relative equity standard is absolute equality between districts (Blanchard and Duncombe, forthcoming).

Another equity standard proposed for school finance is *wealth neutrality*, defined by Feldstein (1975) as the "precise rule that the elasticity of local educational spending per pupil with respect to the value of local taxable property per pupil be zero"(p. 77). The standard could be modified to apply to resources, outcomes, or other measures of fiscal capacity such as income. Wealth neutrality is an appealing standard to many people because it declares that a child's education should not depend on the wealth of her district, over which she has no control.

These equity standards vary not only in how they define the state equity interest, but also in what they imply about restrictions on local control. An absolute standard defines a floor for district resources (and often defines a minimum local tax effort), but does not impose any constraints on the spending level of districts above the standard. A wealth neutrality standard is also consistent with variation in local preferences for education as long as they are not systematically related to district wealth.[1] The one standard which implies significant restrictions on local preferences is the relative equity standard since a ceiling must be imposed on the resources provided by districts. Even if such restrictions can be imposed on local spending, it is difficult to prevent parents or PTOs from providing resources directly to schools, or to prevent parents from using private schools.

Besides the political difficulty of restricting local behavior, potential efficiency losses may be generated as well. As stated by Oates (1972), "The raison d'etre for decentralized government is found in the allocation function. For various services primarily of local interest, there is a compelling case for local provision in accordance with the tastes or preferences of local residents"(p. 477). Besides the allocative efficiency benefits of local provision, more decentralized financing of services provides a greater opportunity and incentive for citizens to monitor and put pressure on local school officials for greater

performance. There is mounting evidence of a positive relationship between the level of state aid distributed to a school district and the extent of productive inefficiency (Silkman and Young, 1982 and Duncombe and Yinger, 1997).[2] Thus, states attempting to reform their school finance systems must balance different equity objectives, and their consequent implications for allocative and productive efficiency.

Court-ordered Education Reform

Since the landmark *Serrano* v. *Priest* case in California in 1971, over half of the states in the country have had their school finance systems challenged in state courts with the majority of decisions favoring the plaintiffs (Odden and Picus, 1992, and Enrich, 1995). Reforms between 1971 and 1973 primarily challenged finance systems on the basis of state and federal equal protection clauses. After 1973, education finance became a state issue due to the U.S. Supreme Court decision - *Rodriguez* v. *San Antonio School District* - that a state's failure to provide equal access to education does not violate the U.S. constitution. Court cases since then have tended to challenge finance systems based on some "education clause" in state constitutions. Over the last several decades, the courts have primarily applied equity standards of relative equity or wealth neutrality with regard to spending. However, court decisions have often provided vague and imprecise definitions of equity (Enrich, 1995).

As a result of these cases, several states, including Kansas, adopted new school aid formulas in the 1970s and 1980s which were designed to reduce inter-district spending inequity (Berne and Stiefel, 1984; Blanchard and Duncombe, forthcoming), but preserve a great deal of local autonomy.[3] Recent cases filed in state courts have alleged that despite these earlier reform efforts, unequal access to education continues.[4] Several states have responded to these new cases by adopting school funding systems that significantly reduce reliance on local property taxes. Most notable are Michigan, Wisconsin

and Kansas which adopted new financing systems which rely on greater levels of state funding, reduced local property taxes, and imposed limitations on the maximum level of spending in districts (Johnston, forthcoming; R.Fisher, 1996; Fisher and Wassmer, 1995; Reschovsky and Wiseman, 1996).

COURT INVENTION IN KANSAS

Kansas has experienced several rounds of school finance reform in the last several decades. The most recent Kansas reform in 1992 should be viewed in the context of the state's features. Kansas is a large state geographically - the fifteenth largest in the nation - but is sparsely populated. In the western half of the state, where populations are declining, most county population densities are under 15 persons per square mile. Largely agricultural economies predominate in western Kansas, supplemented by natural gas deposits in the southwestern portion of the state. The two major urban areas - Wichita, and the Kansas City metropolitan area (which includes prosperous, growing suburban Kansas counties) - contain major portions (nearly 32 percent) of the school aged population, and are both located in the eastern half of the state. Like many other states, Kansas wrestles with geographic conflicts: Kansas' conflict is dominated by the economic, geographic and demographic differences between the western and eastern portions of the state. Kansas devoted roughly one-quarter of its state budget to public school funding prior to the recent reform (ACIR, 1993). Despite the state's political and fiscal conservatism, Kansans generally support moderate government redistributive efforts through public programs, including education.

In 1973, following a practice established in several other states, Kansas adopted a power equalizing school aid design. The School District Equalization Act (SDEA), which was intended to address relative inequities in the school funding system at the time, provided for state aid to be distributed through a matching formula which varied inversely with school district property wealth. However, due to both the design of the reform and incremental changes in the ensuing twenty years, the equalization

promised by the reform never materialized (McCarthy Snyder, 1995). While the aid formula attempted to compensate low wealth districts, the amount of aid distributed was insufficient to correct the large differences in districts' fiscal capacities. In addition to state aid distributed through the formula, the state also provided to each district a "rebate" of 24 percent of all state income tax revenues collected from that district. Although income was included in the state's calculation of district wealth for purposes of distributing aid, the rebate served to reduce the equalization effects of the system. Over time, the rebate became an increasingly important source of state school aid, and accounted for half of the state funds distributed to school districts by 1992 (McCarthy Snyder, 1995).

Despite the state's school finance reform in the 1970s, significant disparities existed in 1991. There were substantial disparities in per pupil assessed property value: the lowest value in the state was $8,063 and the highest was $563,680 (in a district in which a nuclear power plant was located.)[5] Local district mill levies ranged from 9 to 98, and per pupil spending ranged from $2,725 to $10,428.[6] Clearly, the system was failing to achieve a reasonable level of relative equity between school districts.[7]

In 1991, a number of school districts filed suit against the state, alleging that because the existing school funding system failed to provide equal educational opportunity for all Kansas students, the state's constitution had been violated (McCarthy Snider, 1995). Shawnee County District Judge Terry Bullock consolidated most of the lawsuits in the fall of 1991 and concurred that the present finance system violated the state constitution. Instead of moving these cases immediately to trial, Judge Bullock gave the state legislature one year to comply with ten “rules of law” which defined the constitutional requirements of the system. The key elements of this list include the following: 1) the state, not the local school districts, have the ultimate authority and responsibility to provide education; 2) all resources necessary to provide public education including school facilities should be provided equally to each child; and 3) some adjustment should be made in the finance system for the higher costs associated with educating some children.[8] Thus, the judge explicitly emphasized improving the relative equity between school districts in Kansas, and he

defined relative equity in terms of resources. The judge inferred that cost-adjusted resource equality was the standard by which he would judge the constitutionality of any reformed system. Little recognition in the judge's ruling was given to the political consequences of curtailing significant local autonomy or the efficiency impact of enforced equality.

SCHOOL FINANCE REFORM IN KANSAS

After intense debate, the Kansas legislature responded to judge's ruling by passing a major reform of the school finance system in the spring of 1992, which was to be implemented in 1992-1993. Although this reform has not received the attention devoted to education finance reforms in Michigan, Texas and Kentucky (Odden, 1993), the implications of the school finance reforms passed in Kansas in 1992 may be just as far reaching (Johnston, forthcoming). The reform includes several features which distinguish it from other state reforms.

Constraints on Local Control

One of the key components of the reform is a mandated statewide *maximum* per pupil base spending amount of $3600 per pupil. While most states use aid formulas that support a floor on spending (the *foundation* approach), they do not typically restrict the maximum amount districts can spend. The Kansas reform, therefore, imposes a ceiling as well as a floor on district spending. The intent of the law is to remove inter-district differences in spending, except for those that reflect cost differences among districts or those associated with other specified functions (e.g., special education). With a few exceptions discussed below, the legislative response to the judge's ruling was to impose a strict relative equity standard that approached full equality of cost-adjusted resources. With the exceptions of California and

Michigan, no state reform has attempted to impose such a binding constraint on district spending behavior. Kansas has therefore imposed a severely constraining system, in which local districts face strict limits with regard to both taxing and spending decisions.

These limits were sweetened to some extent by property tax reductions and enhanced state aid. All districts were required to collect a 32 mill levy for public education.[9] For all but a handful of districts the 32 mill levy was significantly less than what the district had been assessing. In the first year of the reform, school spending in the state increased by roughly 10 percent, and local property tax relief totaled $262 million, or nearly half of the pre-reform level (Kansas Association of School Boards, 1994; Tallman, 1993). Few individual districts had to raise property tax rates (fewer than 20), and the average district property tax levy dropped from 65 to 39 mills.[10] Consequently, the reform provided substantial property tax relief to most districts, and the state portion of total school funding grew from 43 percent to 70 percent (Kansas Association of School Boards, 1994).

The reform specified that any difference between the spending required under the new law and the amount raised through the local property tax levy would be provided by the state in lump-sum form. For a small number of districts, the revenue collected through the 32 mill levy would exceed permitted spending. Excess revenues in these districts would be "recaptured" by the state. The intent was to use the revenues generated by property wealthy districts to redistribute to districts with low property wealth (i.e., those districts unable to generate adequate revenues from their own property base). The recaptured revenues would be combined with new state revenues dedicated to public school funding, including increased income tax collections ($100 million), and revenues from an increase in the state sales tax rate and the elimination of selected state sales tax exemptions.[11] Through the recapture provision, Kansas has gone farther than most other states to enforce a relative equity standard on local school districts.[12]

Cost Adjustments

The pre-reform aid formula did allow some adjustments for low enrollment districts, in which education costs were higher due to diseconomies of scale, but the adjustments were complicated and somewhat arbitrary. Judge Bullock was clearly requiring a more rational cost adjustment. Addressing cost differences across districts is important because of the tremendous variation in district enrollment size and socio-economic background of students. For example, district enrollment size varied from a full time-equivalent (FTE) low of 77 to a high of 45,814. Roughly one-third of all state students were enrolled in the 5 largest districts - those with enrollments in excess of 10,000.[13] In contrast, a small portion of students (6 percent) were enrolled in districts with under 400 students, but these districts comprised 33 percent of all state school districts (Bundt, 1994; Tallman, 1993). Table 1 demonstrates that per pupil spending tended to be particularly high in these very small districts (See Table 1).

The Kansas reform, in response to concerns about the arbitrary nature of past cost adjustments, included a new method for calculating “weighted pupils” developed by the state education department. The new funding system assigned higher weights to students in low enrollment districts, those considered "at-risk" (for which school lunch qualification served as a proxy), and those requiring bilingual education, school transportation, or vocational education. In using the weighted pupil approach, Kansas is following the typical cost adjustment used by many other states (Gold *et al.*, 1992).

An alternative approach which has been discussed in the academic literature is to use regression estimates from cost models to construct education cost indices (see Duncombe, Ruggerio and Yinger, 1996 and Ratcliffe, Riddle and Yinger, 1990). To examine how the regression approach might differ from the weighted pupil method used by Kansas, we developed a cost model for Kansas school districts which is reported in Appendix A. Besides enrollment, the cost model includes average county wage (to capture input prices), transportation miles (to capture higher transportation costs), and percent of children at risk.

Most of the coefficients have the expected relationship with per pupil expenditures, however, only the enrollment variables are statistically significant at conventional levels.

Using this model, we constructed cost indices for all districts, which are then compared with the cost index inferred by the weighted pupil estimates produced by the state.[14] In Table 2, average values for each index are compared by enrollment size, level of child poverty, income, and property wealth for Kansas districts. Overall, our index and the weighted pupil system used by the state track very closely, with a correlation of 0.95. The weighted pupil index has slightly more variation than the regression index, particularly with regard to variation in the number of pupils. Thus, the state's cost weighting system appears consistent with alternative estimates of costs (See Table 2).

The largest cost variation using either index appears to be due to district enrollment, with low enrollment districts (bottom quartile) estimated to have 60 percent higher costs than high enrollment districts (90th percentile), holding other factors constant. By contrast, costs are only estimated to be 15 percent greater in high poverty (relative to low poverty) districts. Concern over undue emphasis on the costs of low enrollment (and over reduced local control over education funding decisions) helped prompt court challenges to the reform in 1994. To examine the importance of pupil size on the weighted pupil method, we constructed a regression-based cost index where only the pupil counts (FTE) were allowed to vary. The results reported in the third column of Table 2 are very strongly related to both the full regression-based cost index (r=0.99) and weighted pupil index (r=0.95). How closely these indices reflect the true cost differences associated with the pupil scale is not known, but it is clear that pupil size differences are the main source of variation in the weighted pupil index.[15] In addition to influencing aid distribution, these cost corrections could discourage school district consolidation. The current system could be enhanced by a detailed state analysis of educational costs, and by appropriate refinements to the current weighting system.

CONCESSIONS TO LOCAL CONTROL

During the early stages of the legislature's reform design, it became clear that the basic model for a new funding system would contain several provisions which were particularly disturbing to those interests in the state dedicated to retaining local control of education funding. First, and foremost, the new system dictated that local districts could *not* exceed the weighted per pupil spending limit set by the state. Second, if a district generated more from the 32 mill levy than it was permitted to spend, the difference was to be "recaptured" by the state.

In effect, a new tax and expenditure limit would be created. Tax and expenditure limitations have been studied extensively and both theory and empirical analysis suggest that they can reduce equity and efficiency by distorting local decisions and encouraging use of more regressive non-tax revenue sources (Ladd, 1978; Joyce and Mullins, 1991, Mullins and Joyce, 1996).[16] The strict spending limit embodied in the Kansas school reform could lead to unintended effects including expanded private school attendance and increased reliance on private fund raising activity (Johnston, forthcoming; Downes and Schoeman, 1991; Newman, 1995, Brunner and Sonstelie, 1997).[17] In addition, the reduction of local fiscal control could diminish the efficiencies that may result from a more precise correspondence between voter/parent/taxpayer preferences and educational services (Tiebout, 1956; Oates, 1972; Blanchard and Duncombe, forthcoming).

The spending limits and recapture provisions were particularly onerous to two types of districts. These included the property and income wealthy districts in suburban counties adjacent to Kansas City, and several property wealthy districts located in natural gas fields in rural, sparsely populated southwest Kansas. Under the new plan, some of these districts would experience tax increases, others could be prevented from continuing the generous spending levels to which they were accustomed, and some districts would face both tax increases and spending cuts.

An additional issue concerned the role of schools in rural western Kansas districts. For these districts, local control was an especially important concern. The consolidation of rural (and non-rural) districts into unified school districts (USDs) in the 1960s had created significant opposition and conflict, and had generated the closure of many small rural schools. In several rural districts, particularly in the western part of the state, local control was synonymous with the existence of the schools, which were considered to be critical to the vitality and survival of the surrounding communities. The treasured autonomy of western Kansas districts is hardly an abstract ideal: discussion of western secession from the rest of the state occurs regularly. Consequently, political resistance to redistribution and funding centralization tends to be particularly high among property wealthy or sparsely populated districts in this portion of the state.

Adoption of the new system would not be possible without concessions to these districts, and to other advocates for local control. The importance of local control was not limited to the wealthy districts. However, the combination of a state mandated property tax *and* a strict spending limit was especially burdensome to representatives of wealthy districts. As a result, the legislature took steps to accommodate local interests, despite the firm judicial imperative for a funding system that provided substantial equalization of cost-adjusted expenditures. To appease advocates for local control, the Kansas legislature incorporated several features into the new reform. The major "concessions" include the following: a local option budget provision, retention of small districts, and relief for capital expenditures.

The Local Option Budget

The principal compromise the legislature crafted was the local option budget, or LOB, which permitted districts to exceed the weighted per pupil general fund budget limit imposed by the state by up to 25 percent. In essence, the legislature adopted a relative equity standard, where weighted pupil

expenditure could vary by only 25 percent across districts. (Because of the weighted pupils approach, per pupil expenditures could vary by significantly more than 25 percent.) The new statute specified that each district could initially adopt a LOB *without* voter approval. However, if 5 percent of district voters protested (via a protest petition), a referendum would be required. In the initial year of the reform, protest provisions were not permitted, which enabled districts to implement LOBs with relative ease, if their elected school board members chose to do so.[18] For districts adopting LOBs, authorization was to expire after four years, at which time voter approval would be required for any further LOB authority.

The LOB served more than one purpose. In addition to addressing the interests of local control advocates, it also pacified those districts in which spending would be seriously reduced under the new system, including the prosperous suburban Kansas City districts. In effect, the LOB served to decrease the number of districts that would face spending cuts.[19] In addition, some officials view the LOB as a political necessity because it enables the state to avoid funding public education at adequate levels. The $3,600 weighted per pupil maximum level has been evaluated annually, but the legislature authorized only an additional $26 per pupil from 1992-93 to 1995-96.[20] The problem, in the eyes of many education professionals, is not the existence of the LOB and its threat to equalization; rather, the reform requires enhanced state funding, which has failed to materialize. Therefore, for a large number of districts, the LOB provides an important escape from the combined effects of the spending limit and the state's reticence to add to the allowable limit or to devote more resources to schools.

Despite the availability of the LOB to local school districts, a number of districts have been unable to use LOBs due to opposition of local voters. Even in districts where school boards initially approved an LOB, elected school board officials and educational professionals express grave concern about submitting LOBs to voter approval when the current authorization expires, fearing voter rejection. Reliance on property taxes in Kansas (for all government services) has traditionally been higher than in most other states (G.Fisher, 1995), and the hostility to the property tax found throughout the nation prevails in Kansas

as well (ACIR, 1989). In many current districts using the LOB (implemented without a referendum), officials would face significant opposition from anti-tax groups if LOBs required voter approval.

Despite its success as a tool of political compromise and its potential efficiency benefits, the LOB theoretically violates the strict relative equity standard required by the district court. Although the state provides supplemental aid to some needy districts using the LOB, the fact remains that average per pupil spending is higher in LOB districts.[21] The perceived impact of the LOB on equalization as required by the judge's instructions to the legislature contributed to a suit filed against the state after the reform was implemented. Although the court ruled in the state's favor in that decision, it is entirely possible that the LOB will engender future suits against the state in the interests of enhanced equity.

Enhanced local control for small districts

Under the new system, districts in the pre-existing categories for enrollments under 2,000 students qualify for low-enrollment weighting - Categories I (under 200), II (200-399), and III (400-1,999). The weight afforded to low enrollment districts is far higher than any other weights, which clearly provides incentives for small districts to remain small. The weighting system reflects a genuine attempt to recognize the higher cost associated with providing education in smaller districts, due in part to such districts' inability to take advantage of scale economies available to large districts.[22] However, the low enrollment weighting can also be viewed as yet another concession to local control. There are credible arguments in favor of consolidation of small districts - in Kansas and in other states. Kansas has chosen to retain the current district configuration, despite the fact that it includes some very small districts (with enrollments under 200). Residents in these districts would be highly resistant to consolidation efforts. Thus, this provision of the reform allows such high cost districts to continue, and ensures that they receive higher levels of aid to offset those higher costs.

Capital expenditures

Under the reform, districts were permitted to issue general obligation bonds to support capital construction, and for the first time, state aid would be provided for principal and interest payments. The principal and interest payment funds were not subject to a firm limit, although voters have to approve these expenditures in a bond levy election.[23] For debt issued after July 1, 1992, the state was willing to pay 25 percent of district bond payments for districts with the median assessed value per pupil, and provided a one percentage point increase (decrease) for each $1,000 of district per pupil assessed value below (above) the median (Kansas Association of School Boards, 1994). Since the median per pupil property value in 1995 was $29,650, districts with assessed value up to $54,000 per pupil will receive some aid. Given the unlimited nature of this provision and the fairly generous state support, this exemption could be one potential vehicle by which school districts are able to avoid the $3,600 weighted per pupil spending cap.[24] The reform also provided a spending exemption for capital outlays[25], and allowed districts to add up to four additional mills for capital expenditures financed through current revenue. No state assistance was available to support this levy.

ASSESSING THE REFORM

The Kansas school finance reform incorporates strict controls on local school funding decisions, but it also includes several measures designed to provide some relaxation of those controls. There is little doubt that the LOB is an effective political device, and that it has thus far minimized resistance to the reform among advocates of local control. In addition, the LOB provides an avenue for school districts to tailor their educational spending to match preferences of local voters. Thus, the reform approved by Kansas was an attempt to balance relative equity goals imposed by the district court with potential

efficiency effects from local control. The compromise struck by the legislature was the approval of a relative equity standard which allowed cost adjusted expenditure to vary by as much as 25 percent. By supplying matching aid for some needy LOB districts, Kansas effectively created a two-tiered aid system - a lump-sum grant to districts to bring all districts up to the spending limit, and a matching grant to encourage additional tax effort particularly by low wealth districts.

The Kansas approach for permitting local supplementation is superior to that imposed in several other well known finance reforms. Similar to Kansas, both reforms in Michigan and Kansas significantly increased the state share of school funding and imposed limitations on local revenue collection through property taxes. However, instead of permitting a fixed percent of supplementation by all districts and encouraging additional supplementation by low wealth districts, these reforms permitted the greatest level of supplementation among high spending or high wealth districts. In addition, neither of these reforms systematically adjusted for cost differences across districts.[26] While it is likely that the high spending (or wealth) districts would be most apt to supplement their expenditure, there is no justification for limiting supplementation by lower spending districts. Both of these states appear to have moved to greater state funding without reaping most of the relative equity benefits from such a reform, and they have severely limited local control in all but the high spending districts.

While it is evident that Kansas attempted to balance competing objectives in designing its reform, what is less clear is the equity implication of the LOB and the threat it poses for the full equalization standard envisioned by the original court directives to the state. In this section, we examine the impact of the LOB on relative equity as well as its impact on other equity standards. The recent implementation of the Kansas education reform implies that our evaluation of its impact should be viewed as preliminary. However, now that adequate information exists for two full years of the reform, it is possible to begin assessing what impact these changes have had on school district equity in Kansas.[27]

Who Uses the Local Option Budget?

In the first year of the reform, only one-third of the districts adopted Local Option Budgets (LOB)(Tallman, 1993; McCarthy Snyder, 1995). However, by 1995, roughly half of all districts used a LOB, financed in part through $127 million raised from local property taxes, and by state LOB supplemental aid totaling $39 million. While these numbers are not trivial, they represented only 6.3 percent of total district spending (without special education) and 8.7 percent of base general fund spending ($3,600 multiplied by weighted FTE). As indicated in Table 3, only five percent of the state's districts adopted LOBs which exceeded 10 percent of their approved general fund spending in 1995 (despite the 25 percent allowable limit). The reasons that districts have not used the LOB more are not entirely clear, especially since school boards were not subject to the protest petition. There is evidence, however, that hostility to the property tax has discouraged some school boards from adopting LOBs (See Table 3).

Turning to an assessment of which districts have and have not used the LOB, a clear pattern emerges (see Table 4). On average, districts using the LOB had higher expenditures in both 1992 and 1995, and had 60 percent higher property wealth per pupil. They had received slightly higher income tax rebates in 1992 and the median income of their residents averaged 6 percent higher, relative to non-LOB districts. Compared to the non-LOB districts, the LOB districts served more urbanized areas with over twice the enrollment and population, on average, and a higher percentage of college educated parents (See Table 4).

To further examine this issue we ran several exploratory regressions on the determinants of the LOB spending (Table 5). The dependent variable was the percent of total expenditures derived from the LOB. We constructed two models - one using all districts and another restricted to only those districts using the LOB.[28] The same patterns emerge for both models, with statistically significant positive coefficients for property values and the income tax rebate. Also positively associated with the use of the LOB and

significant in the reduced sample are enrollment size and the percent of children in poverty. The picture that emerges from this analysis, while not unexpected, is not encouraging for the equity impacts of the LOB. The LOB is most frequently used by wealthier, higher spending, and high population districts most likely to be affected by the severe spending constraints imposed by the reform. Even the higher aid offered to low wealth districts has not enticed most of them to supplement their school budgets (See Table 5).

Equity evaluation of the reform

Relative equity: The Kansas education reform focused above all on improving relative equity among school districts in the state. To evaluate the success of these efforts we have estimated several relative equity measures for school spending before and after the reform (1992 and 1995). A number of relative equity measures have been used in the education literature (Berne and Stiefel, 1984), and we selected three measures which capture different parts of the expenditure distribution. These measures include the coefficient of variation (CV), which measures the average dispersion across pupils (standard deviation divided by average), and a modified version of this measure (Brazier coefficient of variation) which is less sensitive to extreme observations. In addition, we calculated a relative range measure, the federal range ratio (FRR), which measures the tails of the distribution, and the Gini coefficient, which provides a more comprehensive measure of relative equity.[29] For all of these measures, estimates were made for pupils (rather than districts), and a lower value for a measure indicates greater relative equity, or reduced inter-district spending disparities.

Before evaluating relative equity, it is important to decide what should be equalized. While most rhetoric (and court cases) on school finance equity focus on per pupil expenditure, this is an imperfect measure of the underlying factors that parents and school officials are interested in - resources and

outcomes. Equalization of resources across districts assures that all districts have the ability to buy the same quality teachers, equipment, etc., but does not address the higher costs of educating certain students. Equalizing outcomes, while impossible in practice, implies an effort to compensate districts with more high cost students. The development of a weighted pupil measure to be used in setting Kansas school district budgets (and aid) was an attempt to take a more outcome-oriented approach. In Tables 6 and 7, we present equity measures for unadjusted per pupil expenditures, expenditures per weighted pupils (the current Kansas system), and expenditures adjusted by the regression-based cost index calculated in this paper (our approach).

Focusing on per pupil unadjusted expenditures, the Brazier coefficient of variation (CV), which drops from 13.94 to 10.82, shows an improvement in relative equity of 20 percent (see Table 6). The pupil level CV, the Gini coefficient, and the federal range ratio (FRR) showed smaller improvements ranging from 4 to 9 percent. When the effects of the LOB were removed there was minimal impact on the relative equity of the reform for all measures but the Brazier CV and FRR. Removing both the LOB and the state aid supplementing the LOB worsens relative equity compared to removing the LOB alone (See Table 6).

The results change when more outcome oriented measures are used as the basis of comparison. Using expenditures per weighted pupil (the measure used by the state) relative equity improved by 20 to 50 percent between 1992 and 1995 depending on the measure used. Removing the effects of the LOB further improves equity by 10 to 20 percent. Removing the LOB and the aid program actually slightly improves equity compared to removing the LOB alone under most equity measures. This implies that the LOB aid program does not appear to be assisting the districts most in need. The LOB story changes somewhat when cost-adjusted expenditures are used. Equity improved only modestly (between 5 and 15 percent) between 1992 and 1995 when the LOB is permitted; however, removing the LOB results in another 20 percent improvement in equity. Thus, removing the LOB is crucial to making a significant

improvement in relative equity when cost-adjusted expenditures are the object of equalization. Focusing on these outcome measures, relative equity has clearly improved since the reform was implemented and would improve even further if the LOB were eliminated.

However, relative disparities would not have been completely reduced - even for expenditures per weighted pupil with the LOB removed. In other words, the reform failed to equalize the potential education outcomes, even if we remove the effects exerted by the LOB. What are the sources of this continued variation across districts? Are these areas where disparities may continue to grow in the future? To examine this issue, we have re-estimated these equity measures for general fund operating expenditures (see Table 7). Operating expenditures do not include those capital spending or principal and interest payments that are recorded in total expenditures. Capital spending and particularly principal and interest payments were not constrained by the expenditure ceiling imposed on operating expenditures.

Looking at unadjusted expenditures per FTE, there appears to be little improvement in relative equity since the reform. The story changes dramatically when expenditures per weighted pupil are examined. Relative inequities were reduced between 50 and 80 percent between 1992 and 1995 even with the LOB and *were almost eliminated when the effects of the LOB and associated aid are removed*. While the improvements in relative equity with cost-adjusted expenditures are not as dramatic, they are substantial: considering operating expenditures, use of the LOB does not appear to significantly harm relative equity since most of the equity improvement occurs even when the LOB is in use by districts (See Table 7).

While only suggestive, these results indicate that capital expenditure funds have been and may continue to be important sources of disparities across districts. Districts could attempt to shift an increasing portion of their budgets into capital related funds. The equity results also indicate the sensitivity of the estimates of relative equity to the measure of expenditures used. For aid programs that are focused on narrowing outcome differences across districts, the manner in which outcomes and costs are

measured is critically important. The state has a responsibility to carefully review factors influencing school district costs and to design cost indices to accurately capture these differences. If the state inaccurately estimates cost differences across districts--by giving too much weight to low enrollment districts, for example--the aid system may do little to improve relative equity.

Other equity goals: While the district court appeared to be imposing a strict relative equity standard on the state, there are other equity goals which the state could pursue with the education reform. Most state aid programs nationally are based on an absolute equity standard, supporting a minimum or foundation level of expenditures. Recently, education scholars have proposed that an adequacy standard--minimum level of student outcomes--should be the objective of school finance reform (Clune, 1995). Since a minimum standard focuses on bringing up the bottom rather than restricting spending at the top, we would expect an LOB to have less effect on this standard. Using expenditures per weighted pupil as the outcome measure, we calculated the percent of districts which fell below an absolute standard of $3570 per pupil (Table 8).[30] In 1992, over 90 percent of districts fell below the standard for operating expenditures and 47 percent fell below for total expenditures. After the reform, all districts in 1995 were brought up to the standard even when the LOB is in use. Actually, removing the LOB results in 6 percent or fewer districts falling below the standard in 1995 based on operating expenditures; the LOB has therefore been used by some low spending districts to supplement state aid (See Table 8).

Another standard that has been applied by courts particularly in the 1970s and 1980s is wealth neutrality, which specifies that spending (or outcome) differences across districts should not be correlated with property wealth. This standard also permits discretion by districts in spending as long as the variation in spending reflects district preferences and not their fiscal capacity to finance education.[31] We measure fiscal neutrality by the elasticity between property wealth per pupil and expenditures per weighted pupil. Table 8 indicates that in 1992, the elasticities ranged between 0.07 and 0.10, suggesting

that a one percent increase in per pupil property wealth was associated with relatively small increase of approximately 0.10 percent in spending. With the reform, the elasticities dropped between 30 and 40 percent in 1995. An even larger drop in the elasticities occurred once the effects of the LOB were removed; in fact, the distribution of operating expenditures reached wealth neutrality (elasticity between expenditures per weighted FTE and property values equals .001).

CONCLUSIONS

The Kansas school finance reform case provides an opportunity to observe the consequences of a significant shift in state-local fiscal relations, and the conflicts associated with balancing redistribution efforts with local government desire for autonomy. An observer of the reform process noted that when the judge reviewed the court case alleging unequal education for Kansas students in 1991, "the tension between state and local educational interest was at the heart of the issue before the court." (Tallman, 1993). This conflict - between the equity objectives of the state and the desire of local level governments (i.e., school districts) to determine their own levels of tax burdens and spending - will not be completely resolved anytime soon. Indeed, a recent analysis of New Hampshire school finance suggests that despite recent trends toward centralizing school finance in state capitols, strong sentiment remains in some states for the retention of local control, even if reliance on property taxes is required to retain that local control.[32]

The compromise struck in Kansas, the local option budget, serves as a major concession to local control, and it reduces the severity of the constraints inherent in Kansas' highly centralized school finance reform. In essence, the Kansas legislature struck a balance between the relative equity goals demanded by the court and local autonomy with its potential efficiency benefits. Our analysis suggests that the impact of the LOB on equity depends on the equity standard and measure chosen. Focusing on relative equity measures for adjusted costs, the LOB reduces the equity improvement by 20 to 40 percent compared to reform with no LOB provision. The impact of the LOB is not trivial, but significant relative equity improvement occurs despite the LOB. The impact of the LOB on equity is much greater when a wealth neutrality standard is chosen, with most of the equity improvement occurring only after removal of the LOB.

Given the significant improvement in relative equity even with use of the LOB, it could be viewed as a moderate price to pay for what it permits: political acceptance, in a politically conservative state, of a highly centralized, explicitly redistributive government initiative. The impact of the Kansas education reform lies in stark contrast to California. There, the effects of Proposition 13 and post Serrano education reforms have reduced the connection between the taxes paid at the local level and the educational benefits derived by local residents, and have created serious distortions and unintended consequences. Recent studies of California indicate that the state's constraints on local school funding decisions have not provided more equitable education results (Downes, 1989), and that they have led to serious overall funding decreases for education (Silva and Sonstelie, 1995).

It remains to be seen whether the limited effects of the LOB will continue, or whether changes over time will lead to greater negative impacts on equity. Due to real or perceived property tax opposition, only half of the districts use an LOB and most LOB districts do not use the full amount available (25 percent of allowable spending). Recent growth in the number of districts using the LOB, and the fact that more districts are using higher LOB percentages (up to 25 percent) could very well create more serious equity consequences in the coming years. Additional concerns stem from the observation that more wealthy districts tend to use LOBs, and that the reform's capital spending provisions may exacerbate spending inequities. Despite the court's clear mandate for equal opportunity for all students, local preferences - for both taxing and spending levels - will not be easily suppressed. The state faces a delicate balancing act in which it must attempt to meet two conflicting objectives - those associated with relative equity and those related to local control of a government activity that affects citizens "close to home".

Partial funding for this study was provided by the University of Kansas General Research Fund (#3301-XX-0038). We are grateful to the Kansas Board of Education for providing much of the information used in this analysis; special thanks are due to Gary Watson. We would also like to acknowledge the helpful comments of several anonymous reviewers.

Notes

[1.] The aid system most commonly associated with this standard, a power-equalizing grant, is an open-ended matching grant which rewards districts with a subsidy to encourage more education spending. The matching level of the grant - which varies inversely with property wealth - has the explicit objective of assuring that any district, regardless of property wealth, will raise the same level of revenue for a given local tax rate (Monk, 1990). The other major type of school aid formula used in the U.S. is the *foundation* formula, which is designed to equalize school property tax rates, up to a minimal level of funding for all students.

[2.] Economists have provided precise definitions for the different efficiency concepts. Productive efficiency implies that it is not possible to provide a particular level of output at a lower level of costs. Allocative efficiency implies that it is not possible to reallocate goods or services in society to make someone better off within hurting someone else. For public services, this implies that the level and mix of services match the preferences of local citizens as closely as possible.

[3.] Most of the reforms created some form of power-equalizing or foundation grant that did not limit spending by high spending districts.

[4.] In a landmark article, Martin Feldstein (1975) predicted the failure of power equalizing formulas. His argument emphasized that districts would respond not only to the spending stimulus provided by the reduced tax price (i.e., the matching grant), but would also base their decisions on district wealth, and that wealth would exert a more powerful effect than the reduced tax price. For a detailed look at this and other school aid formula issues, see Ladd and Yinger (1994), and Reschovsky (1994).

[5.] In 1992, all residential real property in Kansas was assessed at 12% of market value. Agricultural, commercial, and industrial properties were assessed at 30% of market value.

[6.] These disparities were exacerbated by the state's income tax rebate to the districts. The lowest district rebate per pupil was $0 (some districts with relatively low mill levies received no rebate aid), and the highest was $1,413.

[7] The range in spending - from $2,725 to $10,428 - is due in part to cost variations across districts in providing public education. However, it is highly unlikely that the cost differences justify such wide disparities.

[8.] For a detailed discussion of the legislative process involved in the adoption of the new school finance system, see Tallman (1993). Tallman, a lobbyist for the Kansas Association of School Boards, was a first hand observer throughout much of the legislative session devoted to this topic.

[9] Subsequent to the reform, the standard mill levy was raised to 35 mills. More recently, the 1997 Kansas Legislature discussed reducing the state imposed mill levy to 27 mills.

[10] Some districts had mill levies exceeding 32 due to the fact that some used local option budgets, and some also levied mills for other authorized activities. These issues are explained in later sections of the paper.

[11.] Sales tax exemptions were repealed for original construction services and for utilities used in production. The state sales tax rate was raised from 4.25 percent to 4.9 percent. Other state funding sources used to finance the school finance reform included reductions in state aid, or revenue sharing, to counties and cities. In effect, the school district property tax reductions were funded in part by city and county state aid losses. See Kansas Association of School Boards, 1994, and McCarthy Snyder, 1995. The movement from property tax reliance to increased use of the sales tax raises questions about the equity of the resulting tax system. In Kansas, those questions are complicated by the state's taxation of food (grocery) sales.

[12.] One could argue that Hawaii has done more than Kansas in this regard. However, Hawaii operates only one, state-wide school district. Thus, in Hawaii, local fiscal control is virtually non-existent.

[13.] These five districts included Topeka (the state capitol), Wichita, Kansas City, Kansas, and two suburban districts adjacent to Kansas City.

[14.] Education cost models typically include measures of educational outcomes (e.g., test scores, drop-out rates), input prices, such as teachers' salaries, and physical and socio-economic factors affecting the cost of providing a given quality of education., such as enrollment, percent of children at risk or in poverty, transportation miles, and percent children with limited English proficiency or handicapping conditions (Duncombe, Ruggiero and Yinger, 1996). Since outcome measures were not available for this study, we followed the procedure in Ratcliffe, Riddle and Yinger (1990)

by including some demand factors in the model, such as per pupil state aid and percent college educated adults. The regression was estimated with OLS regression. To construct the cost index, we held the demand factors at the state mean and used the regression coefficients to predict the level of per pupil spending in each district. The ratio of the predicted district spending to the state average spending (times 100) is the cost index. The weighted pupil index is constructed by taking the ratio of the weighted enrollment (FTE students) to regular enrollment for each district and dividing this ratio by the state average of this ratio (times 100).

[15.] A simple illustration of the importance of low enrollment can be seen by using the actual method for calculating weighted pupil counts. Assuming that all the other factors affecting weighted pupils are held at zero, the difference in the weighted pupil index between a district with 80 pupils and one with 5000 pupils is 2.41 to 1.

[16.] Newman (1995) provides a discussion of other non-revenue sources, including vigorous parental fund-raising activity, and the equity effects of such activity.

[17.] For further discussion of tax and expenditure limitations in the context of public education funding, see Fischel, 1988, and Silva and Sonstelie, 1995.

[18.] The LOB amount was limited by a requirement that annual per pupil spending could not increase by 10 percent. This provision prevented some districts from adopting an LOB in the first year of the reform. See Tallman, 1993. The provision of the LOB allowing enactment without voter approval was authorized for only four years, and would expire in 1996-97. With that deadline looming, the 1995-96 legislature enacted a one year extension of the current system, allowing "deadline" districts to avoid referenda until 1997-98. However, it is far from certain that such authority will continue into the future.

[19.] The LOB was originally intended as a temporary concession. Early legislative discussions of the LOB included provisions for the eventual phase-out of the option: as state authorized per pupil spending levels increased, the allowable LOB percentage was to gradually diminish. This phase-out of the LOB was not adopted into the statute, and has received limited attention since the new system was adopted.

[20] In 1996, the legislature authorized an additional $22 per pupil, raising the base per-pupil spending level to $3,648.

[21.] The amount of state aid allocated for LOB purposes is equal to the district's LOB mill levy multiplied by the difference between the per pupil assessed value at the 75th percentile minus the district's assessed value. In essence, the state has set up a matching grant (very similar to the power equalizing grants proposed during the earlier phases of state school finance reform by Coons, Clune and Sugarman, 1970) to encourage local supplementation by low wealth districts. However, the incentive has not been very effective: wealthier districts are the principal users of the LOB.

[22.] See Duncombe, Miner and Ruggerio (1995) for a detailed analysis of cost savings from consolidation for New York State. They find that there may be cost savings from consolidation of districts with enrollment under 500 pupils. However, actual consolidation decisions should be based on a detailed analysis of the potential districts to be merged and how consolidation would save money. Consolidation of large, sparsely populated districts may yield cost savings only in administration which need to balanced against the potential allocative efficiency losses from less local control.

[23.] The new reform imposed no limit on the tax rate (mill levy) that can be used to finance principal and interest payments related to bonds. However, if bond indebtedness exceeds 14 percent of district assessed valuation, state approval is required for the additional debt. One of the potential problems with the capital outlay and bond and interest funds is that they might encourage districts to use more capital intensive teaching methods (computer aided instruction) which may not be cost-effective. Consequently, incentives may exist for districts to shift expenses into these funds, which could have consequences for the equity effects of the reform and productive efficiency.

[24.] Other exemptions to the spending limits include the provision for a 2 percent contingency fund, the special education fund, and other programs supporting teacher training, parent education and school innovations. Of these the special education fund is the most important since spending in this area comprised over 15 percent of general fund budgets in 1994. Aid is provided to districts to cover a portion of the additional costs of these students (above the $3,600). Given the significant financial support provided for special education and the potential discretion associated with classifying students particularly with limited disabilities (e.g., mild learning disabilities), special education has been one of the fastest growing expenditure categories in many states (Lankford and Wyckoff, 1996).

[25.] Permissible capital outlays include land, building acquisition and repair, and equipment purchase, including computers.

[26.] The major school finance reform passed in Michigan in 1994 significantly increased the state share of school revenue and imposed a ceiling on district spending which varied across three categories of districts which were

based on per pupil spending in 1994 prior to the reform. Districts in the highest spending category are allowed a 50 percent higher spending ceiling than low spending districts and only the high spending districts are allowed to supplement the state-set expenditure ceiling with additional local tax revenue (Courant and Loeb, 1997; Wassmer and Fisher, 1996). Wisconsin went through a series of reforms from 1993 to 1995 which significantly expanded the state funding of schools and limited local property tax levies. In the 1995/97 budget, districts were allowed only a fixed increase of $200 per pupil per year in total revenue (aid and property taxes). Since low wealth districts receive more aid, their ability to supplement their revenue will be proportionally less than high wealth districts (Reschovsky, 1996).

[27.] We have obtained data for the 1993-94 and 1994-95 school years. Although the 1992-93 school year is technically a "reform" year, it was a transition year, and we are avoiding use of data from that year.

[28.] The regression for all districts was estimated with a Tobit regression since over the half the districts did not use the LOB (truncated at zero). The regression restricted to districts using the LOB was estimated with OLS regression.

[29.] See Berne and Stiefel, 1984, for a comprehensive review of education equity measures. The Brazier coefficient of variation is calculated using the range between the 75th and 25th percentiles, divided by the median. The federal range ratio is the range in per pupil expenditures between districts in the 95th percentile and those in the 5th percentile for spending divided by per pupil spending for districts at the 5th percentile. For example, a federal range ratio of 0.5 indicates that high spending districts (95th percentile) spend 50 percent more than low spending districts (5th percentile). The Gini coefficient is determined by ranking districts according to our per pupil expenditure measure and the number of pupils. It measures the relative gap between actual spending by districts and equal per pupil spending.

[30.] While the official expenditure level in the reform was $3600 per student, there were a number of districts in 1990 that fell slightly below the standard. This discrepancy was probably due to slight differences in our calculation of expenditures per weighted pupil compared to the state. Accordingly, we used $3570 as the absolute standard instead of $3,600.

[31.] There is no reason that the fiscal neutrality standard should be limited to fiscal capacity alone since cost differences across districts are also out of their control. A standard that is more consistent with the original intention is a fiscal health neutrality standard which could be measured by a property value index divided by a cost index. Using this standard, fiscal neutrality would be achieved if outcomes were not correlated with either the fiscal capacity or costs of a school district (see Duncombe and Yinger, forthcoming).

[32.] The study, conducted by Campbell and Fischel (1996), emphasized that the inequality of the school funding system in the U.S. is a direct result of the strong historical tradition of local education funding. The authors conclude that in a recent New Hampshire election, voters clearly preferred local control over school funding, despite the property tax reductions which could have resulted from altering the current system. They also claim that voters will rarely support reductions in local control, that legislatures which move school funding decisions to the state level are not representing voter interests, and that most centralized systems occur only because of court action - threatened or real. Thus, the tradition of local control is a powerful one, and it is not easily displaced.

Appendix A
Cost Model for Kansas School Districts
(regression results for 1992)[a]

Variable	Coefficient	t-statistic
Intercept	11.73	20.94
Cost factors:		
Average county wage[b]	0.03	0.64
Per FTE transportation miles[b]	0.02	1.55
Pupils (FTE)[b]	-0.62	-9.91
Pupils squared[b]	0.03	7.59
Percent of children at risk[c]	0.54	1.15
Demand factors:		
Per FTE state aid[b]	-0.12	-8.90
College-educated adults (adjusted percent)[d]	0.21	1.21
Adj. R^2	0.67	
SSE	4.34	

aOrdinary least squares regression with the dependent variable as actual total expenditures per FTE (n=294).

[b]Variable is expressed as a natural logarithm.

[c]Defined as the percent of children 6 to 19 years of age, living with a single mother who is not a high school graduate and is below the poverty line.

[d]Variable is a residual from a regression of the percent of adults with a college education and median household income.

Table 1
Distribution of Kansas School District Sizes, 1991-92.

Enrollment Category		Percent of All Districts	Percent of All Students	Average Per Pupil Spending
I	Under 200 students	12	1	8505
II	200-399 students	21	5	6367
III	400-1,999 students	53	31	5573
IV	2,000-9,999 students	12	33	4560
V	10,000 or more students[a]	2	30	5336

[a]The five largest districts, which comprised Category V, were Wichita, Shawnee Mission (suburban Kansas City), Kansas City, Olathe (suburban Kansas City), and Topeka.

Adapted from Bundt (1994), and data from the Kansas State Board of Education.

Table 2
Comparison of Kansas Weighted Pupil Index with Regression-based Cost Index

Category	Weighted Pupil Index[a]	Regression Cost Index[b]	Regression Cost Index--Only FTE Changes[c]
Number of pupils (FTE percentile):			
Under 25th	125.69	124.86	124.01
25th to 50th	105.85	102.78	102.74
50th to 75th	95.63	92.77	93.02
75th to 90th	76.35	83.39	83.71
Over 90th	68.62	76.53	77.57
Child poverty class (percentile):			
Under 25th	94.71	95.52	95.78
25th to 50th	99.44	98.79	98.76
50th to 75th	98.17	98.57	98.76
75th to 90th	103.32	102.92	102.99
Over 90th	114.40	113.44	112.27
Income class (percentile):[d]			
Under 25th	106.03	104.94	104.35
25th to 50th	106.15	104.16	104.05
50th to 75th	97.67	97.08	97.37
75th to 90th	91.27	94.60	94.88
Over 90th	88.23	92.33	93.04
Property value class (percentile):[e]			
Under 25th	88.83	90.89	91.38
25th to 50th	92.92	93.42	93.76
50th to 75th	100.47	100.64	100.59
75th to 90th	120.90	117.61	116.92
Over 90th	113.08	111.94	110.99

[a]Weighted FTE relative to regular FTE for each district divided by the state average (times 100).

[b]Index calculated by multiplying cost and demand factors by the regression coefficients where the demand factors are held at the state average. The estimated cost for each district is divided by the state average expenditure (times 100).

[c]Uses same regression model but all factors held at means but pupil (FTE) counts.

[d]Based on income tax rebates to districts in 1992.

[e]Per pupil (FTE) assessed value.

Table 3

Distribution of Relative Size of LOB in 1995

(LOB as percent of expenditures)

Distribution	All districts (n=300)	Districts with LOB (n=137)
LOB as percent of total expenditures:		
Mean	2.37	5.16
Median	0.00	3.41
Minimum	0.00	0.03
25th percentile	0.00	1.90
75th percentile	3.06	6.84
95th percentile	12.58	17.26
Maximum	20.67	20.67
LOB as percent of pre-set general fund budget:[a]		
Mean	3.33	7.27
Median	0.00	4.21
Minimum	0.00	0.03
25th percentile	0.00	2.34
75th percentile	3.88	9.63
95th percentile	18.13	23.62
Maximum	31.28	31.28

[a]$3,600 times the number of weighted FTE in a district.

Table 4
Comparison of School District Characteristics
Using and Not Using a Local Option Budget in 1995
(averages by group)

Characteristic	Using LOB (n = 138)	Not Using LOB (n = 163)	t-statistic
Expenditures per FTE:			
1992	$6,281	$5,765	3.10
1995	$7,081	$6,631	2.85
Fiscal capacity:			
Property values per FTE	$55,830	$34,787	3.12
Median household income	$25,505	$23,914	2.18
Income tax rebate per FTE in 1992[a]	$339	$298	2.84
Cost factors:			
Enrollment (FTE)	2092	917	2.80
Population (1990)	12000	4992	2.48
Weighted FTE index[b]	97	102	-1.94
Regression cost index[c]	98	102	-1.62
Percent of children in poverty	14.46%	14.85%	-0.45
Percent of children at risk[d]	1.48%	1.26%	1.21
Percent of adults with college education	14.23%	13.07%	1.87

[a]Under the prior education funding system a portion of state income taxes was returned to the district of origin. This provides a rough indicator of per pupil income in 1992.

[b]Weighted FTE relative to regular FTE for each district divided by the state average (times 100).

[c]Index calculated by multiplying cost and demand factors by the regression coefficients where the demand factors are held at the state average. The estimated cost for each district is divided by the state average expenditure (times 100).

[d]Defined as the percent of children 6 to 19 years of age, living with a single mother who is not a high school graduate and is below the poverty line.

Table 5
Factors Associated with Relative Size of LOB in 1995
(LOB as percent of total expenditures)

	All districts (n=300)[a]		Districts with LOB (n=137)[b]	
Variable	**Coefficient**	**t-statistic**	**Coefficient**	**t-statistic**
Intercept	-8.2188	-2.97	-2.7612	-1.34
Fiscal capacity:				
Property values per FTE (in thousands)	0.0582	8.37	0.0471	8.61
Income tax rebate per FTE in 1992 (in thousands)	14.0779	3.71	5.0930	1.95
Cost factors:				
Enrollment (FTE in thousands)	0.1441	1.13	0.1520	1.88
Weighted FTE index (percent)[c]	-1.2903	-0.57	1.1700	0.66
Percent of children in poverty	9.4268	1.52	14.1959	2.79
Percent of children at risk[d]	0.3838	0.01	-40.1924	-1.87
Percent of adults with college education	2.24	0.26	4.6700	0.66
	Chi-square	80.22	Adj R^2	0.48
	Prob. of chi-square	0.00	SSE	1666.5

[a]Estimated with Tobit regression with the dependent variable truncated at zero.

[b]Estimated with OLS regression.

[c]Weighted FTE relative to regular FTE for each district divided by the state average (times 100).

[d]Defined as the percent of children 6 to 19 years of age, living with a single mother who is not a high school graduate and is below the poverty line.

Table 6
Relative Equity Measures for Kansas School Districts
Before and After the Education Reform
(total expenditures)

Category	Pupil Coefficient of Variation[a]	Brazier Coefficient Variation[b]	Gini Coefficient[c]	Federal Range Ratio[d]
Expenditures per FTE:[e]				
1992	16.54	13.90	0.073	0.967
1995	15.09	10.82	0.069	0.924
1995 (without LOB)	15.09	11.47	0.066	0.839
1995 (without LOB & aid)[f]	15.77	11.13	0.068	0.850
Expenditures per weighted FTE:[g]				
1992	21.66	13.43	0.123	1.006
1995	15.91	7.70	0.100	0.547
1995 (without LOB)	13.07	6.73	0.079	0.451
1995 (without LOB & aid)[f]	12.60	6.54	0.075	0.457
Cost-adjusted expenditures per FTE:[h]				
1992	13.60	8.20	0.077	0.594
1995	13.26	7.33	0.077	0.524
1995 (without LOB)	11.33	6.13	0.062	0.418
1995 (without LOB & aid)[f]	11.40	5.68	0.062	0.444

[a]Coefficient of variation is defined by the ratio of pupil weighted standard deviation and average.

[b]Brazier coefficient of variation is the interquartile range divided by the median. This measure is less influenced by extreme observations.

[c]Gini coefficient is a measure of relative inequality based on the Lorenz curve. It takes into account inequality over the whole range of per pupil expenditures.

[d]The federal range ratio is the range in per pupil spending from districts in the 95th to 5th percentile in spending divided by spending for districts in the 5th percentile.

[e]FTE is full-time equivalent students.

[f]Total expenditures without the local option budget and state aid provided to some districts with a local option budget.

[g]Weighted FTE is a weighted pupil measure which includes adjustment for number of pupils, bilingual and vocational education, new facilities, high transportation costs, and at-risk students.

[h]Expenditures are divided by a cost index constructed from a cost regression model.

Table 7
Relative Equity Measures for Kansas School Districts
Before and After the Education Reform
(operating expenditures)

Category	Pupil Coefficient of Variation[a]	Brazier Coefficient Variation[b]	Gini Coefficient[c]	Federal Range Ratio[d]
Expenditures per FTE:[e]				
1992	18.15	12.23	0.078	1.101
1995	17.10	11.45	0.073	1.051
1995 (without LOB)	18.71	11.03	0.074	1.004
1995 (without LOB & aid)[f]	19.88	11.01	0.076	1.047
Expenditures per weighted FTE:[g]				
1992	20.56	9.94	0.108	0.988
1995	9.03	3.03	0.050	0.232
1995 (without LOB)	3.84	0.88	0.017	0.086
1995 (without LOB & aid)[f]	2.97	0.08	0.007	0.045
Cost-adjusted expenditures per FTE:[h]				
1992	10.94	6.36	0.058	0.396
1995	8.16	3.97	0.045	0.291
1995 (without LOB)	6.92	4.10	0.037	0.235
1995 (without LOB & aid)[f]	7.75	4.14	0.040	0.252

[a]Coefficient of variation is defined by the ratio of pupil weighted standard deviation and average.

[b]Brazier coefficient of variation is the interquartile range divided by the median. This measure is less influenced by extreme observations.

[c]Gini coefficient is a measure of relative inequality based on the Lorenz curve. It takes into account inequality over the whole range of per pupil expenditures.

[d]The federal range ratio is the range in per pupil spending from districts in the 95th to 5th percentile in spending divided by spending for districts in the 5th percentile.

[e]FTE is full-time equivalent students.

[f]Total expenditures without the local option budget and state aid provided to some districts with a local option budget.

[g]Weighted FTE is a weighted pupil measure which includes adjustment for number of pupils, bilingual and vocational education, new facilities, high transportation costs, and at-risk students.

[h]Expenditures are divided by a cost index constructed from a cost regression model.

Table 8
Other Equity Measures for Kansas School Districts
Before and After the Education Reform

Category	Absolute Equity: Percent of Districts Below $3570 Per Weighted FTE[a]	Fiscal Neutraliity: Elasticity between Expenditures per Weighted FTE and Property Values[b]
Operating Expenditures:		
1992	92.49	0.068
1995	0.00	0.051
1995 (without LOB)	5.80	0.001
Total Expenditures:		
1992	46.94	0.097
1995	0.00	0.061
1995 (without LOB)	0.00	0.021

[a]FTE is full-time equivalent students. Weighted FTE is a weighted pupil measure which includes adjustment for number of pupils, bilingual and vocational education, new facilities, high transportation costs, and at-risk students. The absolute equity standard was set slightly below the expenditure target (3,600) set by the state because of slight differences in calculations.

[b]The elasticity is defined as the percent change in expenditures per weighted pupil for a one percent increase in property wealth. It was calculated from a constant elasticity regression model.