Staff Paper 189

A REVIEW OF STATE PROGRAMS:
ADJUSTMENT OPTIONS FOR DECLINING
ENROLLMENTS AND ECONOMIES OF SIZE *

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DISCUSSION OUTLINE:

A. Defining District Wealth.
    -The Hudson plan for Nebraska.
    -Continue the current property wealth definition.
    -Count income and sales in local effort and district wealth.
    -Full state funding for school aid.
B. Addressing Declining Enrollments: Phantom Pupils
    -27 states use some form of phantom pupils.
C. Addressing Size Economies: Classroom units.
D. Restructuring Incentives.
    -Voluntary restructuring incentives.
    -Mandatory restructuring.
    -Mandatory study and vote.
    -Open enrollment and tuition grants.
    -Innovation grants for telecommunications.
E. Spending Limitations.
    -Budget limits.
    -Property tax rate limits.
    -Limits on expenditures per pupil.

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A REVIEW OF STATE PROGRAMS:
ADJUSTMENT OPTIONS FOR DECLINING ENROLLMENTS AND ECONOMIES OF SIZE

Companion reports (Edelman and Knudsen), review the effects of declining enrollments and economies of size on per pupil expenditures and various state aid formulas. This report reviews the alternative ways that states have adjusted to declining enrollments and size economies by adjusting their state aid formulas to meet their respective politically determined goals.

CHANGING THE DEFININTION OF DISTRICT WEALTH

It should be noted that the various school aid formula options reviewed in another companion report (Edelman and Knudsen) result in different consequences related to uniformity in property tax levy rates and equalization of per pupil expenditures.

Some formulas achieve uniform levy rates, but create variation in per pupil expenditures across districts. Other formulas achieve equalized per pupil expenditures, by creating variation in property tax levy rates across districts. Finally, still other formulas achieve uniform tax rates and equalized expenditures per pupil.

This is an important consideration, as Iowa and many other states contemplate altering the legal definition of district wealth. The traditional definition of district wealth for defining local effort is property wealth per pupil. State aid formulas that use property wealth per pupil to define district wealth also define potential local effort as property tax yield. These school aid systems have tended to foster uniform local property tax efforts across districts. However, as local

officials receive local discretion to levy local sales and income tax revenues, perhaps there is a basis for broadening the definition of district wealth for defining local effort.

On the other hand, a Nebraska study advocates adding district income and sales to the definition of district wealth for purposes of setting local property tax rates (Hudson). While this approach may initially appear to be more reflective of total community wealth, the specific proposal ignores the contribution of locally paid sales and income taxes collected by state government and contributed to school aid. Therefore, this approach may introduce double-counting distortions that would reduce the uniformity of property tax rates across districts unless other adjustments are made.

For example, assume that we analyze two districts with equal total wealth, but one is property rich and income poor while the other is income rich and property poor. Futher assume that the property rich district has twice as much property wealth per pupil as the property poor district and the income rich district has twice as much income wealth per pupil as the income poor district. What are the school aid consequences?

Under the Hudson Plan for Nebraska, both districts would recieve the same amount of state aid. However, the income rich district would pay more than twice the income taxes per pupil (assuming graduated tax rates) to the state and in turn to state school aid funding. At the same time the income rich district is property poor, therefore it must still raise the difference between state aid and local cost. With half as much property wealth per pupil as in the property rich district, the tax rate

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in the property poor district would be twice as high in dollars per thousand of taxable valuation.

If the above approach were applied in Iowa, the double counting distortions would likely be greater because the state share contributes two-thirds of educational costs in Iowa compared to only one-third in Nebraska. In short, it is not internally consistent to count local sales and income in measuring community wealth for setting property taxes, without including local sales and income contributions to the state school aid formula.

There are three options for eliminating the double-counting problem:

(1) Keep the present system. The present Iowa state aid formula does not count income or sales in district wealth or district effort. Therefore, it is internally consistent and tends to encourage uniform property tax rates across districts. However, the present system does allow per pupil expenditures to vary according to district wealth and/or an aging set of relative budget limits.

(2) Count local effort as well as district wealth. The second option is to count the local sales and income tax contribution that is made to state school aid as part of the local district revenue effort, if sales and income wealth is to be counted in district wealth. This would provide an internally consistent measure of community wealth and community revenue effort toward education finance.

(3) Move to a state funded system and state property tax. The third option is to move to a totally state funded system with

all school property taxes collected by the state. This approach also would result in the counting sales and income in both district wealth and district revenue effort.

In summary, using income and sales to define district wealth without adding it to the district revenue effort would change the poor districts under the current formula to rich districts and the current rich districts to poor districts (Hudson). At the same time, it would significantly increase the variation in property tax rates across school districts. However, the methodology of this option is not internally consistent due to double counting.

On the other hand, adding income and sales to both district wealth and district revenue effort would provide a more consistent measure of community wealth and effort. This option would likely have significantly less impact on the current distribution of school aid, but would be internally consistent.

Alternatively, if property taxes were to be collected by the state, variation in the contribution of property, sales and income tax contributions could be reduced, while equalizing per pupil expenditures across districts.

Finally, some of the alternative definitions of "district wealth" may significantly alter the amount of state aid for districts with declining enrollment and/or economies of size. However, the accuracy of the formula in addressing any politically defined needs depends upon consistent definitions for local wealth and local revenue effort.

ADDRESSING DECLINING ENROLLMENT:
PHANTOM PUPILS

Previous research has shown that declining enrollments lead to rising costs per pupil, particularly in the short run. Iowa is among 27 states that recognize this by adjusting their school aid formula to provide added aid to schools with declining enrollments (School Finance at a Glance).

In many of these states, the state government allows a school with declining enrollment to count a previously higher number of pupils for funding purposes than they actually have during the current year. The difference between the actual number of pupils and the number used for funding purposes is referred to as phantom pupils.

Cavin, Murnane and Brown found that the cost increases were more acute in the short run than the long run. They advocate the state aid formula should provide for the immediate hardship placed on schools when enrollments declined but at the same time it should provide an incentive for the district to adjust to the decline in the long run.

Another study (Leppert and Routh) outlines four additional ways that states have used to alleviate the effects of enrollment decline. Each approach provides a slightly different time period of added support, different amount of support, and different phase-in of incentives for adjusting to declining enrollment. The options are:

(1)   Initial support and phase out. An example of such a plan would allow school districts to count all of the decline in pupils from last year, 66 percent of the decline in pupils from

two years ago and 33 percent of the decline in pupils from three years ago for determination of aid.

(2) <u>State</u> <u>aid</u> <u>guarantee.</u> Each school district receives no less in basic aid than they received in some previous year. Three states use this option.

(3) <u>Prior</u> <u>year</u> <u>pupil</u> <u>count.</u> Each district is allowed to use a previous years' pupil count for the current year. Nine states use this option.

(4) <u>Multi-year</u> <u>average.</u> Each district uses the average of the previous two or three years' pupil count to determine the current year's aid level. Three states use this option.

(5). <u>Lost</u> <u>student</u> <u>percentage</u> <u>guarantee.</u> All or less than 100 percent of the enrollment decline can be used in the current year's aid distribution. Eight states use this option.

Two additional states allow either option number (ii) or (iii). One state does not provide state aid, but allows the local board to raise an additional property tax levy rate.

ADDRESSING ECONOMIES OF SIZE: CLASSROOM UNITS

Previous research has shown (Edelman and Knudsen) that economies of scale are likely to exist among the nation's school districts (Edelman and Knudsen). A summary of the literature indicates that most economies may be achieved by school districts with 700 to 2000 pupils. In Iowa both large and small school districts show higher expenditures per pupil.

A review of state programs indicates that some states are divided as to whether additional support should be granted to districts not achieving economies of size or whether incentives

for achieving economies of size should be given (Cohn). Some states provide both. Here we explore each in turn.

Some states, particularly those with sparse population and where consolidation is not geographically feasible, recognize that small rural schools generally have higher costs per pupil and they may not be able to achieve a larger size. Some of these states (Nebraska, South Dakota) adjust their school aid formula to provide more aid to districts with lower pupil/teacher ratios or sparsity of population. This may be done by substituting classroom units, sparsity weights, or other administrative units in the aid formula in place of the pupil count.

A classroom unit may be defined as the number of pupils divided by the pupil/teacher ratio. This type formula base focuses on supporting teaching full-time-equivalents, regardless of the number of students per FTE. As a result, each student is guaranteed access to a minimum number of teachers regardless of school size or district sparsity.

An extension of the classroom unit approach is to categorize all expenditures into functions and to develop state aid standards for each functional unit. For example, a school district might have three administrative units, 41 classroom units, and 10 special education units. The aid for the whole district would be the sum of the aid standards for each function times the FTEs standards for each function and size of school. The FTE standards may be graduated by size or proportional.

RESTRUCTURING INCENTIVES TO ACHIEVE
ECONOMIES OF SIZE

If achieving economies of size is deem to be a worthy goal, there are five basic types of restructuring options available:

(1) Voluntary Restructuring Incentives. Iowa currently is among the states that use voluntary restructuring incentives to encourage districts to achieve economies of scale. This approach focuses on rewarding consolidation up to a specified level and/or penalizing or raising the relative costs of the status quo. This may be done by regulations and standards as well as financial rewards and penalties in the aid formula.

Increased teacher certification requirements, minimum pay standards, minimum course offerings, school district certification and mandatory program spending requirements are all examples of Iowa regulations that penalize or increase the relative costs of districts that choose to maintain the status quo. Some other states simply require a minimum number of pupils in the school unit, or state aid is withdrawn. This creates an interesting type of competition for students in order to keep the district above the minimum. However, the point is that all of the above tools are outside of the school aid formula.

On the other hand, Iowa also offers technical assistance free to school districts that request help in conducting feasibility studies on their restructuring options. This is an important positive incentive, because restructuring issues may occur every few decades. There often is not local expertise available and myths and emotions can often drive public decisions in the abscence of factual information on the options.

Another voluntary restructuring approach is to provide incentives in the state school aid formula. Required local levy rate reductions for consolidation; added weighting for whole grade sharing, instructor-sharing and superintendent sharing; and guaranteed ceilings on future costs per pupil are all ways that Iowa uses to provide school aid incentives for achieving economies of size.

While voluntary restructuring may appeal to an entrepreneurial spirit, it likely results in sub-standard access to educational resources for those pupils who are in districts which are not achieving scale economies and which choose not to restructure, particularly if the district's budget limits are holding per pupil spending down. Therefore, some students may have unequal access to education finance resources as a result of state and local policy decisions.

In addition, the voluntary restructuring option does not necessarily result in economies of scale for districts that are restructured. The voluntary approach often results in "orphan districts" and "perverse alliances," unless the state has veto authority over local voluntary restructuring plans and uses the authority to safeguard state interests.

"Orphan districts" are small school districts that become geographically isolated by voluntary restructuring when all neighboring districts merge with other districts. "Perverse alliances" may occur when two school districts that are geographically dispersed with very few miles of adjoining boundary decide to merge in order to maintain the status quo in attendance centers.

(2) <u>Mandatory</u> <u>Restructuring.</u> Mandatory restructuring achieves scale economies and does not necessarily require additional state aid nor does it result in the orphan districts or perverse alliances. A review of the literature of the late 1950s and early 1960s, however, suggests that this option is only implemented with high political costs during the next election.

(3) <u>Mandatory</u> <u>Study</u> <u>and</u> <u>Local</u> <u>Vote.</u> This approach is an alternate model that was implemented during the 1950s and 1960s (Indiana). This approach requires the county (or area) judge to appointment a county (or area-wide) study committee that studies the structuring options, including the status quo. Their recommended plan must be approved by a state board that assures that orphan districts and perverse alliances do not develop. The approved recommendation—including the status quo if it is recommended—must then be approved county or area-wide by specified voting rules in which no one district has veto power unless it has a specified proportion of the combined pupil count.

(4) <u>Open</u> <u>Enrollment</u> <u>and</u> <u>Tuition</u> <u>Grants.</u> In recent years, a number of states have debated the concept of allowing parents and children to choose the school that they wish to attend. To be effective, this approach must alter the state aid formula by coupling the state aid to each pupil rather than the district and then allowing the pupils and parents to decide where they wish to attend school (Minnesota). This option establishes a type of market competition among school districts to attract and maintain student counts.

"Survival of the fittest" takes place among school

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districts. Small and large schools may both survive if they possess a perceived higher "quality of education" and/or if the economics of attending alternative schools are not prohibitive for parents. This option does give parents more relative control over school decisions in cases where they may be out-voted by general taxpayer interests. This is not an insignificant shift of power in many districts. Many rural districts currently possess voting majorities by citizens without school age children. The voting strenth of parents is likely to decline due to an aging population, particularly in rural areas.

In addition, perhaps the open enrollment concept would also require safeguards to prevent segregation by wealth, race, and/or other adverse factors that may occur in market systems.

Finally, this option does not necessarily achieve economies of size. If the perceived quality of education received is not correlated with scale economies, then parents may select the largest or the smallest districts depending upon their preferences.

(5) Communication Technology. A final option is the adoption of new communication technologies that may alter the economies of size. For example, fiber optics is presently being tested by a few Iowa school systems. This technology allows an instructor at one site to teach students at a number of remote sites. It requires the presence of a teaching assistant at each remote site. This technology may provide students with access to a wider range of course offerings or provide access to specialized subjects at a lower cost. It remains to be seen whether fiber

optics will be used for a wide variety of courses or for specialized courses only. It is also unclear, at the time of this review, whether these new technologies will significantly alter the present economies of size that exist in Iowa schools.

However, if a major contribution to altering the economies of size is made by the emerging technologies, state policymakers may wish to provide state aid incentives for local district innovations. Care must be taken in designing such grants, so that they do not penalize the first adopters on the cutting edge who previously financed their program development from own sources. Similar to the implementation of state building programs, perhaps slow districts are rewarded at the expense of the districts who previously build schools at their own expense.

SCHOOL SPENDING LIMITATION OPTIONS
UNDER DECLINING ENROLLMENT

One final consideration is the effects of school spending limitations on districts which face declining enrollments and diseconomies of size. There are three basic types of school specific spending limitations. Each is reviewed in turn.

(1) Budget Limits. This option limits the school district spending to some previous year base plus allowable growth. Iowa uses this approach. As enrollments decline and diseconomies of size develop, more school districts are likely to be affected by the budget limits. As this occurs, local district expenditures per pupil become a function of previous board decisions made during the base year selected. As the base year selected becomes more out-of-date, the relative budget limitations across districts become more antiquated as well.
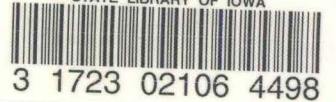
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As a result, arbitrary selection of a base year for purposes of implementing district budget limitations, does not assure uniform property taxation or school expenditure equalization across districts, if the limitations are binding. The budget limit only preserves the relative variations in expenditures per pupil across districts for a previous base year.

(2) Levy Rate Limits. This approach assures property taxpayers that their property tax rate will not exceed a specified level. However, if the local leeway is not equalized with state aid, expenditures per pupil at the limit will not necessarily be uniform across districts and will likely vary by district wealth. Under declining enrollment, valuation per pupil rises and may likely lead to rising expenditures per pupil, depending upon the formula used.

(3) Limits on Expenditures Per Pupil. This option assures that each pupil potentially has access a uniform amount of education finance resources per pupil, regardless of the district wealth available. Under declining enrollment, the per pupil limitation does not change. Consequently, this may cause economic hardship for districts that would normally face rising expenditures per pupil due to declining enrollment, unless adjustments, such as phantom pupils, were allowed.

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