The Twilight of the Setter?
Local Public School Finance in a Time of Institutional Change

Sean Corcoran   Thomas Romer  Howard Rosenthal
New York University  Princeton University  New York University

Introduction

The operation and financing of primary and secondary public schools in the US is highly decentralized. Most of the budget of each of the 13,000+ school districts comes from a combination of local and state revenues. State constitutions and statutes determine the degree of local district autonomy and scope of taxing power.

As part of an ongoing project on the political economy of education finance, this paper reports on some developments in school spending in one state during a time when some of the state’s constitutional rules governing local school district taxing powers changed. In part, the paper provides a replication of tests of a model of bureaucratic agenda-setting in the financing of elementary and secondary public education. In that agenda-setting model, a budget-maximizing agenda setter makes a proposal for a locally funded operating levy that must be approved by a referendum. In the basic model, the referendum is modeled as an ultimatum game where the agenda setter makes a take-it-or leave-it proposal to some pivotal voter. If a majority of the electorate rejects the proposal, the levy is an exogenously specified reversion level. The optimal, budget-maximizing proposal makes the pivotal voter indifferent between the proposal and the
reversion. If the reversion is less than the most preferred level of spending of the pivotal voter, spending will be higher than this most preferred level. Hence, for low reversions, spending would exceed the level predicted by a median voter model (Romer and Rosenthal, *Pub. Choice* 1978, *QJE* 1979).

The original tests of this model used data from K-12 Oregon school districts with enrollments greater than 200 students for the school year 1971-72. The basic result was that a low reversion raised levies by as much as 15 percent. More detailed results, e.g., about the situation in high-reversion districts, and the pattern of proposals and voting in referenda were also consistent with the model (Romer and Rosenthal, *Econ. Inq.* 1982; Filimon, Romer, and Rosenthal, *J. Pub. Ec*. 1982). We present here a replication of some of that earlier work using data for the 1982-83 through 1990-91 school years. During the first five years of that period, the constitutionally-defined rules were essentially the same as they were in 1971-72. Midway through the 1980s, the rules were changed, so the latter part of the period allows us to look at the response of districts to the changes.

**Basic Setter Model**

As the theoretical basis, we use the most straightforward model of local public finance. Focus on a particular community (school district). Let $E$ be per-student spending on current expenditures for public schools in the district. This is financed by local taxes and revenue from outside sources. Local taxes are levied at rate $t$ on a total local tax base (e.g., real property) $V$. Outside revenue consists entirely of state aid for education, in the amount of $A$ per student. In the simplest case, this aid is independent of local tax effort or spending. Letting $N$ be the number of students, the aggregate budget constraint for the district is
NE = tV + NA \hspace{1cm} (1)

For a citizen \( i \) in the district, with income \( Y_i \) and taxable property \( V_i \), the individual budget constraint is

\[ Y_i = C_i + tV_i \] \hspace{1cm} (2)

where \( C_i \) is \( i \)'s expenditure on a bundle of private consumption goods. Combining (1) and (2) gives

\[ Y_i + P_i A = C_i + P_i E \] \hspace{1cm} (3)

where

\[ P_i = \frac{V_i}{\bar{V}} \] \hspace{1cm} (4)

is \( i \)'s tax price, and \( \bar{V} = V/N \). The presence of outside aid expands \( i \)'s budget constraint. We can then write \( i \)'s desired level of spending per student (or \( i \)'s demand) as

\[ E_i = f(\hat{Y}_i, P_i, X_i, Z) \] \hspace{1cm} (5)

where \( \hat{Y}_i = Y_i + P_i A \) and \( X_i \) and \( Z \) are, respectively, vectors of characteristics specific to \( i \) (e.g., family size and composition) and the community.

In a pivotal-voter model, with additional assumptions about the shape of individual utility functions, the observed level of spending is then associated with the level desired by the voter who is pivotal in the political process, e.g., the citizen whose desired spending is given by \( E_{med} = \text{median}\{ E_i \} \). (The additional assumptions typically generate induced utility functions \( W_i(E) \) that are single-peaked for all \( i \), with ideal point \( E_i \).)

Further assumptions about the structure of preferences identify the median demand as belonging to the citizen with median income and tax price; so the empirical implementation of a median-voter model specifies that

\[ E = E_{med} = f(\hat{Y}_{med}, P_{med}, X_{med}, Z) \] \hspace{1cm} (6)
The specification (6) is typically estimated in log-linear form.

In the basic setter model, \( E \) is determined in a process where an agenda-setter (school board or other bureaucracy) has monopoly power to make an up-or-down proposal. If the setter’s proposal wins a majority of votes from the citizens, it is implemented. Otherwise, spending is determined by a reversion rule. In the most straightforward context, the reversion level of spending is simply some exogenously given \( R \) (per student).

If the setter is strictly a budget-maximizer, then his proposal is (a) decreasing in \( R \) for \( R < E_{med} \); (b) equal to \( R \) for \( R \geq E_{med} \). A log-linear specification of the setter model captures (a) as a shift to median demand; \textit{i.e.}, let

\[
\ln E_s = \beta_0 + \beta_1 \ln R + f(\cdot) + \varepsilon \tag{7}
\]

So

\[
\ln E = \begin{cases} 
\ln E_s & \text{if } \ln E_s > \ln R \\
\ln R & \text{if } \ln E_s \leq \ln R 
\end{cases}
\tag{8}
\]

The specification (8) is similar to a Tobit model, taking note of the fact that \( R \) can vary across observations in a cross section of school districts.\(^1\)

\textbf{Institutional Setting: Oregon School Finance}

During the period of our study (school years 1982-93 through 1990-91), current expenditures of primary and secondary public schools in Oregon were financed from the revenues of local school districts and state grants-in-aid to local districts. The local portion came from taxes levied on local real property. State aid consisted largely of grants from the Basic School Support Fund, which provided revenue to local districts through a formula that allowed variation across districts, but did not depend on local taxing effort.
The Oregon constitution in 1916 defined the rules related to taxing powers of school districts. Under those rules, a district is permitted to levy a property tax that generates revenue less than or equal to the district’s BASE. For taxes above the district’s BASE, the district is required to hold a referendum. If a majority of those voting in the referendum do not approve the proposed amount, then taxes cannot exceed the district’s BASE.

The constitution defined a district’s BASE as equal to its 1916 local levy (in total dollars, not per-student), increased at 6 percent per year in nominal dollars. Districts that came into being after 1916 had a BASE equal to zero. This includes districts that merged, so the combined new district also would have a BASE equal to zero. Districts that have been around since 1916 and were not parts of mergers can have large BASEs; a leading example of such a district is Portland, the state’s largest.

From the viewpoint of the setter model, the reversion $R_t \text{ -- i.e., the amount (per student) that the district can spend for current expenditure for school year } t \text{ without voter approval -- is given by}$

$$R_t = B_t + A_t$$

(9)

where $B_t$ is the district’s BASE per student for year $t$, and -- as in eq. (1) -- $A_t$ is the outside aid per student for year $t$.²

Using (9) for the reversion rule, we estimated the specification in (8) for each of the school years 1982-83 through 1986-87. The data are for K-12 (unified) school districts, with average daily enrollment of 200 or more students. All dollar amounts are in real terms, adjusted to 1990 prices. The dependent variable $E$ is current expenditures per student. $P_{med}$ is computed using median house value, and $\hat{Y}$ is computed using median household income. The only other
covariate we included in $f(.)$ is $\text{Kids}$, the per-household number of children aged 5-17. Our specification of $f(.)$ is log-linear.³

The results for these years are in Table 1. The signs of the price and income elasticities are as expected. The estimate of $\beta_1$, the coefficient on the reversion variable when reversion is relatively low, is consistent with the setter model. For low reversions, the elasticity of spending with respect to the reversion is between -0.06 and -0.13.

**Institutional Change: The Safety Net**

The setter model highlights the potential tension between a majority of voters and those responsible for making school budget proposals. In the model, with no uncertainty, in districts with high reversions, no election is held, and expenditures equal the reversion. In districts with low reversions, the setter’s proposal always passes. Either way, spending is above the amount demanded by the pivotal voter. If there is uncertainty (e.g., due to random turnout or lack of full information about voters’ preferences), proposals put to voters may sometimes fail.⁴

By the mid-1980s in Oregon, with the state facing a recession, the school finance budget process was showing considerable strains. In the 1985-86 school year, for example, a dozen districts (enrolling about 7% of the state’s students) had not passed a budget by mid-November, and faced school shut-downs for at least part of the year.⁵ Over a nine year period ending in 1986, schools actually did shut down in eleven districts. It is worth noting that in these instances, voters always approved tax measures in the next election after schools have shut down.

A coalition of business and civic groups promoted a change in the system that, in the eyes of its proponents, would give school boards a budgetary cushion that would prevent school closures, yet still give voters a say on tax increases. The so-called “Safety Net Plan” would allow
a district to maintain the previous year’s level of local property tax levies without requiring voter approval. In supporting the proposal, the director of the state’s largest business organization noted that “Oregon has the dubious distinction of being the only state in the nation that closes schools for lack of money.” The plan also had the support of Neil Goldschmidt, the Democratic candidate for governor, who won in the November 1986 election.

The Safety Net plan was adopted by the state legislature as Measure 2, a proposed amendment to the constitution, to be placed on the ballot in a statewide referendum to be held on May 19, 1987.

In terms of our earlier discussion, Measure 2 redefines the reversion rule as follows. Let $L_t$ be the local property tax levied in the school district in school year $t$, and $N_t$ the enrollment in year $t$. The district’s $BASE$ per student, $B_t$, is computed as before. The new reversion rule is:

$$R_t = \max \left( B_t, \frac{L_t}{N_t} \right) + A_t$$

(10)

A district whose $BASE$ is below $L$ and decides to keep local taxes at the previous level, is said to be operating “in the safety net”.

Associated Oregon Industries and other business groups supported the safety net. One proponent characterized the existing system as one where “the ‘gun-at-the-head-approach’ has created hard feelings between voters and local school boards and damaged Oregon’s business reputation”.

The Oregon School Boards Association (OSBA) was divided over the proposal. Some school administrators were concerned that, with the new option, “voters will take the easy way out – vote no on tax levies – and force schools to make do with last year’s tax level.” Others shared this concern, but also saw reasons to support Measure 2. As one superintendent from a low-$BASE$ district noted, “… it’s hard for an educator to say we wouldn’t be for something to
keep schools open. … But … any school district that is reduced to the safety net for two or three years would be in serious trouble.” Ultimately, the 50-member legislative committee of the OSBA voted 17-13 to support the proposal, with 20 members not voting.9

The official pamphlet sent to voters by the State of Oregon prior to the May 19, 1987 special election includes arguments in favor of and in opposition to Measure 2. A group of members appointed by the president of the Senate and the speaker of the House wrote in the official legislative argument in support of the measure (bold-face type in original):

We have heard the argument that districts that are forced to rely on the safety net will become “have-not” districts, but this need not be true. The public has responded in the past to the needs of the students. The zero growth safety net takes away the threat of “approve the whole levy or we will close the school” and gives the school board a clear opportunity to describe what services or programs will be affected and to what extent.10

Similarly, a spokesperson for C.U.T – CUT UNFAIR TAXES wrote:

Measure Two will eliminate the threat of school closure, and will therefore give the voters and taxpayers a chance to approve or reject proposed increases in school operating costs without the gun-at-the-head threat of school closure. … In those districts which have no tax base, school costs are subject to a vote every year, but the only choice taxpayers have is to either approve the tax levy proposed by the schools, or have the schools close.11

The spokesperson notes that districts with substantial BASEs would still be permitted “to increase their tax levy by 6% compounded every year without ever submitting the increases to a vote.” Nonetheless, he sees Measure 2 as “the first step toward voter and taxpayer control of escalating and runaway school operating costs.”

The pamphlet included only one argument in opposition, from a representative of Citizens for Affordable Living. She noted that Measure 2 does nothing about the 6% rule and provides districts with a guaranteed levy “even when student populations are on the decline, as
they are in many Oregon School Districts.” She views the Measure as a weakening of voter control over school spending.\textsuperscript{12}

Measure 2 passed with 55% of the voters in favor, and was adopted as an amendment of the Oregon Constitution. The new rules went into effect starting with budget elections for the 1987-88 school year.

The Effects of the New Reversion Rule

As a first look at the effects of Measure 2, we estimated the specification in (8) for each of the school years 1987-88 through 1990-91, replacing the reversion rule (9) with the new rule (10).\textsuperscript{13} The results are reported in Table 2.

The effect of the change in the reversion rule is that even a district with a relatively low BASE can have a relatively high reversion. The estimated coefficient on ln $R$ is large and positive in the first two years, and then smaller and imprecisely estimated in the last two years. In addition, demand variables (particularly income, but mostly also tax price) are not statistically significant.

The number of districts in the sample that are operating in the safety net in each year is given in Table 3. Between one-fifth and one-quarter of the districts end up using the new provision of the reversion. Some districts ask voters to approve new levies but then use the safety net after being turned down. Others simply go with the safety net without having an election. We have not yet done a detailed analysis of the characteristics of those districts that are in the safety net vs those that are not.

A rough sense of the pattern of levies across districts and over time is given in Table 4. For each school year, we computed for each district the change in local property tax levies from
the previous year. This amount is in total (not per-student) nominal dollars. Table 4 shows the distribution of the magnitude of these changes for each school. For example, in 1983-84, 15% of the districts had a local levy lower than the previous year and 4.2% levied the same amount as the previous year. In 28.3% of the districts, total local taxes rose by exactly 6% from 1982-83 to 1983-84, and so on.

Table 4 suggests several things that shed further empirical light on the setter model.

− The number of districts that are levying exactly their BASE (the “Up 6%” column) increases over time. These are districts typically not holding elections. With declining inflation rates over the decade, the nominal BASE increase of 6% per year puts more and more districts in a situation where the reversion is likely to exceed the pivotal voter’s demand.

− The number of districts whose levies increase by more than 6% is declining (leaving aside 1989-90, which requires further investigation). This is consistent with fewer districts going to the voters for additional revenues beyond the BASE.

− Before 1987-88, an increasing number of districts are reducing local levies from the previous year, perhaps reflecting voter pressure, or indicating that not all setters are really budget maximizers. The trend disappears once the safety net provision kicks in.

− Starting 1987-88, we see a significant number of districts where local levies are exactly equal to the previous year’s level, something that rarely happened before Measure 2. These are the safety net districts.14

Paralleling these tax data are observations about local elections. Table 5 shows the number of districts in our sample in each year that adopted levies outside their BASE. There is a dramatic decline in the number of local levy elections after Measure 2, as district with relatively low BASE opt for the safety net.
Aftermath

The safety net was viewed as a factor in leading to a high rate of voter rejection of operating levies in 1987-88 and later school years. In the words of attorney general and 1990 Republican gubernatorial candidate Dave Frohmayer, “the safety net has become the safety noose.”

The consequences of the safety net were real and affected instruction as well as extracurricular activities. For example, in the 1988-89 school year, the Gresham district was in the safety net for a second year. In that district, “10 teachers were cut, one period of instruction dropped, bus service reduced and public funding for the athletic program was trimmed. As a result, students had to pay a $50 fee for each sport or activity they participated in. An annual $50 user fee was required to ride a school bus.” The Josephine district cut 65 positions, including 25 teachers, for the 1988-89 school year.

Opposition to school taxes was perhaps fostered by the relative prominence of the property tax in Oregon, a state which, quite exceptionally, had no sales tax. In 1973, Governor Tom McCall had proposed sharply limiting property taxes and shifting 90 percent of education funding to the state. His proposal was narrowly defeated. In 1978, Oregon voters narrowly defeated Proposition 13 type tax limitation initiatives. After these initiatives failed, school districts took on a greater share of their finances. Four subsequent attempts also failed. Then, in 1990, a Proposition 13-type tax limit, Measure 5, did pass. Measure 5 phased in a property tax rate limitation for school districts over a five year period through the 1995-96 school year. Property taxes were further limited by Measures 47 and 50 that passed, respectively, in 1996 and 1997.
Since school districts were heavily constrained by the tax limit, the local share of spending fell dramatically after 1990 (Figure 1). The drop was not immediate because Measure 5 contained transition rules that cut local tax rates only gradually.21 The full impact was not reached until 1995 (Figure 1).

The constraints imposed by Measure 5, effectively amounted, as similar measures did in California and Texas, to a statewide property tax, albeit at a low rate. School districts had essentially lost discretion to raise taxes to fund the marginal dollar of school expenditure.22 Figure 1 shows that local taxes are still producing 35 to 40 percent of revenues after 1995. The figure is misleading in two senses. First, the legislature replaced only 70 percent of the local taxes cut by Measure 5.23 School finance could still be said to take place in a democracy, but the power was transferred from hundreds of local school districts to the state legislature and the initiative process. The local agenda-setting institution in Oregon became extinct in 1990.

The situation was nicely summarized by Oregon’s Quality Education Commission in 2000.

In Oregon, until the passage of Measure 5 in 1990, and implementation of the equity goals, the bulk of school funding came from the local property tax, and local voters decided how much they wanted to spend on their local schools. Conversations were held annually or at fairly regular intervals between the school district board of directors and the community. Program, funding, and student results were a part of each conversation. Funding decisions required community support in the form of favorable votes cast for property taxes to fund an operating budget. Consequently, locally-elected school boards held most of the decision-making power and schools were accountable to the school board and, by extension, to local voters. Under this prior model, the local community governed the system, albeit with an overlay of State regulations, and the community as a whole (but not individual parents) could hold schools accountable.24 The “conversation” was, from our perspective, one of agenda-setting by a high demand school board.
Figure 1.
### Table 1.
Maximum likelihood estimates
Dependent variable: Ln E

<table>
<thead>
<tr>
<th></th>
<th>(1) 1982-83</th>
<th>(2) 1983-84</th>
<th>(3) 1984-85</th>
<th>(4) 1985-86</th>
<th>(5) 1986-87</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const</td>
<td>5.931</td>
<td>6.736</td>
<td>5.860</td>
<td>5.212</td>
<td>6.562</td>
</tr>
<tr>
<td></td>
<td>(1.103)</td>
<td>(1.150)</td>
<td>(0.903)</td>
<td>(0.946)</td>
<td>(1.338)</td>
</tr>
<tr>
<td>Ln R</td>
<td>-0.068</td>
<td>-0.111</td>
<td>-0.058</td>
<td>-0.093</td>
<td>-0.129</td>
</tr>
<tr>
<td></td>
<td>(0.037)</td>
<td>(0.043)</td>
<td>(0.037)</td>
<td>(0.040)</td>
<td>(0.044)</td>
</tr>
<tr>
<td>Ln Ŷ</td>
<td>0.253</td>
<td>0.212</td>
<td>0.267</td>
<td>0.357</td>
<td>0.251</td>
</tr>
<tr>
<td></td>
<td>(0.105)</td>
<td>(0.104)</td>
<td>(0.083)</td>
<td>(0.090)</td>
<td>(0.126)</td>
</tr>
<tr>
<td>Ln P</td>
<td>-0.202</td>
<td>-0.129</td>
<td>-0.097</td>
<td>-0.110</td>
<td>-0.110</td>
</tr>
<tr>
<td></td>
<td>(0.036)</td>
<td>(0.054)</td>
<td>(0.040)</td>
<td>(0.046)</td>
<td>(0.059)</td>
</tr>
<tr>
<td>Ln Kids</td>
<td>0.000</td>
<td>-0.103</td>
<td>-0.117</td>
<td>-0.127</td>
<td>-0.041</td>
</tr>
<tr>
<td></td>
<td>(0.083)</td>
<td>(0.104)</td>
<td>(0.084)</td>
<td>(0.100)</td>
<td>(0.111)</td>
</tr>
<tr>
<td>Ln likelihood</td>
<td>78.94</td>
<td>59.20</td>
<td>83.84</td>
<td>78.41</td>
<td>43.04</td>
</tr>
<tr>
<td>N</td>
<td>121</td>
<td>120</td>
<td>121</td>
<td>120</td>
<td>121</td>
</tr>
</tbody>
</table>

Estimated standard errors in parentheses
Table 2.  
Maximum likelihood estimates  
Dependent variable: Ln E

<table>
<thead>
<tr>
<th></th>
<th>(1) 1987-88</th>
<th>(2) 1988-89</th>
<th>(3) 1989-90</th>
<th>(4) 1990-91</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const</td>
<td>2.226</td>
<td>2.199</td>
<td>4.993</td>
<td>5.780</td>
</tr>
<tr>
<td></td>
<td>(1.095)</td>
<td>(1.507)</td>
<td>(1.505)</td>
<td>(2.664)</td>
</tr>
<tr>
<td>we Ln R</td>
<td>0.588</td>
<td>0.630</td>
<td>0.158</td>
<td>-0.158</td>
</tr>
<tr>
<td></td>
<td>(0.106)</td>
<td>(0.163)</td>
<td>(0.177)</td>
<td>(0.143)</td>
</tr>
<tr>
<td>Ln Ŷ</td>
<td>0.101</td>
<td>0.073</td>
<td>0.165</td>
<td>0.330</td>
</tr>
<tr>
<td></td>
<td>(0.094)</td>
<td>(0.110)</td>
<td>(0.124)</td>
<td>(0.212)</td>
</tr>
<tr>
<td>Ln P</td>
<td>-0.071</td>
<td>-0.012</td>
<td>-0.220</td>
<td>-0.187</td>
</tr>
<tr>
<td></td>
<td>(0.067)</td>
<td>(0.075)</td>
<td>(0.069)</td>
<td>(0.127)</td>
</tr>
<tr>
<td>Ln Kids</td>
<td>-0.070</td>
<td>0.003</td>
<td>0.037</td>
<td>0.073</td>
</tr>
<tr>
<td></td>
<td>(0.091)</td>
<td>(0.112)</td>
<td>(0.110)</td>
<td>(0.254)</td>
</tr>
<tr>
<td>Ln likelihood</td>
<td>18.54</td>
<td>-1.23</td>
<td>8.85</td>
<td>-11.86</td>
</tr>
<tr>
<td>N</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>122</td>
</tr>
</tbody>
</table>

Estimated standard errors in parentheses
Table 3.
Number of districts operating in the safety net

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987-88</td>
<td>31</td>
</tr>
<tr>
<td>1988-89</td>
<td>29</td>
</tr>
<tr>
<td>1989-90</td>
<td>26</td>
</tr>
<tr>
<td>1990-91</td>
<td>27</td>
</tr>
</tbody>
</table>
## Table 4.
### Distribution of Change in Local Levies
Percent of districts

<table>
<thead>
<tr>
<th>Year</th>
<th>Less than prev amt</th>
<th>Equal to prev amt</th>
<th>Up 0 to 6%</th>
<th>Up 6%</th>
<th>Up more than 6%</th>
<th>100.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983-84</td>
<td>15.0</td>
<td>4.2</td>
<td>17.5</td>
<td>28.3</td>
<td>35.0</td>
<td>100.0</td>
</tr>
<tr>
<td>1984-85</td>
<td>18.2</td>
<td>0.8</td>
<td>18.2</td>
<td>33.1</td>
<td>29.8</td>
<td>100.0</td>
</tr>
<tr>
<td>1985-86</td>
<td>21.7</td>
<td>0.0</td>
<td>13.3</td>
<td>36.7</td>
<td>28.3</td>
<td>100.0</td>
</tr>
<tr>
<td>1986-87</td>
<td>24.0</td>
<td>0.8</td>
<td>15.7</td>
<td>36.4</td>
<td>23.1</td>
<td>100.0</td>
</tr>
<tr>
<td>1987-88</td>
<td>5.0</td>
<td>15.8</td>
<td>12.5</td>
<td>40.8</td>
<td>25.8</td>
<td>100.0</td>
</tr>
<tr>
<td>1988-89</td>
<td>4.2</td>
<td>20.8</td>
<td>11.7</td>
<td>43.3</td>
<td>20.0</td>
<td>100.0</td>
</tr>
<tr>
<td>1989-90</td>
<td>2.5</td>
<td>13.3</td>
<td>7.5</td>
<td>46.7</td>
<td>30.0</td>
<td>100.0</td>
</tr>
<tr>
<td>1990-91</td>
<td>4.9</td>
<td>15.6</td>
<td>8.2</td>
<td>58.2</td>
<td>13.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 5.
Number of districts voting extra levies

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982-83</td>
<td>67</td>
</tr>
<tr>
<td>1983-84</td>
<td>61</td>
</tr>
<tr>
<td>1984-85</td>
<td>67</td>
</tr>
<tr>
<td>1985-86</td>
<td>61</td>
</tr>
<tr>
<td>1986-87</td>
<td>52</td>
</tr>
<tr>
<td>1987-88</td>
<td>32</td>
</tr>
<tr>
<td>1988-89</td>
<td>19</td>
</tr>
<tr>
<td>1989-90</td>
<td>29</td>
</tr>
<tr>
<td>1990-91</td>
<td>17</td>
</tr>
</tbody>
</table>
Endnotes

* We are grateful for financial support from the National Science Foundation and the Russell Sage Foundation. Alex Ruder provided excellent research assistance to the project.

1 A more subtle specification recognizes that the setter’s leverage is greatest when $R$ is insufficient to operate the schools. Let $T > 0$ be a threshold level such that for $E \leq T$, the schools would close. Then for $R \epsilon [0, T]$, the effect of having only the reversion spending is equivalent to having a reversion of zero. Such a threshold effect can be incorporated as follows:

$$\ln E_s = \gamma_0 + \gamma_1 L + \gamma_2 \ln Z + f(\cdot) + \varepsilon$$

where

$$L = \begin{cases} 1 & \text{if } R \leq T \\ 0 & \text{if } R > T \end{cases} \quad \text{and} \quad Z = \begin{cases} T & \text{if } R \leq T \\ R & \text{if } R > T \end{cases}$$

One could get direct evidence about the magnitude of the threshold. Otherwise $T$ would have to be estimated as a parameter of the model. See Filimon, Romer, and Rosenthal (1982).

2 State aid for year $t$ is announced in late winter of school year $t-1$, before any referenda for year $t$. Over the period of our study, state aid amounted to approximately 1/3 of total revenue, though there was considerable variation across districts.

3 There is a small twist to the reversion rule. The formula for $BASE$ had a “use it or lose it” feature. What was incremented at 6% from the prior year was the highest levy (in dollar terms) less than or equal to the base amount from the past three years. A district whose levy always exceeded the base thus found its base incrementing at 6 percent. See Barbara Roberts, Secretary of State, Oregon Blue Book, 87-88, Salem, 1987, p.458.


7 The Yes-No question submitted to voters was “Should school districts be allowed to continue same property tax levies last approved by voters?”


13 The reversion rule (10) makes next year’s reversion a function of this year’s local taxes. Our specification ignores strategic considerations that may be induced by this dynamic relationship.

14 Some of the observations in the “Less than previous amount” column are instances of safety net districts that choose not to levy the full amount they would be entitled to under the safety net.


20 Measure 50 repealed Measure 47. It set assessed value back to the lesser of the 1994-95 assessment or 90 percent of the 1995-96 assessments and limited future increases to three percent a year; however, no property could be assessed more than market value. See Thompson and


22 This was recognized in a state document, which stated: “Local revenue stays in the district where collected, but is treated as a statewide resource for allocation purposes.” Legislative Revenue Office, State of Oregon, “1999 School Finance Legislation: Funding and Distribution”, Research Report #4-99, Salem, 1999

23 The 70 percent figure was claimed in Complaint No. 0603002980 in the Oregon Circuit Court for Multnomah country, Pendelton School District 16R et al., plaintiffs, state of Oregon et al., defendants, filed March 21, 2006, p. 10.