Fiscal Equalization and the Median Voter:  
The Simple Analytics of School-Finance Reform

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This essay will develop and apply some principles from basic microeconomics, local public economics, public choice, and corporate governance to analyze local government decisions. The specific form of local government is the school district, in which the issues discussed have the most salience, but applications to general municipalities are straightforward. The purpose of these graphical devices is to shed some light on contemporary issues that are not easily understood without them. This framework would not be necessary if the United States had a centrally directed school system. Nor would it be particularly interesting if each school district could select its educational programs without regard for the decisions of any other district. But because the 15,000 districts have some autonomy but also need to coordinate their curricula with other districts, comparisons of the fiscal resources and voters’ decisions in one district to another are important for establishing a uniform system of education.

Local autonomy but nationwide standards make education somewhat different from other local services. We don’t worry whether every municipality has the same set of recreation opportunities or disposes of its wastes in the same way. Some can have public golf courses, swimming pools, bicycle paths; others can choose to let the private market provide them. Some can have sewers and others can require septic systems. It is not especially important to coordinate the mix municipal services. But schools are different; new kids have to fit in to a familiar system.

Graphical devices are developed here in the hope of distinguishing some concepts that I have found are often misunderstood if only a verbal narrative is used. For example, many discussions of school finance speak of the tax rate as the price of public schools. The more useful concept is the “tax-price” that voters face rather than the tax rates that result from their choices. I hope that
their application will convince at least some of those readers that a more abstract framework can sometimes give some insights that may be missed in purely verbal descriptions.

§1 Majority Rule and Condorcet’s Jury Theorem

Democratic elections are the ultimate source of public decisions in liberal societies. Most observers of school districts think of them as purely democratic institution in America. Critics deride school district politics for their pettiness and narrow outlook, while admirers find in them the best examples of participatory democracy, but few think that district elections (outside of those in the largest cities) give the voters anything but what the voters wanted.

What both critics and admirers often have in common is skepticism of the ability of voters to select policies that are actually in their interest. One important problem is what economists’ have called “rational ignorance.” This oxymoron means that voters know that their own vote will be unlikely to sway an election, and so they “rationally” invest relatively little effort in learning about the issues. Even if there are as few as 501 votes cast, the odds that the election will be decided by 251 to 250 are so small that few voters would spend a lot of time and effort to decide which way to vote, even if they cared a great deal about the outcome. And rational ignorance seems to apply in almost all elections. Social scientists who survey individual voters about public issues almost universally conclude that “informed voter” is a contradiction in terms (Bryan Caplan 2007).

But there is a contrary view that has gained currency. It holds that examining individual voter’s knowledge misleads us into believing that they are collectively ignorant. (An accessible review of this position is Cass Sunstein [2006].) It starts with the proposition that almost all voters know something about issues and candidates. News, gossip, and political advertising are difficult to escape entirely. Indeed, one could make an economic case for the subsidy to free speech that the privileged status of the First Amendment (as opposed to, say, the Second Amendment) offers to purveyors of political news. It responds to the need to overcome rational ignorance.

Let’s suppose that a program is proposed to voters that costs the school district $1 million and would raise the average voter’s taxes by $100 per year. The program is said to be needed to improve the test scores of the students in the school. Improved test scores are well known to attract homebuyers and cause home values in the district to rise. But the evidence supporting this
claim is contested, with opponents saying the proposal is a waste of money that will not improve test scores by enough to offset the devaluing effect of higher taxes. It would take a great deal of research to find out which side is more likely, and none of the voters undertakes that research. Instead they get sound bites and statements of support or opposition by advocacy groups and community leaders and unaffiliated kibitzers and busybodies.

These sources of information appear to be enough to lead the majority to support the program if it is in fact in the majority’s interest and to oppose it otherwise. According to the proposition attributed to the Marquis de Condorcet, as long as a majority of voters possess some small bit of information that makes the right choice slightly more likely than not, most elections will produce the correct result. The main qualifiers are that the issue be about something that is objective, not about preferences or tastes, that voters have some information even if it is incomplete, and that voters are not systematically misled. Votes about whether public art should be an abstract expression or a photographic likeness have no right or wrong answer, but votes about whether a policy will make potential buyers willing to pay more for your house do have a right and wrong answer.

Here is my personal demonstration of Condorcet’s theorem. (For more systematic evidence in support of Condorcet’s theorem, see Nicholas Miller [1996].) I often make up multiple-choice questions for the tests I give in my economics courses. In grading students’ answers to these questions later, I sometimes find that students are systematically choosing a single option that is not what I had originally regarded as the right answer. For example, I thought that the right answer was (b), but a majority of students selected (a) as the right answer. When I notice this, I start to suspect that (a) is the right answer, too. Most of the time when I re-examine the question, I conclude that it was worded such that (a) was indeed a more appropriate answer, or at least that there’s enough ambiguity that (a) was as good an answer as (b). On multiple-choice tests, the majority answer is almost always the right answer to an objective question. I like to say from this experience that the average student is my best student, but of course that is misleading. The average that is relevant is the consensus for each question, not the average student in the class.

The Condorcet Jury Theorem is a limit theorem. It does not guarantee that every plebiscite will get the right answer. It simply states that the probability that the right answer will be chosen increases as more people vote on it. This might seem to militate for elections on as large a scale as possible. The trouble with large-scale elections is that the average amount of knowledge might
drop as the size of the jurisdiction increases. Within a small school district, most voters are likely
to have some information about how their schools operate. Even if they personally have no
information, they may take cues from people they trust on how to vote. But a statewide election
about schools might cause even fewer voters to invest in informing themselves, since most
spending will be on schools in other parts of the state. Moreover, interest groups might provide
systematically skewed information that can undermine voter knowledge. It is important that the
Condorcet jury theorem does require that the majority of voters have access to accurate
information, even if they pay only passing attention to it.

§2 The Median Voter’s Tax-price

The median voter model is the workhorse of local public economics (Bergstrom and
Goodman 1973; Randy Holcombe 1989). The median voter is the voter in the middle of the
distribution of preferences for public goods. In the present case, the public good is spending for
local schools. If the school board is attentive to what the majority of voters want, or if spending
is actually determined by majority vote, the median voter will always be in the majority. There
are qualifications to that proposition that are not especially relevant for school spending, such as
log-rolling issues and extreme preferences. Log rolling is unimportant since, unlike most state
governments, school districts have but a single issue to be concerned with, education. Extreme
preferences are ruled out by mobility among school districts. People who really despise a
district’s policies usually find somewhere else to reside.

It is also worth mentioning that the median voter is not a particular person. I once looked at
the 1990 Census figures for my hometown (Hanover, New Hampshire) and discovered that I had
close to the median income and median house value for my town. I joked to friends that I should
tell the Selectmen (the town’s elected representatives) that they could economize on future
elections and just ask me what spending policies should be. But in all seriousness, I was not the
median voter. If I were to move away, I would very likely sell my home to someone like me with
a similar income. Besides that, the power of the median voter is not being in the middle; it
derives from the aggregation of knowledge by a large number of voters, with the median being
nothing more than a convenient representative of the majority.

Figure 1 is a representation of the median voter’s choice of school spending (S on the
horizontal axis) and other goods (Y, income after tax, on the vertical axis). One of the
indifference curves (the unlabelled curve) is tangent to the median voter’s budget line at point A,
and this is what the whole school district gets to spend. For simplicity’s sake, spending will be represented on a per student basis, and it will be assumed that the median voter has a child in the school system. This is not so realistic, since about two-thirds of American households in 2000 had no children under 18, but this unrealism is not fatal to this theory. Childless voters could anticipate that they will have children in the near future. They most likely own a home (most voters are homeowners) that could be sold to someone with children. Even voters without the prospect of having (more) children may not want to run down the schools lest their major asset become unattractive in the housing market (Mayer and Hilber 2002).

In the baseline established here, schools are solely financed by a property tax at rate t, which is applied uniformly to the value of all property in the district, which totals V. Total school spending, S, must equal tV. (I am assuming an unchanging cost of school inputs for the present analysis, so that S can be either school spending or real inputs to schooling.)

The individual median voter depicted in Figure 1 has a budget constraint that is his total potential private income, $Y_o$, less the taxes that the voter must pay for school, t$V_i$. The value $V_i$ is the amount of the tax base (property value) owned by the median voter. This would usually be the value of the voter’s house, though it could include nonresidential property in the community owned by the average voter. Thus total income $Y = Y_o - tV_i$. However, we also know that school spending, S, must be financed by tax revenues, tV, so that $t = S/V$. We can substitute $S/V$ for t in the equation $Y = Y_o - tV_i$, which now reads $Y = Y_o - (S/V)V_i$, which can be written as follows to make the main point of this exercise: $Y = Y_o - (V_i/V)S$. The fraction $V_i/V$ is the slope of the budget line in Figure 1, and since we know that the ratio of budget lines must be the relative prices (neglecting the minus sign) of the two goods, it follows that $V_i/V$ is the same as the price of public schools (S) to the median voter.

$V_i/V$ is the “tax-price” of local school spending in this example, and I believe much can be learned simply by contemplating it. It is the ratio of the voter’s own property, typically an owner-occupied home, to all taxable property in the district. It is the individual voter’s “share” of all potential taxes, keeping in mind that tax rates are assumed to be uniform across all property.

Note what $V_i/V$ is not: It is not the tax rate, which was the ratio of school spending to total value, or $S/V$. We can represent the tax rate for any level of S that is chosen. If the median voter chooses point A in Figure 1, she gets a level of school spending denoted by the horizontal line segment from the origin (labeled Ø) to $S_1$. This amount costs the voter the amount represented by
line segment \( Y_0 - Y_1 \). Hence the income tax rate is \( (Y_0 - Y_1)/Y_0 \), which the percentage of total income that the median voter must pay.

A serious qualification about this tax rate must be understood. The tax rate, \( t \), that was used to calculate actual tax liability was a property tax rate. What I just calculated in the previous paragraph was the individual’s property tax liability as a percentage of the individual’s total income, \( Y_0 \). The graph in Figure 1 does not actually show individual property value, \( V_i \), or total property value, \( V \). We only can “see” the ratio of two terms, \( V_i/V \), as the slope of the budget line. Thus the tax rate that we can actually see on the graph is the individual’s school tax for choice A relative to his total income. We could assume that the median voter’s housing (and other property) value is directly proportional to her income, in which case the two tax rates are also directly proportional to one another. That would not be a bad assumption—people make it all the time in talking about relative property tax burdens—but it is worth pointing out that it is only a behavioral assumption, not something fixed by an algebraic relationship. Richer people do usually live in more valuable properties than poorer people, but there are enough exceptions, such as land-rich but low-income farmers ensconced in burgeoning suburban communities, to make us do a reality check every once in a while.

Figure 1
Tax-Price and Median Voter Choice
§3 Tax-Prices in Rich and Poor Communities.

In Figure 1, I scaled school spending, S, so it has the same units as private goods, Y. In reality, the ratio $V_i/V$ is going to be a very small number. The value of one’s home, say $300,000, divided by the total taxable value of real estate in the community, which could total hundreds of millions of dollars, is going to really small. My representation here assumes that the public good, S, is simply assigned on a per household basis, so that I have implicitly divided the total V by the number of households in the community.

If we were dealing with “pure” public goods, whose enjoyment is not reduced by the number of consumers (think of aerial fireworks), then the fact that $V_i/V$ is really small would be important to represent. In the pure public goods case, the bigger the community, the cheaper the public good is to every voter, including the median voter. This is surely one reason that bigger cities usually have a much grander-looking (not just bigger) city hall. There’s only one city hall, and its grandeur is not reduced if 10 thousand or ten million people a day look at it. But schools and many other local services are only “pure” over a small range of production. After scale economies have been achieved, more consumers add to the cost per person, and the per-capita representation in Figure 1 works okay. (If this is true, the reader might reasonably ask why schools should be provided in the public sector at all. I dealt with this issue in Fischel [2006], in which I argued that public schools are a source of community-specific social capital that is useful for providing true public goods that are actually nonexcludable and nonrival.)

As I have drawn the tax-price in Figure 1, it looks just about equal to unity. (Like most other economists, I will verbally neglect that it is technically “minus unity.”) This means that if the median voter wants to spend $100 per pupil more on schools next year, she will have to pay a local property tax bill that is $100 larger than this year. Schooling in this world is just like buying a piano. If she wants a $1100 (annual payment) Steinway instead of a $900 (also annualized) Yamaha, she has to pay $200 extra per year. A tax-price of unity would prevail if all voters owned exactly the same amount of property (or if the mean value of property were equal...
to the median value) and no property was owned by someone who could not send children to school, which would usually mean that the only taxable property was owner-occupied housing.

Before examining the phenomena that might make tax-prices lower (rarely higher) than unity for the median voter, I want to develop an important point about the tax-price, a point illustrated in Figure 2. This figure juxtaposes the median voters from two different communities. Both have exactly the same tax-price (the slopes of both budget lines are the same, again unity in this case), but they differ according to the personal income of the median voter.

Figure 2
Tax-Price for Median Voters with Different Incomes

Although the tax-prices are the same, the tax rates are different for the two communities. In the community with richer residents, the tax rate (computed as before on income rather than on property) is \((Y_0 - Y_1)/Y_0\). In the community with poorer residents, the tax rate is \((Y_o' - Y_1')/Y_o'\). The poor community’s residents pay the same amount as the rich community’s residents to get the same level of school spending, \(S_1\), but because incomes (and, approximately, home values) are lower in the poor community, they have to have a higher rate (as a percentage of income or home value) to raise the same revenue.
The logic of equal tax-prices but different tax rates can be seen by an analogy to private goods. Suppose the median voters in both communities wanted to buy a piano for home use. The piano costs each of them $1000 per year (either as interest on a loan to buy the piano or as foregone interest on some other investment if the piano is purchased outright.) If the rich family has an income of $100,000 per year, the “piano income tax rate” is $1000/$100,000 = 1 percent. If the poorer family has an income of $50,000 per year, its piano income tax rate would be $1000/$50,000 = 2 percent per year.

The reader may find these calculations dismaying insofar as they regard education as something that ought to be equally available. The more applicable representation of the two communities might not be that shown in Figure 2, in which both communities get the same amount of education spending, $S_1$. The more likely one would be something on the order of Figure 3, which shows that the community with the richer residents selects level of education $S_2$, while the community with the poorer residents selects level $S_1$. We have fairly good evidence that public education spending is income elastic in demand, so that, left to its own devices, a community with higher incomes will spend more on education.
Figure 3
School Spending in High- and Low-Income Communities

Y = private goods

Y₀

Y₀'

Y₁'

S = schools

S₁

S₂

rich

poor
§4. State Subsidies May (or May Not) Reduce the Tax-Price

State governments have long given local school districts funds with the objective of providing some floor on educational expenditures and generally to equalize spending. The state-level subsidies, which are often complicated and bound by previous programs, can be divided into two general types: One is block grants or per pupil entitlements, which mostly just shift the median voter’s budget line outward. The other is spending subsidies, whose effect is generally to reduce the median voter’s tax-price. Block grants, which are sometimes mentioned in state constitutions (California’s requires a “basic aid” of $120 per pupil), are not especially controversial. They actually are not used very much anymore, and it is not too difficult to see why, using Figure 4.

The horizontal arrow originating at A’, which is the poor community’s unsubsidized choice, represents a state block-grant to be spent on education, and only on education. This would be enough to get the poor community to spend in total S₂, the same amount as the rich community. But after a while, the poor community decides that it will cut local taxes somewhat and spend on schooling some amount between S₁ and S₂. This is represented by the tilted arrow. The dotted line in Figure 4 represents the new budget line that the block grant has given the poor district, and the district’s now-slightly-richer median voter rationally chooses more schools and more private goods. Unless the state closely monitors the poor district’s local tax effort (and some formulas do this—the problem is that district circumstances often change), the district will convert at least some and often most of the state’s largess into private income in the form of lower local taxes. Nothing illegal about this; the district is spending the state’s money on schools. It just ends up spending less of its own money as a result.
Most states have figured out that block grants do not equalize very efficiently from the state’s point of view, so they usually attempt to subsidize the districts they expect to be low spenders. In the example shown in Figure 5, the subsidy is dollar-for-dollar: For each $100 the poor district spends from its own tax base, the state will give them another $100 to spend. This has the effect of cutting the perceived tax-price to the median voter in half, so that the slope of the budget line is pushed out as indicated by the dotted line. The requirement that the receiving district spend its own funds reduces its temptation to reduce its own taxes, but it does not eliminate it completely. As in all price reductions, there is both an income and substitution effect, and the actual amount of spending for a normal good like schooling will fall somewhere between $S_1$ and $S_2$, though closer to $S_2$ than in a block grant of similar magnitude.

There is an apparent anomaly that economists have sometimes noticed about block grants. Many recipients do not seem to reduce their own taxes—and thus raise their private disposable incomes—in response to block grants. This finding, inelegantly called the flypaper effect, is not especially relevant in the school financing arena, since most state subsidies are closer to being
matching grants. Economists are pretty sure matching grants induce school districts to spend more money on schools; the only question is how much more money.

Figure 5
State Subsidies Reduce the Tax-price

§5 Nonresidential Property and Low Public School Participation Reduce Tax-Prices

State governments are not the only agents that can provide a subsidy to school districts. A number of factors that are partly under the control of the district itself can cause the tax-price to be lower than unity. Suppose we take the baseline case to be a tax-price of unity in which all property in the community consists of owner-occupied homes each with one child in the school system at any given time. It is worth recalling that the tax-price to the median voter is the ratio of the value of the voter’s own home, \( V_i \), to the ratio of all taxable property in the district, \( V \). Discussed below are some events that would reduce the tax-price by raising \( V \) (=total property value) and some of the issues surrounding them.

The district may get commercial, industrial, and other nonresidential, taxable property without also getting additional housing. The commercial and industrial property pays more in taxes than it receives in school services. The community prefers that the additional nonresidential
property has few adverse spillovers, lest it reduce the value of residential property. The overall net benefit to the community will depend also on whether the businesses require costly municipal services, but for the most part, they do not generate new school costs. Even if the additional industry does adversely affect existing residential amenities, say, by generating more truck traffic, the median voter may still think it is worth putting up with because of the lower tax-price for schools.

Economists are apt to concede the impact of nonresidential property on the tax price but dismiss it as being quantitatively unimportant relative to residential property. It is not unimportant at all. On average, nonresidential property pays almost half of all property taxes. In most urban areas (including most suburbs), about a third of all land use is nonresidential property that has not been exempted from taxes. (Exemptions are typically for religious, governmental, charitable, and educational uses.) This third is boosted to being nearly half the tax base because business property is often overassessed relative to residential property, a practice that may be instituted by law or by administrative prudence. (Assessors know that homeowners are more apt to complain and get a sympathetic hearing from their fellow local homeowners on the board of tax appeals.)

The “about half” is an average that has a great deal of variability among school districts. Some places are mostly residential, others may have very large amounts of business property. Much of the inequality is caused by zoning, which restricts business property to particular areas and may be designed to attract tax-paying industry or repel polluting and otherwise disamenable industry (William Fox 1981). The notion that communities are passive with respect to their tax base has been outmoded for almost a century, ever since zoning came into wide use in the 1920s. Communities cannot force new business property to move in or old ones to move out, but they certainly can and do adopt land-use and other policies that make it more or less attractive for new businesses. In the long run, the tax price of most communities is at least partly endogenous to policies the community itself adopts.

Another tax-price reducer is infertility. The district may have an unusually large number of households who do not have children, which in the short-run, at least, reduces the tax-price for the median voter. This is a tax-price reduction that requires a second look, though. The district may be in a temporary phase in which there are many “empty nesters.” Many people assume that such households do not support education expenditures. This assumption seems reasonable even
if it is ungenerous. But studies that distinguish carefully between support for local spending and support for nonlocal spending (e.g., increased state funding for schools with higher state taxes) indicate that childless voters tend to support (or at least not oppose) increased spending and taxes at the local level (Ladd and Murray 2001; Balsdon and Brunner 2004). The reason is that childless couples think about the value of their homes, too, and declining school quality is a sure harbinger of declining home values.

The same may be true for people who have school-age children but choose to educate them outside the public school system, say in parochial or independent schools or by home schooling. Like the childless and empty-nesters, they may nonetheless support public school spending because of the capitalization effect: Declining public schools almost always lead to lower home values. Here the reasons for the decline would seem to matter, even if in practice such reasons are inscrutable. If the reason a family with children chooses to home school them or send them to private schools is a general philosophical belief in home schools or private schools (e.g., a desire to inculcate religion more firmly), then there is no financial reason they should oppose local public school spending, since they still care about the value of their house, like anyone else.

An entirely different situation arises if the family is choosing private education because the local public schools are not delivering what they promise. Here the motives are more complicated. The family may actually want to improve public schools so they (or future homebuyers) can use them. Or the family (and prospective homebuyers) may regard the particular local schools as beyond redemption. The latter belief may make them inclined to actively oppose any additional school spending, thinking that it is pouring money down the proverbial rat hole.

Regardless of the reason that a particular district has fewer children in the public schools, it is going to look as if it is “property rich” (that is, as if it had a lot of nonresidential property) and thus have a low tax-price. The usual public indicator of tax-price is the misleading “tax base per pupil.” This is misleading because it combines the effects of higher incomes (and thus higher value homes) with larger amounts of nonresidential property and lower participation in the public schools. The latter two effects (nonresidential tax base and low school participation) can easily offset low home values.

Thus it is often the case that central city schools with low-income students will look as if they are “property rich,” or at least richer than the state average. City home values are usually
lower than in the suburbs, but central-city schools are often problematic enough to repel many families with children, and central cities usually devote a larger fraction of their land to commerce and industry than most suburbs. The irony of this condition is that many school finance reforms have revamped state aid formulas to steer funds away from “property rich” districts—those with more tax base per pupil—and have thus actually taken money away from the central city districts that actually have most of the low-income students.

§6 Tax-prices When Work and Residence Are Separated

The tax-price concept can be used to explain the rapid development of high-school education in cities. In my book about the development of school districts, I attributed the adoption of graded education in cities to their higher population density (Fischel 2009). (Rural one-room schools were typically ungraded in the nineteenth century.) Many city students could be assembled in a smaller walking distance. This allowed schools the luxury of dividing students by age-group. But why would cities actually spend more on education within this system? Historian Patricia Graham (1974) noted that the factory town of Bolling, Alabama, had fairly good schools, in contrast to those of the surrounding county. As she explains it, “Possibly there the residents recognized the need for a more adequate education for their children than the farm families did” (p. 132). Possibly so, but it may also have something to do with the separation of ownership of residential and business property ownership in factory towns. An observer of Michigan’s rural school districts in the 1930s was more practical:

All of the village and rural agricultural schools are relatively new buildings and are well equipped. The splendid character of the school buildings may be partly explained by the fact that there is a high percentage of absentee land ownership in Marquette County. The local residents, therefore, are not averse to voting for well equipped schools since apparently little of the tax burden rests on them. (F.M. Thrun 1933).

The effect of the division of ownership of property can be represented by the tax price. In rural areas, almost all nineteenth-century voters were farmers. Indeed, property ownership was up to about the middle of the century a prerequisite for voting in local affairs. Rural voters thus owned both the homes in which they lived and the land and buildings that were their businesses. Joint ownership of home and business meant that the tax-price for local schools was close to unity. To spend $10 more on schools per student for the median voter of Farmville meant a $10 increase in his local taxes. Whether the local taxes were levied on homes or businesses was not a
matter of much consequence, because the homeowner and the business owner (the business being a farm) were one and the same.

In cities, by contrast, owners of homes and businesses were different. Consider the town of Schmatteburg, in which all of the residents are employed by a group of textile mills. Each mill is owned by an absentee corporation. The combined value of residential and business property in Schmatteburg is the same as the combined value of farmhouses and farm businesses in neighboring Farmville. However, the textile business property is owned by people who do not participate in the local political process.

Suppose for graphical convenience that the total value of business and residential property is the same in both jurisdictions, and the value of business is equal to the value of residential property in both. In this case, the school district budget lines faced by the median voters in each jurisdiction appears to be different. This is illustrated in Figure 6. In Farmville, the budget line is (minus) unity: A dollar extra on schools costs the median voter in Farmville one dollar. But in Schmatteburg, the median voter can get a dollar extra on school spending at a cost of only fifty cents to himself. This is because the other half of school expenditures are paid for by absentee property owners.

I am assuming here that the textile mill owners do not threaten to move their factories away because of higher property taxes. Two reasons that they may not do so are the immobility of real property, especially if the mill was located in a particularly advantageous site, and the need for the mill to attract and retain workers. If the mill is in an isolated area, subsidizing school spending is a way of getting workers to move there. This amounts, of course, to saying that mill workers will get paid somewhat lower wages as a result, but the school subsidy has the advantage of creating an ongoing benefit that future mill workers will value as well as current workers.
Figure 6: Tax-Prices in Self-Employed and Residential Districts

Note that the median voter in Schmatteburg is assumed to be poorer than the median voter in Schmatteburg. This is because the farmer is both a wage earner and an owner of capital and land, so that his pre-tax income, $Y^F_0$, combines both labor income, $wL$, and capital income, $rK$, while the Schmatteburg resident is a mere wage earner, so that $Y^S_0 = wL$. The vertical distance between $Y^S_0$ and $Y^F_0$ is the annual return on capital and land to the farmer. This may seem unrealistic—farmers are not usually high income people—but in this case it is necessary because I have required that both median voters have the same total value of property to tax. Both homes and businesses (farmhouse plus farm in Farmville; worker home plus factory in Schmatteburg) are constrained to be equal in order to show the effect of the separation of ownership of home and business. Thus the two budget lines converge to the same point, $S_m$, on the horizontal axis in Figure 6. If all taxable property were taxed at 100 percent (of the flow of income, not value), the same amount of revenue would be raised in both towns.

Given this set-up, it becomes visually clear that although the residents of Schmatteburg have lower private incomes than those of Farmerville, the tax-price of schools (and other local public services) in Schmatteburg is lower. This by itself does not show that the textile town’s voters
will choose larger amounts of schooling. But their tax price is lower, and graded schooling is cheaper in Schmatteburg because of the higher density of population. So it is likely that in towns and cities, more education will be chosen. Moreover, if cities attract residents with higher skills, so that the wage component of income will be higher than in the rural areas, both the lower tax-price in cities and the higher incomes of their residents (the latter not shown in Figure 6) will cause them to choose more schooling expenditures.

Cities thus had three distinct advantages in education: (1) The higher density of population allowed for graded schools, which meant that the cost of an hour’s teacher time per student was lower. (2) The separation of ownership of capital from labor made the apparent tax-price lower for the urban worker. (3) The growing demand for skilled workers in cities meant that the median voter had higher wages than in rural areas. The combination of these factors meant that cities would not just have graded schools; they would demand more schooling, extending the school year and the duration of schooling.

What this framework shows is that the development of cities would not just lead to graded schooling (because of higher density) but to a demand for more school expenditures. Once most limitations on the male franchise were lifted (by about 1850), the median voter in most cities was a resident who did not own nonresidential property. Indeed, he may not have owned residential property, though it is possible that he could see that some residential taxes would be passed on in the form of higher rents. In either case (owner or renter), the urban median voter faced a lower tax price than the farmer voters of the countryside. Urban demand for education thus rose considerably. It wasn’t just “concentration of wealth” that made cities leaders in the move to high school. The median voter in cities faced a lower tax price and could “afford” more school spending than his country cousin, even if both had the same amount of income. The composition of the tax base and its ownership forms, not just its total value, pushed the cities ahead in education.

§7 Why the Property Tax for School Funding?

The tax-price can help explain why the property tax continues to be the mainstay of local school finance. In many respects, property taxes look unlikely as a source of funds for schools. They are painful to pay; they are difficult to assess properly; they do not vary with family circumstances. If you lose your job, your income tax liability will go way down, and your sales
tax payments will be reduced as you spend less on discretionary items, but your property tax will not budge.

These drawbacks have periodically led to calls for an income or sales tax to replace property taxes. Now, one must be careful what these calls amount to. Most “property tax revolts” do not seek to replace local property taxes with *local* income or sales taxes. They seek to reduce local taxes by shifting to state taxes. Since most states get their revenue from income and sales taxes, this is in one sense a replacement of property taxes with those taxes. But in another sense—and this is the one that hinders most property tax revolts—shifting taxes to the state level reduces local control of school spending. Of course, every school-funding litigator declares that the state always controls what school districts do—they are “creatures of the state”—but everyone else knows that the extent to which state control is actually exercised is directly proportional to the amount the state contributes.

The issue I want to examine here, then, is not state taxes versus local taxes, but local property taxes versus local income and sales taxes, and these are not common. The best study of this is by John Spry (2005), and it has been confirmed and supplemented by Josh Hall (2007). The state of Ohio passed legislation in 1989 specifically permitting local school districts to adopt a local income tax. Its revenues can be used to supplement school spending or as a one-for-one replacement of property taxes or (implicitly) any combination of those options. There is no ceiling on the allowable income tax rate. District income taxes were applicable only to personal incomes of residents, not local businesses or workers within the district’s boundaries who lived elsewhere. However, personal income from all sources were taxed, so nonresidential sources of income were indirectly taxable. Adoption and any rate increase had to be approved by district voters. Administration is simplified by having the school district tax be collected through the pre-existing statewide income tax system. Whatever rate is set locally must be a flat (proportional) rate of taxable income, but senior citizens get a $50 credit for the school district tax in districts that adopt it. This seems to be a clean test for local preferences between income and property taxes.

Spry (2005) examined the pattern of district adoption and rate setting. Of Ohio’s 610 school districts, 119 adopted the income tax rate. The vast majority of those adopting the income tax were large-area, rural districts. (Large area indicates low population density for rural districts.) Very few districts in metropolitan areas chose an income tax. The local income-tax revenues
account for less than two percent of all school spending in the state. The 119 districts that did adopt the income tax used it mainly to supplement local property taxes, with about a quarter of local revenues in those districts coming from income taxes.

What accounts for the sparing use of a local income tax to fund schools? Spry collected demographic and financial data from all of Ohio’s districts. His calculation of the tax prices was initially surprising to me. For property taxes, the mean tax price—the median home value divided by the total value of taxable property in the district—was .000407. However, the mean income tax price was only half of that value: .000235. These numbers look tiny because they are not done on a per pupil basis, but the real significance to me is that the tax-price for the income tax is so low. If it is so low, why would most school districts not opt for an income tax instead of a property tax?

Spry’s exhaustive econometric study offered two reasons. One is that the nonresidential component of the property tax offered an opportunity to export the tax burden. Owners of businesses typically live elsewhere (especially if it is corporate ownership) and do not vote in local elections. The trouble with this as an explanation, though, is that this fact is already reflected in the property-tax price. The ratio of the median home value to total property value includes the value of nonresidential property in the denominator already. The local income tax price is already much lower than the local property tax price. Why would the median voter, whose income is considerably lower than the mean of the district (given the skewness of personal incomes everywhere), not opt to sock it to the high-income residents of the district?

The answer that Spry offers (by way of Thomas Nechyba 1997 and Tiebout 1956) is the potential mobility of higher-income taxpayers. Spry found that the Ohio districts that did adopt ( gingerly) a local income tax tended to be the larger-area, more isolated districts in rural areas. These districts had few other districts to which richer residents could flee to avoid taxes, and so such districts were more inclined to adopt an income tax. This effect was reinforced by the fact that such districts had more land in farms, a “nonresidential” tax base that is more often owned by local residents. Farmers often have large amounts of taxable real property but low current incomes and are thus less likely to support property taxation; as the previous section demonstrated, farmers’ property tax-price is apt to be higher than that of other residents. (Most states defuse this conflict by taxing farmland at a fraction of its market value.) Spry’s results
indicate that districts with disproportionate amounts of farmland were indeed more likely to adopt an income tax.

§8 Capitalization and the Choice of Tax Base

The trouble I initially had with Spry's explanation was capitalization. Other studies have shown that local income taxes (in Pennsylvania) are capitalized much like property taxes (Stull and Stull 1991). If a district votes for a local income tax, richer people might be inclined to move away. But to whom are they going to sell their homes? They typically cannot subdivide the mansion into smaller units to accommodate lower-income buyers or renters; zoning laws and location principles generally forestall in that option. So the “rich” would lose whether they stay or leave, and so there’s no special reason for the lower-income median voters not to opt for an income tax.

Further thought about the life-cycles of personal incomes brought me back to Spry’s interpretation of his results. Personal incomes tend to take an upward trajectory until retirement age. Much of the inequality of income that we observe at a particular moment is due to differences in life-cycles. Within a neighborhood of similar houses, each of the same value, there are often wide variations in family income that are due to age differences. The young family stretches to buy a home in a nice neighborhood and send their children to local schools. Long-time residents with higher incomes are still living in the community, but they no longer have children in school. The apparent income tax-price for the average voter in this community is thus low relative to the property tax price. There are lots of “rich” people to tax.

But the reaction of the higher-income residents to funding an increase in school spending will differ according to which tax base is used. If it involves a $200 annual increase in property taxes on each home, the higher-income voter cannot avoid it. He may decide to sell his home, but the buyer will have to bear the full burden of the tax anyway, and so the amount he can get for his home will be less by the present value of the $200. So there’s no financial reason for the rich guy to move away from a higher property tax. But if the $200 annual tax increase is in the form on an income tax, the richer resident can find a buyer for his home who will not have to pay $200. A lower-income, younger family may well be willing to pay full price for the home but end up paying, say, $100 in income taxes. So the richer homeowners may indeed decide to move and sell to “poorer” (because they are younger) homebuyers. As a result, the increase in local income taxes does not raise as much revenue as an increase in property taxes.
What this is really saying is that the value of one’s home more truly reflects expected lifetime income than current income. A neighborhood composed of doctors with the same lifetime income will have very unequal current incomes because some will be just starting their careers. Given that the younger docs can borrow to finance their homes, they will live in houses similar in value to their older colleagues. The temptingly lower tax price of a local income tax is offset in the voters’ minds by the fact that older, higher-income residents, who no longer have children in school, can leave a high-income-tax community without much cost to themselves. They can find a buyer whose tax burden will be less because she is younger and not yet earning as much. And when her kids are through with school and her income is higher, she can sell in turn to another younger family.

Thus Spry’s evidence from cross-section variation, which explains differences in districts’ behavior, is consistent with the life-cycle explanation, which explains the overall level of behavior by voters. Local voters are aware of mobility. Spry (2005, 17) offers a telling quote from a wealthy voter in a small suburban school district (Bexley, a city surrounded by Columbus) that debated a local income tax: “If we’re the only ones out there with the income tax, that may be enough to drive them away. Money does flee, and it does become very important for the community to have.”

The state of Ohio apparently figured out one of the problems with the local income tax. It originally taxed all of local residents’ income from all sources. Since older people typically had large fractions of their income from nonlabor sources (stocks and pensions) and were also most likely to threaten to leave, the local income tax law now allows school districts to exempt “unearned” capital income from taxation. This seemingly regressive tax, which would leave the median voter with a higher tax price (because capital income accrues mostly to the rich), may actually be more attractive because it would not induce the older, richer residents to leave. It is another example of the ability of local governments to tailor their tax systems to accommodate both local demands for services and the likelihood that the tax base might change in response to the tax.

§9 Tax-Base Sharing Alters the Tax-Price

The final concept of this essay’s exposition of the tax-price is based on a policy that I call tax-base sharing but which has other names, the most common one being “district power equalization.” Here is the fiscal attraction of the policy to those in charge of the state budget. As
was demonstrated in Section 4 above, it can be costly to the state to get the low-spending districts to spend as much as high spending districts. Even with a sophisticated subsidy system, the state still has to lay out a lot of its own revenue, and even then much of the revenue might end up in the pockets of the low-spending district’s taxpayers instead of in the schools. An apparently less costly alternative that also left a good deal of local discretion was a plan called “district power equalization,” which I will call tax-base sharing.

The goal under district power equalization is for every school district to be able to generate the same amount of property tax revenue for the same tax rate. If the Richdale unified (K-12) school district can generate $8000 per pupil with a 1 percent tax rate, the Poorville unified school district should be able to, also. The way to do that is to engineer transfers of some of Richdale’s taxes over to Poorville. The transfer is a state imposed surtax on Richdale’s own local taxes. So if Richdale actually wants to spend $8000 from its local taxes, it must actually tax itself at, say, 1.5 percent and send the $4000 surplus over to Poorville. At a 1.5 percent tax rate, Poorville generates only $4000 per pupil from its own local tax base, but if it chooses to do so, it will get an extra $4000 from Richdale (or from a state fund into which Richdale paid $4000 per pupil) and thus be able to spend $8000.

The graphical representation of this principle is shown in Figure 7. This reproduces the rich and poor community comparison done previously in Figure 3. Without tax-base sharing, both communities have the same tax-price, but the rich community has twice the income (and, I have assumed, twice the value of residential property) as the poor community. That is to say, the slopes of their budget lines are parallel and, for convenience, set to (minus) unity. Suppose that both communities wanted to get S* level of spending. Without tax-base sharing, the rich community could do this with a tax rate of only one-half that of the poor community.
Now we want to impose tax-base sharing so that each community pays the same tax rate for any given level of $S$. We can identify the common, median-voter tax base that will do that on this graph. It is point $S_C$ on the horizontal axis. $S_C$ is exactly half-way between the horizontal-axis intercepts for the two separate budget lines of the communities. To see why this is so, consider that the rich community’s horizontal intercept is $S_{m^r}$. This point has a useful interpretation: It is the maximum (hence the $m$ subscript) amount of schooling available to the rich community if it spent all of its taxable income on schooling. If we consider that all the community’s income is the “tax base” and we are dealing in per pupil terms, then $S_{m^r}$ is the total tax base per student in the rich community, or the maximum amount of money that could be raised from property taxes. A similar interpretation applies to point $S_{m^p}$: This point is the total tax base per pupil in the poor community. If we want to establish a common tax base, we add $S_{m^r}$ and $S_{m^p}$ and divide by two, which gives $S_C$ as the common tax base, exactly half-way between $S_{m^r}$ and $S_{m^p}$.
The new tax-base-sharing budget lines for the median voters in both communities are given by the dotted lines that start on the vertical intercepts of each community’s budget line. The richer community’s new line is below that of its original budget line. If the rich community wants to select S* under the tax-base sharing arrangement, its residents must now pay taxes equal to the double-headed arrow on the vertical axis of Figure 7. The extra taxes that the median-voter in the rich community must pay are represented by the downward-pointing fat arrow. The amount represented by the fat arrow is then transferred to the poor community. If it also selects school expenditures S*, it will be able to spend the amount transferred to it by the rich community. The poor community’s extra spending is represented by the upward-pointing fat arrow.

The comparison just described was based on both districts choosing the same level of schooling, S*. One of the seductive attractions of tax-base sharing is that after the schedule is implemented, all districts are free to select their own level of schooling expenditures. They do not have to be tied to one another’s expenditures except by taxing from a common tax base. (Freedom to choose tax rates actually introduces a problem for budget balancing since the two districts might choose different levels of spending. However, deficits and surpluses would be small when a large number of districts are involved, and the state can absorb the surplus or make up the deficit with other funds.)

Figure 8 shows how the introduction of a tax-base sharing program might affect school spending. The poor community would be expected to spend more, as represented by the upward-pointing arrow between the two asterisks. (Each asterisk represents a point of tangency with an indifference curve for the median voter; the indifference curves are not shown to preserve visual simplicity.) The greater spending by the poorer community is caused by the lower perceived price of school spending. This is a price effect, since the receipt of the transfer from other communities is predicated on the poor community’s spending a certain amount. The more it taxes itself, the greater the transfer.

The rich community suffers the opposite effect in this example. Its median voter faces a higher tax-price of schools, and so it reduces school spending. There is actually a lot of denial of this among school-finance reformers. The rich communities are implicitly assumed to have a price elasticity of demand for school spending equal to zero. In the short run, this may be true, since the rich community may require time to cut spending, or it may hope that tax-base sharing
is only a temporary curse on their houses. But in the long run, it seems highly likely that the richer community will cut back on spending. Indeed, if the state government hopes to equalize spending among districts, cutting back by the highest-spending districts might be quietly hoped for.

Figure 8
Tax-Base Sharing’s Effects on High- and Low-Income Communities
§10 Problems with Tax-Base Sharing

Tax-base sharing looks like a simple, noninvasive way to equalize school finance. There are two problems with it. The more easily understandable—though nonetheless still widely misunderstood—issue is that tax-base per student is often higher in cities with many low-income people than it is in high-income suburbs (David Cohen 1974). Cities often have a large amount of nonresidential property, which can offset the lower residential property values. This could come about if lower-income people move to cities in part to take advantage of the lower tax-price, or it could be that cities with lower income households are more willing to accept the inconveniences of commercial and industrial property in order to get a lower tax-price.

Figure 9 illustrates the possibility of a perverse redistribution by tax-base sharing. It shows the median voters of two districts. The suburban district voter has a higher income, but because she has only residential property to tax, the tax-price is unity. The city voter has a lower private income, but the city’s tax base includes enough nonresidential taxable property per student that the tax base per pupil is actually double that of the suburb. That is, the horizontal intercept of the city median voter’s budget line is twice that of the suburban voter, so that originally, the city voter had a tax-price of only one-half that of the suburban resident. In order to get $100 extra local dollars for school spending, the suburban resident pays $100. In order to get $100 extra spending, the city resident pays only $50, with the owners of nonresidential city property paying the other $50.

Tax-base sharing in this situation causes a redistribution from the lower-income city to the higher-income suburb. This is shown by the equal-tax-rate dotted lines. Starting from the common-tax-base intercept, $S_c$ on the horizontal axis, the equalized tax-rate budget line of the city is rotated upwards, meaning that the city residents have to pay more in taxes to get the same amount of spending. The suburban line is rotated downward (it is distinguished here by being a heavier dotted line), since the suburbs receive some of the city’s funds for any given level of school spending.

(The reader might notice that the amount to be taken from the city appears to be much less than the amount given to the suburb. This is an artifact of showing only the position of the median voters, who are homeowners, rather than all taxpayers. The amount not paid by the city median voter in this transfer is the amount that nonresidential property owners pay. Thus only part of the transfer from city to suburb comes out of the city residents’ pockets, which makes it
sound a little less regressive. But it still is the case that the revenue moved to the suburbs is no longer available to the city residents for school purposes.)

Tax-base sharing is thus an odd way to redistribute wealth. It is hardly ever adopted without the prodding of judicial action. Its popularity in the school finance arena actually comes from a special situation encountered by early school finance litigators, who were stymied in their efforts specifically to help low-income children (Joseph Henke 1986). Courts recoiled from the straightforward redistribution this appeared to entail, so the lawyers hit upon tax-base sharing as a seemingly moderate alternative, one which supposedly redistributed only from the public sector, not the private sector.

As the median voter approach should make clear, this distinction has no substance. Whether the state takes funds away from a voter’s public consumption or private consumption makes no difference. The legal team that urged the courts on also assumed that tax-base per pupil and average district income were pretty closely related. Unfortunately, they are not (McCurdy 1974), but even if they were, it should be clear that tax-base “sharing” is simply a tax on local school
spending (Hoxby 2001). To say that the spending of a “property rich” district should be
discouraged puts local school spending on a par with cigarettes and hard liquor, whose specially
high tax rates are usually justified as discouraging socially undesirable behaviors.

§11. Beyond the Median Voter: Unions and Corporate Governance

This essay has focused on the median voter model of politics. To many observers of school
districts, this will seem quaint. The elephant in the room that this model ignores is the teacher
unions. In bigger school districts, unions have a substantial effect on school board elections. But
even in smaller districts, where homeowners rule in local elections, unions have an indirect
political effect. State governments set the terms under which even small school districts operate,
and union influence on state legislatures is more powerful. At the state level, interest groups
organized along the sources of income have a better shot at influencing policies, and the median
voter model is less applicable.

In previous work, I dismissed as unrealistic the notion that teacher unions, or at least the
National Education Association (which included administrators as well as teachers), had much
influence on the consolidation of school districts. Simply because they were in favor of it does
not mean that they had any serious political influence. The NEA favored many reforms that
never got adopted. But one could argue that since the 1960s, teacher unions have become much
more powerful. This is surely true, but that was starting from a small degree of power. The
question is whether teacher unions (by which I mean to encompass all employment-based
interest groups, as distinct from local property owners and parents) have so much power that the
median voter model needs substantial modification. My answer is that it depends on size, and
retaining the size of big school districts is where union influence is most important.

In order to evaluate the influence of teacher unions, I think it is worth extending the
framework about “corporate governance” that I applied in the Homevoter Hypothesis (2001).
The school district is classified by state law as a “municipal corporation.” Without corporate
status, it would have to be reorganized every time someone new moved into the neighborhood.
As a legally-recognized corporation, school districts are “immortal.” Their continued existence
does not depend on the membership of any particular warm-blooded person. Districts can own
property, make contracts, be sued for breach of contract and torts, and sue others for the same.
Once school districts began to consolidate so as to create an age-graded system of education, the hands-on school board began its transformation into its current oversight function. Larger school districts began hiring professional superintendents to do the hiring, garner supplies, and coordinate the work of an increasingly professional teaching staff. The hired superintendents should be distinguished from the state and county superintendents of schools, who were usually elected or were political appointees of a state board. The political superintendents were less managers than conduits between the local districts and the state government. The professional school administrators who were hired by local boards were more like the CEOs of modern business corporations or the city managers hired under the new council-manager plan of municipal government.

The corporate analogy that I am building is to compare the forms of governance of businesses to school corporations. I have previously done this for municipal corporations, but schools offer some special circumstances that warrant a recapitulation of this argument, which I will make with the aid of a series of charts.

Figure 10 shows the traditional template of how business corporations were to be governed. The stockholders elected the board of directors, who in turn hired and supervised the enterprise’s chief manager. The manager in turn hired other workers and made most of the decisions for the firm.
This view of corporations was challenged most famously by Berle and Means (1932). They argued that the modern corporation was in reality governed by its managers and other stakeholders. The reason for this is stockholder diversification. Modern stock markets allow people with savings to purchase shares in a variety of corporations. The shareholders diversify their holdings among many corporations in order to spread their risks. If one or two of their stocks does poorly, stockholders do not lose too much. The modern mutual fund is a logical extension of the urge to diversify.

The trouble with diversification for corporate governance is that with a scattering of holdings comes a scattering of attention. Shareholders do not have enough time, let alone expertise, to monitor the decisions of the many boards of the stocks they own and their managers. As a result, the board of directors takes more of its cues from the CEO than from the stockholders. These
considerations are summarized in Figure 11. The brick-like double arrow is intended to convey the idea that CEOs and Boards of Directors are often likely to be locked in a mutual back-scratching relationship. The stockholders hardly notice such coziness because they own too many different companies.

Figure 11

Business Corporate Reality (Berle & Means 1932)

In the early twentieth century, both municipalities and school districts were urged by progressive reformers to become more like business corporations. Unlike many other progressive reforms of the time, corporate reorganization to create the managerial model was widely adopted and endures to this day. The leading promoter of this reform was Richard Childs, who had made a fortune in the business worldly by promoting a kitchen cleanser called Bon Ami. Having cleaned up in the private sector, he moved on to scrubbing the cities of their poor reputation. (John East [1965] was his principal biographer). Cities were widely criticized for their incompetent and corrupt elected mayors, who consorted in misdeeds with a city council elected by distinct geographic wards. (Modern city historians now look at these reforms as being laced
with suspicion of immigrants, but the reforms were widely adopted in homogenous suburbs as well as in melting-pot cities.)

The reformers answer to city misgovernance was the invention of a “city manager” position. Managers would undertake the chief-executive functions of a mayor but would be appointed, not elected. The appointments would be made by a city council, preferably one elected by the city voters at large instead of by wards. Elections would select only city council members instead of, as had been formerly the case, a long list of public employees from road supervisor to animal control officer. The resulting structure would look like Figure 12, in which the city manager occupies the position of CEO.

Figure 12
The City Council-City Manager Paradigm

The odd thing about this paradigm is that it actually works as specified. The difference between the municipal corporation and the business corporation has less to do with their voting arrangements (one-person, one vote in cities; one-dollar, one vote in businesses) than with the extent of diversification of their shareholders. In most modern municipalities, the largest and most active group of “shareholders” are homeowners in the jurisdiction. The good things and bad
things that the city council and city manager do are capitalized in the value of the homes of resident voters.

But homeowners seldom own more than one home and can only vote in one jurisdiction in any case. Most of them do not own other financial assets of similar magnitude. Hence homeowners are starkly undiversified shareholders in their school district. As a result, they pay a lot of attention to what happens in city government, monitoring their city council and the performance of the city workers. As the typical consumers of the product of the municipal corporation (roads, sewers, planning decisions), residents homeowners are far better monitors of municipal corporations than are shareholders in business corporations, who in any case are too diversified to care very much.

Figure 13
Homevoters and School District Corporations

My view of school districts in this context was once very much like that of municipalities. Enormous amounts of evidence indicates that the quality of school districts—which quality is
measured—affects the value of homes in the district. Thus in foregoing chart, Figure 13, I can just change the “city council” to “school board” and “City Manager and Staff” to “Superintendent of Schools and Teachers,” and the analogy is done. (School-district reformers in the early twentieth century explicitly urged them to adopt the managerial template [Tyack 1974, 144], and city superintendents apparently embraced this idea with enthusiasm [Reed 1926, 323].) The only modification that would be required is to make the connection between residents even stronger, since a subset of those residents, parents of children in the schools, have an even stronger motive to monitor the performance of their school district. Hence the big, dark arrow on the left side of Figure 4, in which parents jump over the school board and monitor the schools directly.

§12 Adding the State Legislature

I have since decided that preceding analogy of municipal to school corporations is not quite exact. Actually, both need some extension, but the school-district story needs it more. Table 1 shows the steady increase in the state share of public school funding. As more school revenues have come from the state, the state legislature has become a more important players in schools. The local school board becomes less important in governing, and the professional staff that runs the schools is no longer a passive receptor of orders from the board and the voters.

Table 1

<table>
<thead>
<tr>
<th>School year</th>
<th>Local percent</th>
<th>State percent</th>
<th>Federal percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919-20</td>
<td>83.2</td>
<td>16.5</td>
<td>0.3</td>
</tr>
<tr>
<td>1929-30</td>
<td>82.7</td>
<td>16.9</td>
<td>0.4</td>
</tr>
<tr>
<td>1939-40</td>
<td>68.0</td>
<td>30.3</td>
<td>1.8</td>
</tr>
<tr>
<td>1949-50</td>
<td>57.3</td>
<td>39.8</td>
<td>2.9</td>
</tr>
<tr>
<td>1959-60</td>
<td>56.5</td>
<td>39.1</td>
<td>4.4</td>
</tr>
<tr>
<td>1969-70</td>
<td>52.1</td>
<td>39.9</td>
<td>8.0</td>
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<td>43.4</td>
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<td>44.2</td>
<td>48.7</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Figure 14 illustrates the potential conflict at the state-legislative level. As I mentioned earlier, the geographic basis for electing state legislatures gives geographically contiguous organizations
such as school districts an advantage in protecting and promoting their interests. The curved arrow on the left side illustrates this. Thus residents, parents, and school boards are taken seriously by each state legislator. The staff (teachers, administrators, and other producer interests) also have a basis for influencing state legislatures. At the state level, their organizational and financial power can be gathered from geographically dispersed sources and concentrated in a single place, the state house. This concentration offsets in part the influence of school boards and parent groups.

Note that I have not here suggested that the staff has a political influence on the local board, other than the usual contractual relationship. In large cities, there is such an influence, which is one reason that district residents are loathe to form large districts. In some cities, teacher organizations endorse whole slates of candidates and often get them elected.

Figure 14: Political Influences on School District Activity

I want to point out here that voters at the local level might have actually wanted the state government to participate more in school governance. The creation of an interchangeable system of schools requires some degree of state-level coordination. The one-room schools of the nineteenth century did not require much coordination of curriculum and teaching methods. What made the twentieth century different was that age-graded schooling was becoming a network. Urbanization and rural road improvements were a necessary condition to make it possible to
form age-graded schools. But that by itself was not enough to get rural voters to consent to consolidation. The sufficient condition was that age-graded schooling was also becoming standardized in order to facilitate progress into high school. The idea that early schooling should be divided into eight distinct years was becoming common. Ideas about what was appropriate to teach students in each grade were coalescing on a pattern of uniform progression. The length of the school year began to converge on its 32-week standard. And the teachers who could work within this system were being produced in specialized normal schools (Foght 1910, 79).

Within such a standardized system, no school district could be an island. The reason was mobility of the population. Residents whose children started in a graded system often moved to other districts. In choosing which district to live in, prospective residents wanted their children to continue to progress within their newly-adopted school. Ideally, the new school would have the same curriculum for the same grades as the former school.

Thus there was a reason that school districts would want to coordinate their efforts with one another. But residents could not do this entirely by themselves. While the demand for coordinated age-grading could arise by itself in each locality, some degree of top-down supervision was necessary to achieve it. It is my contention that local districts and their voters consented to surrender some of their autonomy to larger-district and state professional educators in order to achieve a coordinated network of age-graded schools.

§13 Teacher Unions, School-Finance Litigation, and School Districts

The teacher unions are alleged to have changed the nature of school district governance. As the most successful union movement in the United States since the 1960s, unions influence state legislation and administration through political action committees and their members’ role as gatekeepers in various organizations, such as teacher’s colleges and teacher certifications boards. Econometric studies have indicated that their impact can be problematical. Caroline Hoxby (1996) found that more highly unionized school districts have lower levels of accomplishment, at least as measured by high school graduation rates.

The question here is not whether teachers unions have any influence, though. The question is whether that influence is so great at the state and local level that the local median voter model should be abandoned. The answer, I think, is no. I am not highly confident of this conclusion, but there are some indicators that make me doubt that unions are really calling the shots. The
strongest indicator is that house prices are still mightily affected by school district boundaries. The premium for a home in a “good” school district—however that is measured—seems as large in the twenty-first century as it was in the 1950s and 1960s, before teacher unions acquired much clout. If governance of schools had been seriously eroded over the past 40 years or so, one would think that school-district capitalization would have declined, too.

Of course, capitalization measures differences in school quality among districts. It does not measure the overall quality, and that might well have been pushed down uniformly for all (or most) districts. Myron Lieberman (1997) suggests that teacher unions have caused school spending to be less effective. (I should admit that one of his sources for this is an article I wrote, discussed below.) Union work rules could have the effect of preventing increased spending from improving teachers by requiring that salary increases be based on seniority rather than merit or market scarcity (as for science and math teachers).

There may be something to the claim that spending is less effective. The markers of “good” school districts were once that they spent more per pupil than others. The pioneering empirical study of the Tiebout model by Wallace Oates (1969) found that for a 1960 sample of New Jersey communities, spending was generally capitalized in home values. But for samples from the 1970s onward, most researchers have found that spending is not that important anymore. Differences in student test scores, which reflect both the inherent ability of students as well as instruction, seem to be capitalized more often (e.g., Downes and Zabel 2002).

The problem with blaming unions for this is that other events may have been more important. The rise of teacher union activism in the 1960s was soon followed by the school finance litigation in the 1970s. The early school-finance lawsuits sought to equalize spending among districts. This by itself would reduce the efficacy of additional spending, since the winners and losers of equalization dollars would not necessarily be those in a good position to spend it effectively. More state spending was directed to the least efficient districts. This was compounded by litigation’s centralizing tendencies, which enhanced the role of the state in allocating spending. Local officials have some feedback from parents and property owners as to whether their spending proposals make sense. State officials have considerably less feedback, and so school spending becomes less efficient.

It is tempting to see the hand of teacher unions in school finance litigation. The centralization of spending and revenue that it has encouraged has moved these decisions to state capitals from
local school districts. Unions tend to be more comfortable lobbyists at the state level, and certainly many of the court decisions were supported by teacher unions. As a result, I wrote (Fischel 1998):

The more active political forces behind the school-finance cases are the teachers’ unions. The National Education Association is the nation’s most powerful union. It has consistently favored the Serrano-style suits. The rewards are clear. At the local level, voters can resist union featherbedding and excessive salary demands by rejecting school budgets. At the state level, voters and parents have far weaker incentives, since state spending does not affect their property values, and access to state legislatures is more complicated than showing up at your local school board. The enhanced influence of unions that follows from Serrano-style victories may sometimes result in bigger school budgets, but, as Caroline Hoxby has shown, it does not produce more effective schools

Now I am not so sure of the connection. That unions gain from a particular outcome does not make them the cause of it. Perhaps prudence would dictate that the NEA and AFT should not be lead plaintiffs in suing state governments, but wariness about biting the hand that feeds them has not deterred other forms of activism. Even though school-finance litigation has promised (and sometimes delivered) more resources for schools, it has not always been a general increase. Some high-spending districts have been held back, and teachers in those districts might have been opposed to equalization suits.

In any case, most students of school finance litigation do not regard unions as instigators of litigation. In an extensive review of the politics of school finance reform, Melissa Carr and Susan Fuhrman (1999) note that “Teachers unions, which in many states are traditionally politically powerful entities, have been noticeably quiet in most school finance reform debates, except to argue for increased overall spending.” The support they have provided to litigators has been relatively modest, mostly providing friend-of-the-court briefs along with a wide range of other interest groups.

Funding for school finance litigation initially came from liberal-minded foundations like Ford and Carnegie, not unions (Lee and Weisbrod 1978). The litigation is now largely self-financing. Courts award attorney fees to winning plaintiffs, paid for by the defendant state government. Losing plaintiffs have to absorb their own costs, of course, but they do not have to pay for the costs of the state’s attorneys, which creates an asymmetrical incentive system. And
even if the case does not go to trial, the settlement negotiations compensate plaintiff attorneys. The settlement before trial in Williams v. California (2004) awarded the ACLU’s lawyers compensation that worked out, by my calculation, to more than $340 per hour for their 14,000 hours of work (San Diego Union-Tribune, April 20, 2006). (The for-profit law firm that worked for the Williams plaintiffs did not get any money, but its contribution counted towards its bar-association obligation to provide a certain fraction of its revenues for pro bono work, and its lawyers were paid by the firm [Scott Cummings 2004, 126].)

Teachers unions do have plenty of clout in state legislatures, but, unlike the influence of other producer interests, it is at least partly offset by that of other groups. The main one is simply the school districts themselves. State legislators are elected from geographically contiguous areas that typically include only a few school districts. This puts teacher unions in a position that is different from other producer interests. Dairy farmers, for example, are a powerful interest group. Consumers of milk products are not because they are diffused throughout the political system. The expense of higher milk prices costs them a few dollars a year. They have no basis for organization—there is no milk drinker’s union, and the adverse effects of dairy protection legislation have little impact on their net income or wealth.

Voters arrayed by school districts, by contrast, have a low-cost organization—their school boards and parent organizations—by which to communicate their displeasure with excessive teacher union demands. They also have a large and identifiable stake in it, insofar as schools affect their children directly and their home values indirectly. So I do not think that teacher unions have quite the power that their detractors attribute to them. This is another way of saying that the left arrow in Figure 15, indicating the connection between school district residents and the state legislature, has as much clout as the right arrow, which indicates the connection between teachers and the legislature.

Much of the criticism of union influence has come from advocates of vouchers and related private-school alternatives to the “public school monopoly” (Lieberman 1997; Moe 2001). Vouchers were a hot issue in the 1990s, and advocates for them proposed several voter initiatives to direct state and local school revenues to parents and allow them to use the money to pay for private schools. The voters would have none of it. All of the statewide voucher programs were rejected.
Teacher unions were at the forefront of the campaigns to defeat voucher proposals. Given that they were all defeated, it was hardly unreasonable for voucher advocates to blame the teacher unions for their defeat. As I pointed out in previous work (Fischel 2006), however, this argument fails to account for why the California voucher initiative in 2000 was defeated by an even greater margin than the 1993 initiative. Teacher unions were outspent by voucher advocates in 2000, yet voters vetoed the proposals by even larger margins. I won’t say that union money and canvassing volunteers do not matter in statewide elections, but voters still have a choice and can cast their ballots without anyone else looking.

My last bit of evidence about teacher union power concerns the PTA, the Parent-Teacher Association that provides one of the vehicles by which parents can directly monitor school quality. Myron Lieberman (1997), a trenchant critic of teacher unions (who was once a union official himself), tells a dispiriting story about the evolution of the PTA, an account that jibes with other sources.

The PTA looks like one of those grass-roots, local organizations that facilitates the monitoring suggested by the left arrow in Figure 15, where residents reach directly past the elected officials to the professional staff themselves. And for much of its history it was. Like many such organizations, the PTA’s success lead it to develop state and national headquarters with a permanent staff. It also developed a lobbying arm to look out for its interests in Congress and in state legislatures. And that is where the arrow shifted. The “T” side of the PTA already had a powerful lobbying apparatus in Washington, the National Education Association. The PTA was given low-cost office space in the NEA building for its lobbying headquarters. No doubt the same sorts of people staffed both offices, people with a background allied with professional educators. Instead of being a conduit between parents and teachers, the PTA became a political organization allied with teacher unions. Whenever parental interests conflict with teacher-union interests, as in legislation about teacher-union strikes, the PTA sides with, or at least does not oppose, the teacher-union interests. Lieberman uses the PTA story as an important example of how unions have usurped local control of schools.

What Lieberman does not mention in his 1997 book, however, is that the PTA has made itself much less relevant as a result. The political ambition of its national office has led to a secession movement from the PTA. Independent organizations called “Parent-Teacher Organizations” (or “PTOs”—the PTA has a trademark on its name and initials) that have little
national organization are now the most common organization in local schools. PTOs stick almost entirely to local concerns and pay no dues to a state or national organization. (A for-profit organization, “PTO Today,” provides national services for members and maintains a web page that facilitates communications.) The PTA-PTO story indicates that localism is still critical in school district affairs. Just looking at the impressive rise of teacher unions since 1970 should not blind us to the strong residual power of local interests in school districts.

§14 Conclusion

This essay has applied the workhorse of local public economics, the median voter model, to school district decisions. The model assumes that district decisions are made as if a single, decisive voter were making them. The graphical examples were applied to some real situations. The analysis showed that the concepts of a tax-price and a budget line better illustrates the differences between school districts than a tax rate, which conflates two different concepts. The tax price concept in turn shows why tax-base sharing is a problematic way of assisting low income communities because their tax price might actually be low. Property taxation—as opposed to local income taxation—was shown to be a fairly sensible way of funding local schools because it reduces local tax prices without driving away the tax base. The early development of graded schools in cities can be seen as a response to a lower tax price by the median voter. The gulf between black and white schools in the South can be seen as a response to the reduction in white voters’ tax price as a result of disfranchising black voters.

In the latter part of the essay I assessed the rising role of state government and the importance of teacher unions in displacing local voters from control of the schools. The state government’s role had to increase as schools became more standardized. Voters did not want their school districts to be too much different from anyone else’s, so additional state supervision and funding were politically acceptable. The problem for voters was that producer interests have a better chance at controlling state government. I assessed the role of teacher unions in this and conclude, somewhat tentatively, that their role is not so large as to eject the median voter from analyses of school districts.