



CENTER *for* RURAL POLICY *and* DEVELOPMENT

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policy brief

Small Schools Under Siege: Evidence of Resource Inequality in Minnesota Public Schools

Over the last several decades, much of rural Minnesota has experienced serious financial hardship, and clearly, the side effects of this crisis have been felt in rural education. As small rural communities suffer further losses in population, small school districts have found that the cost of educating their smaller numbers of children has not lessened as dramatically as the reduction in state funds, which are based on enrollment.

In most areas of the economy, it is less expensive per unit to produce a larger number of goods than a smaller number of goods, because, to produce any good, there is a certain amount of overhead or infrastructure that is needed. Thus the initial cost of producing a single good will be the highest, while subsequent units will become marginally cheaper.

In an earlier work, we found that this same phenomenon occurred in education. Much like in other areas of the economy, larger school districts need less revenue per student to operate than do smaller school districts. But because school districts in Minnesota are funded primarily through formulas that provide fixed amounts of revenue per pupil regardless of total enrollment, the economies of scale phenomenon has the potential of working to the detriment of small school districts. Even though it costs smaller districts more per pupil to educate their students, there is no mechanism of adjustment other than the limited funding category of sparsity aid to correct for this factor. Because this need for more money per pupil is not supplied by the state, smaller districts must supplement their state allocation of funds by passing referendums, which are often much larger per pupil than those in urban and suburban districts.

What is the effect of this disparity? Are smaller schools less able to maintain building systems, offer a diverse curriculum, keep up with modern technological advancements in education,

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or attract and retain teachers? To answer these questions, we administered a survey to the superintendents of Minnesota's 350 public school districts, and achieved an overall response rate of 88 percent. Districts were broken down into quintiles based on their enrollment, with those under 415 students in the first quintile and those with over 2,557 students in the fifth quintile.

Infrastructure

School superintendents were asked to evaluate their district's infrastructure, programming, and staff. In the survey, superintendents were asked to use the following scale when assessing each of their school buildings:

Excellent (1): new or easily restorable to "like new" condition; only minimal routine maintenance required.

Good (2): only routine maintenance or minor repair required.

Adequate (3): some preventative maintenance required.

Fair (4): sometimes fails to meet code or functional requirements; extensive corrective maintenance/repair required.

Poor (5): consistent substandard performance; fails most code and functional requirements; requires constant attention, renovation, or replacement. Major corrective repair or overhaul required.

Replace (6): Non-operational or significantly substandard performance. Replacement required.

The overall trend in infrastructure quality was clear. As the enrollment of the school district decreased, so did the conditions of its facilities (Table 1). Small districts had the highest mean score at 2.84 for overall condition, a substantial +.23 more than the mean score of 2.61 for all districts in the state, and +.29 higher than the largest districts. Small districts had particular problems with their acoustics (+.35), ventilation systems (+.30), and plumbing (+.23).

Superintendents were also asked what percentage of their buildings needed replacing. Only 0.8 percent of schools in large districts needed replacement, but 6.3 percent of buildings in small districts needed replacing. Substantial differences in replace rates occurred in all of the infrastructure categories, including ventilation, plumbing, heating, and indoor air quality.

Resources

Superintendents were asked to evaluate their district's library resources, ranking them as (1) very sufficient through (4) very insuffi-

cient (Table 2). Overall, smaller districts were rated lower than larger districts in all areas of library resources, as well as in nine of the 14 areas of core technology asked about in the survey. For example, in the state's smallest districts (up to 415 students), the mean score for the quality of computer technology is 2.02, while the overall mean for all districts is 1.93, indicating that smaller districts reported a higher level of insufficiency. The areas where smaller districts reported the least sufficient resources were in the areas of phone messaging systems (+.44), cable television (+.33), library online cataloguing (+.29), and science labs (+.25). Smaller districts reported more sufficient resources than larger schools in the areas of interactive television (-.32) and supply budgets for teachers (-.28).

A larger percentage of superintendents of small districts reported having very insufficient journal collections, online library cataloguing, and library book collections. In addition, nearly 15 percent of small school districts indicated that their science labs were very insufficient.

The survey also examined the age of computers available to students in each school district. There was little difference reported in the age of computers for small and large districts. The smallest districts, however, had less access to the Internet in their schools, with the largest difference at the K-6 level.

Curriculum

When asked about curriculum, the survey results showed that small districts do offer a narrower range of courses than do large districts (Table 3). For example, while most districts of all sizes offer Spanish classes, only 12 percent of the smallest districts offered French classes, compared to 91 percent of the largest districts. Forty-seven percent of the smallest districts offered calculus, compared to 98 percent of the largest districts. Small districts caught up, however, in some of the more basic classes, such as painting, basic computing and geography.

The survey results also show that small districts were less likely to offer a variety of extra- and co-curricular activities, including the state One-Act Play competition and advanced placement courses, but were about as likely to offer vocal and instrumental lessons.

Table 1: Conditions of facilities overall and components (mean scores).

| | 1 st Quintile | 2 nd Quintile | 3 rd Quintile | 4 th Quintile | 5 th Quintile | Mean | Diff |
|-----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|-------|
| Overall Condition | 2.84 | 2.74 | 2.62 | 2.63 | 2.55 | 2.61 | +0.23 |
| Acoustics for Noise Control | 3.08 | 3.03 | 2.97 | 2.64 | 2.61 | 2.73 | +0.35 |
| Ventilation | 3.10 | 2.98 | 2.97 | 2.70 | 2.73 | 2.80 | +0.30 |
| Plumbing | 2.96 | 2.75 | 3.02 | 2.69 | 2.64 | 2.73 | +0.23 |
| Indoor Air Quality | 3.03 | 2.88 | 3.01 | 2.70 | 2.80 | 2.83 | +0.20 |
| Roofs | 2.86 | 2.98 | 3.35 | 2.77 | 2.70 | 2.83 | +0.03 |
| Heating | 2.65 | 2.73 | 2.79 | 2.56 | 2.60 | 2.63 | +0.02 |
| Physical Security | 2.76 | 3.07 | 3.19 | 2.84 | 2.67 | 2.81 | -0.05 |

Staffing

Superintendents in small districts reported that they find it much more difficult to recruit and retain teachers (Table 4). Over 25 percent of small school districts (compared to 0 percent in the largest school districts) reported having a much more difficult time than the state average in attracting teachers.

Small school districts and local funding via referenda

A factor that complicates funding for school districts concerns local referenda. Districts are allowed to enhance their revenues through local referendum, and there is a definite relationship between enrollment size and the amount of revenue derived from these referenda.

Table 5 shows that the average Minnesota school district raises about \$406 per student (WADM) in local revenue through referendum, but the amount per student tends to be much higher for the smallest districts in the state. In the smallest 20 percent of districts, the median local referendum is \$665, or \$259 (63.7%) higher than the state average. Analysis of the survey results also shows that small districts (first quintile) that raise low referendum amounts (below the state average) reported having more problems with their infrastructure, resources, and staffing than

districts in the same quintile with higher referendum amounts (above the state median).

Effects of Changes Made in the 2001 Legislative Session

Two of the most important changes made during the 2001 legislative session were 1) a \$415 per-pupil transfer from the referendum, supplemental, and transitional categories into the basic formula allowance, and 2) the adoption of a new two-tiered equalization formula for all districts.

The \$415 per-pupil transfer shifts revenues in each district from the referendum, supplemental, and transitional categories into the basic formula. Districts with combined referendum, supplemental, and transitional revenues less than \$415 per pupil will net gains in revenue for FY 2003. Districts with combined revenues in excess of \$415 will have revenues transferred into the general formula, decreasing the referendum amounts for these districts, but with no net increase in overall funding.

Based on FY1999 data, only 38 percent of the smallest districts (1st quintile) will experience increased revenues as a result of the \$415 transfer, while nearly 78 percent of 4th quintile schools will receive additional net revenues. Such trends are more likely to increase the gap in infrastructure quality rather than reduce them.

The second significant change made during the 2001 legislative session was the adoption of new two-tiered equalization formulas. With the new program, the first \$126 of referendum revenue per student will be equalized using the current equalizing factor (\$476,000 of market value per student). A new second tier has been added that will equalize referendum revenue per student up to \$837, but at a lower equalizing factor (\$270,000 of market value per student). This second equalizing cap is waived for districts that receive sparsity aid.

To determine the winners and losers of these changes in equalization will require much more study. At first, there appears to be some significant advantages to poor school districts that can still pass large referendums. In addition, schools that qualify for sparsity aid (usually small schools located in remote areas) can have all of their referendum equalized.

Table 2: Assessment of Selected District Resources by Enrollment Quintile, all Districts.

| Description of Resource | 1 st Quintile | 2 nd Quintile | 3 rd Quintile | 4 th Quintile | 5 th Quintile | Overall | Diff' |
|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------|-------|
| Library Journal Collection | 2.39 | 2.23 | 2.29 | 2.18 | 2.16 | 2.25 | +06 |
| Library Book Collection | 2.46 | 2.40 | 2.50 | 2.43 | 2.31 | 2.42 | +04 |
| Science Labs | 2.36 | 2.11 | 2.10 | 2.23 | 1.77 | 2.11 | +25 |
| Textbooks | 2.35 | 2.42 | 2.45 | 2.35 | 2.33 | 2.38 | -03 |
| Cable Television | 2.27 | 1.98 | 1.94 | 1.84 | 1.72 | 1.94 | +33 |
| Teacher Training in Technology | 2.63 | 2.43 | 2.56 | 2.40 | 2.50 | 2.50 | +13 |
| Access to Internet | 1.51 | 1.54 | 1.60 | 1.44 | 1.58 | 1.53 | -02 |

Table 3: Percent of School Districts Offering Courses in ... (See full report for complete list)

| Course | 1 st Quintile | 2 nd Quintile | 3 rd Quintile | 4 th Quintile | 5 th Quintile | Total | Diff |
|---------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------|-------|
| Calculus | 46.9 | 57.6 | 66.7 | 88.3 | 98.2 | 72.2 | -25.3 |
| Microbiology | 4.3 | 21.8 | 25.5 | 30.8 | 46.0 | 26.0 | -21.7 |
| Statistics | 27.7 | 27.3 | 42.1 | 54.4 | 67.9 | 44.2 | -16.5 |
| Orchestra | 8.3 | 17.2 | 8.8 | 27.3 | 60.0 | 24.5 | -16.2 |
| Drama/Theater | 57.7 | 53.3 | 56.9 | 70.0 | 91.2 | 65.9 | -8.2 |

Table 4: Percent of Superintendents Indicating that Retaining Teachers is ... than the State Average (All Districts).

| | 1 st Quintile | 2 nd Quintile | 3 rd Quintile | 4 th Quintile | 5 th Quintile |
|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Much Less Difficult | 5.9 | 9.5 | 4.8 | 16.1 | 26.3 |
| Slightly Less Difficult | 31.4 | 19.0 | 24.2 | 32.3 | 43.9 |
| About Average | 33.3 | 33.3 | 35.5 | 29.0 | 21.1 |
| Slightly More Difficult | 17.6 | 23.8 | 32.3 | 17.7 | 8.8 |
| Much More Difficult | 11.8 | 14.3 | 3.2 | 4.8 | 0.0 |
| Mean | 2.98 | 3.14 | 3.05 | 2.63 | 2.12 |



Yet these two possible impacts are qualified by at least two other factors. First, the equalizing factor is substantially reduced and thus additional analysis is needed to determine what percentage of school districts have the very low Net Adjusted Tax Capacity to benefit from this low equalization rate. Second, there is a considerable question as to the ability of these poor districts to pass the large school referendums that are required to benefit from equalization. As a result, the actual impact of these changes in equalization will require further study.

A Policy Proposal to Reduce Disparity

Like many other states, Minnesota funds its public schools primarily through a funding formula that provides school districts the same amount of revenue per pupil regardless of the size of their enrollment. Based on the assessments of school superintendents statewide, small schools on average had much poorer infrastructure, lower levels of resources and more

difficulty attracting and retaining teachers compared to larger schools in the state.

To address the per-pupil cost disparity between large and small schools, we propose the following adjustment to the state’s basic funding formula: The state is currently scheduled to provide districts with \$4,601 per student through the basic formula. Policymakers should consider increasing the basic formula amount (currently \$4,601 per student) by 8 percent for each district’s first 500 students (\$4,969) and 4 percent for the next 500 students (\$4,785 for students 501-1,000). All additional students beyond the first 1,000 in each district would be funded at the \$4,601 level.

All school districts would thus benefit from this approach. More importantly, the state funding formula would reflect the higher costs of educating children in smaller schools. The 8/4 proposal described above would cost approximately \$77 million for FY 2003 (less than 2 percent of total education revenue). Such a strategy would allow the state to provide resources to small schools to help them compete with larger schools in the areas of infrastructure, resources, and teacher staffing.

Table 5: Median Local Referendum Levels and Enrollment Size (per WADM), 2000-2001.

| | 1 st Quintile | 2 nd Quintile | 3 rd Quintile | 4 th Quintile | 5 th Quintile | Median |
|---------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------|
| Median Revenue from Local Referendums | \$665 | \$390 | \$385 | \$371 | \$503 | \$406 |