

Building Opportunity in Low-Wealth Communities: State Policies to Fund School Capital Facilities

Thomas Davis

University of Maryland

David Arsen

Michigan State University

Urban Policy Research Briefs

2008, Number 1

MSU Center for Community and Economic Development

Introduction

Stark disparities in the condition of public school facilities were highlighted in the 1954 *Brown v. Board of Education* challenge to segregation and the landmark 1971 *Serrano v. Priest* challenge to school funding inequality. Over the last decade, an extraordinary generation of fabulous school facilities has been built in suburban areas, while low-income children in central cities are left behind in outdated and often dilapidated structures. There is growing policy interest, nationally and within Michigan, regarding inadequate school facilities as an important education quality issue. Moreover, there is increasing awareness of the important role that high-quality school buildings play in neighborhood and community revitalization.

Michigan's highly centralized system for funding school operating expenditures has greatly equalized revenue across local districts, but the funding of school capital facilities remains exclusively a local responsibility. School infrastructure in Michigan is financed primarily by local property taxes. Dramatic variations in property wealth across communities create large inequalities in local districts' ability to pay for school infrastructure. As a result, school facilities in many of Michigan's poorest school districts are inadequate. Michigan's current system of school facility finance has generated unequal opportunities for students and unequal burdens for taxpayers. These problems, which are especially acute in the state's urban school districts, can be addressed with suitable state policy. Currently, Michigan is one of only a few states that does not offer any state aide for school facilities.

Why School Capital Facilities Matter

Most teaching takes place in school buildings and the quality of those facilities influences the ability of teachers to teach and of students to learn. School facilities affect student and teacher morale, comfort, health, and safety. Many factors contribute to the quality of school facilities. For example, poor indoor air quality and ventilation is widespread. It contributes to respiratory illnesses (e.g., mold, which can cause asthma), which in turn increases absenteeism and reduces student performance. Research has also linked teacher morale and student outcomes to ambient temperature, lighting, and noise levels.

The opportunity to work with modern technologies in schools is becoming ever more important to prepare students for emerging

high-skill employment opportunities. Today, students in relatively affluent Michigan school districts learn to use computer-controlled machine tools, computer-aided drafting and graphic art equipment, television studio equipment, and more. Learning opportunities such as these can stimulate students' interest and imagination, but they are rarely available in less-affluent communities. Indeed the deplorable conditions in the most neglected urban schools implicitly convey a hurtful message to students: "You are not worth the expense of building and maintaining a decent school."

Teachers represent the most important resource for any school, and teacher turnover is a major problem, particularly in schools serving low-income children. Teachers prefer to work in clean, safe, well-equipped, and even inspiring facilities. Other things equal, it is difficult to attract and retain top-notch educators to work in outdated, dilapidated and uncomfortable facilities when other schools offer much more hospitable work environments.

Michigan's system for funding operating expenditures has greatly equalized revenue across local school districts, but the funding of school capital facilities remains exclusively a local responsibility.

School buildings also matter for neighborhood and community development. High-quality school facilities attract households to a community and help to sustain demand for its residential housing stock. Public investment to create attractive neighborhood schools can also stimulate private residential investment and enhance community pride. Well-designed and utilized schools represent a potent community resource as sites for recreation, the arts, community group meetings, and social networks. Unfortunately, these potential benefits of school facilities are presently realized to a far greater extent in relatively affluent Michigan communities than in urban areas where the objective need for such community resources is greatest.

Finally, several recent court decisions have compelled states to improve school facilities in local districts attended disproportionately by students from low-income families. Some

Table 1: Distribution of Pupils, Capital Stock, and Millage Rates by Community Type

Community type	Number of Districts	Number of Pupils	Taxable Value per Pupil*	Capital Stock (in Millions)	Capital Stock per Pupil*	Average Debt Mills*
Central City	15	292,208	\$109,530	\$3,857	\$13,200	7.436
Low-income Suburb	21	43,790	\$89,074	\$816	\$18,636	5.117
Mid-income Suburb	186	675,295	\$189,017	\$13,068	\$19,351	5.120
High-income Suburb	35	269,133	\$285,368	\$6,975	\$25,916	5.191
Rural	293	343,231	\$178,017	\$6,492	\$18,915	4.608
State of Michigan	550	1,623,657	\$185,662	\$31,208	\$19,221	5.440

*Pupil-weighted

legal challenges turn on equity claims, namely the fact that low-wealth communities (based on taxable property value per pupil) have greatly inferior school facilities, despite taxing themselves at much higher rates than wealthier communities. Other challenges are based on the claim that the facilities provided for the education of students in some districts are inadequate to meet the outcomes required by the state. Michigan is susceptible to legal challenges regarding school infrastructure on both grounds.

Method For Measuring the Capital Stock

The method we use to calculate the capital stock of school districts in Michigan relies upon the data that all government jurisdictions are required to submit to comply with the Government Accounting Standards Board's (GASB) guidelines for the preparation of external reports. Our primary data come from the Capital Assets tables included in the 2004-2005 financial reports submitted by each school district in Michigan. We were able to use data for 550 of Michigan's 552 traditional public school districts.¹

Disparities in school buildings and facilities across Michigan's local communities are much greater than disparities in school operating revenues ever were.

The GASB guidelines are based on historic cost. As each building was constructed, renovated, or modified, the expenditure was listed as a capital asset. Each year a small percentage of that expenditure was deducted and classified as depreciation. Since these financial reports were based on historic cost, there has been no adjustment for inflation in the raw data reported by local districts to the state. To adjust the capital assets and depreciation for inflation, we determine the average vintage of each district's capital stock. Essentially, we assume that all historic expenditures for a given school district occurred at one point in time. We take the ratio of depreciation to the sum of capital assets and depreciation (i.e.,

historic expenditure) to place each district's capital stock at some point along a 50-year depreciation timeline. Once we determine the average vintage of each district's building capital stock, we use the New Education Buildings price index from the U.S. Department of Commerce to adjust nominal capital stock for inflation. As a result, our analysis shows the capital assets for each school district in 2005 dollars.²

Inequality in Michigan School Facilities Across Local Districts

Our methods indicate that in 2004-2005, the total value of the capital stock for public schools in Michigan was approximately \$31.2 billion. By way of comparison, that is about 2.3 times the 2004-2005 current operating expenditure for Michigan's public schools, \$13.6 billion. On average, the capital stock amounts to \$19,220 per pupil enrolled. This statewide average, however, masks a great deal of variation across districts. The highest valued per-pupil capital stock is found in Ishpeming, a 950-student district in Michigan's Upper Peninsula, with per-pupil capital assets of \$98,971. At the other end of the spectrum, a number of Michigan school districts have capital facilities worth less than \$4,000 per pupil.

Table 1 groups Michigan school districts by community type to illustrate patterns in school infrastructure across communities. About 60% of the students in Michigan's central cities and low-income suburbs are poor. Moreover, the median family income in both of these categories is less than half the level of the high-income suburbs. While some of the high-income suburbs are small residential enclaves, many are large and rapidly growing districts on the periphery of metropolitan areas and these districts have built some of the state's most elaborate school facilities in recent years.

Table 1 indicates dramatic variations across communities in per-pupil taxable value, and this is directly correlated with per-pupil school capital. The education of children in Michigan's high-income suburbs is supported with nearly double the capital facilities available to central city students. Equally striking is the fact that Michigan's central cities are taxing themselves at

an average rate that is 43% higher than the average rate for the high-income suburbs. If not for this higher tax effort, the quality of central city school facilities would lag even further behind the facilities in middle- and high-income suburban districts than they presently do.

In sum, our data show large differences in the value of school buildings across local school districts in Michigan, and this variation in capital assets is closely associated with the distribution of local property wealth. The disparities in school buildings and facilities across Michigan’s local communities are much greater than inter-district disparities in current operating revenues ever were. Moreover, this inequality persists, despite the fact that citizens in low-wealth districts are taxing themselves at much higher rates on average than their wealthier neighbors.

Estimating Unmet Capital Need

There is currently no widely accepted definition of what constitutes adequate school facilities. In order to quantify unmet capital need for school districts in Michigan, we developed an operational definition of an adequate level of school capital based on the construction cost of building floor space. We define the adequate level of school building capital as the product of three variables: the prevailing norms for floor space per pupil, the number of pupils in a district, and the cost per square foot to build in that county. Unmet capital need is defined as the expenditure that would be required to bring each district up to the adequate standard in 2005 dollars. Estimated need will be negative in those districts where the existing capital stock exceeds the adequacy standard. This could arise in situations where districts provide lavish facilities for their students, build excess capacity in anticipation of future enrollment growth, or experience sustained enrollment decline. In 217 Michigan districts, current capital assets exceed our adequacy standard, many by a wide margin.

Despite high local property tax rates, school districts with the lowest taxable value per pupil continue to have the greatest unmet capital need.

The total unmet capital need for the state of Michigan in 2005 was approximately \$7.6 billion. This amounts to about 24% of the total current capital stock. The unmet capital need is approximately \$4,700 for every pupil enrolled in Michigan’s public schools, or about \$7,000 per student enrolled in only those districts with positive unmet need.

Table 2 breaks down unmet capital need by community type. Michigan’s 15 central cities comprise about a third of all unmet need in the state. Over 20% of all statewide need can be found in just five districts: Battle Creek, Detroit, Flint, Muskegon, and

Table 2: Millage Rates Required to Satisfy Capital Need in Michigan School Districts by Community Type

Community Type	Capital Need per Pupil	Current Debt Mills	Additional Mills Required	Total Mills Required
Central City	\$8,315	7.436	6.244	13.680
Low-income Suburb	\$6,321	5.117	5.836	10.953
Middle-income Suburb	\$4,354	5.120	1.894	7.014
High-income Suburb	\$1,945	5.191	0.561	5.752
Rural	\$4,026	4.608	1.860	6.468

Saginaw. On a per-pupil basis, unmet capital need in Michigan’s central cities is over four times the level in high-income suburbs. There is also substantial need among the state’s low-income suburbs.

High-income suburban districts have the fastest enrollment growth of any community type group. Unmet need in these districts is likely due to enrollment growth outpacing school construction, rather than an inability or unwillingness to fund school infrastructure. As a result, we would expect this unmet need to be transitory and capable of being resolved at the local level.

Now consider the relationship between unmet capital need and how heavily communities are taxing themselves. Table 2 shows the current property tax rates (mills) levied on residents for debt associated with school capital facilities, along with the additional mills necessary to finance all unmet need locally. In order to calculate the additional mills required to locally finance the unmet capital need, we amortized the needed investment over 20 years at an annual interest rate of six percent.

We have already noted that the districts with the lowest taxable value per pupil have the greatest unmet need despite the fact that they are paying high local property tax rates. Yet in order to pay for adequate facilities, school debt millages in Michigan’s central cities and low-income suburbs would need to roughly double. In fact, many of these school districts could not pay for adequate facilities on their own even if they wanted to, since the required mills would surpass the state’s debt millage limit. Meanwhile, the wealthiest districts would only have to increase their average property tax rate by less than one mill.

Cost of State Policies to Fund School Facilities

We have analyzed the reasons why the state should play a larger role in financing school infrastructure in Michigan’s public school system and have presented evidence on the size of the problem that needs to be addressed. We turn now to consider possible state policy options to increase the equity and adequacy of school facilities in Michigan. Most states are well ahead of Michigan on this count. Indeed Michigan is one of only eight

Table 3: Annual Revenues Required to Attain Alternative Facility Standards for Different Groups of School Districts

Districts Receiving Aid By District Taxable Value per Pupil Quintile	To Attain \$14,000/Pupil Minimum Capital Stock	To Attain \$16,000/Pupil Minimum Capital Stock	To Attain Adequate Capital Stock
Quintile 1 (lowest wealth districts only)	\$33,000,000	\$67,000,000	\$200,000,000
Quintiles 1-2	\$61,000,000	\$111,000,000	\$295,000,000
Quintiles 1-3	\$97,000,000	\$173,000,000	\$436,000,000
Quintiles 1-4	\$115,000,000	\$204,000,000	\$537,000,000
Quintiles 1-5 (All Districts)	\$133,000,000	\$232,000,000	\$621,000,000

Figures are based on the assumption of amortizing the state's school facility investment over 20 years at 6% interest rate.

states that offers no state aid for school infrastructure.³ Several conditions have pushed states to assume a greater role in funding school infrastructure, but the most significant is litigation. Facilities have been included in school funding adequacy cases in 37 states. States have also taken responsibility for assisting local districts to upgrade older buildings in order to incorporate modern technology, improve accessibility for the disabled, and to establish safe and healthy environmental conditions.

To help frame the evaluation of possible state policy options, we estimate levels of nonrecurring lump-sum state aid (or alternatively state funding of selected capital projects) that would be required to attain different minimum capital facility standards in all of Michigan's school districts. The state's neediest districts would benefit from a substantial up-front investment in their capital facilities, rather than a recurring annual flow of state aid.

Michigan's central city school districts comprise about a third of all the unmet capital need in the state, and over 20% of all need can be found in just five districts.

The state's economy would also benefit from the stimulus this investment would provide. The state could issue bonds to finance its investment and spread the repayment cost over many years. Under a program of state financing of selected capital projects, state aid could be targeted to districts with the greatest need and the lowest ability to pay, thus lowering overall cost. The analysis in this report offers a set of guidelines that could be used to target and prioritize state funding of capital projects. Such a ranking system could be based on two criteria: (1) district unmet capital investment need, and (2) ability to pay.

For each of three minimum facility standards, we also show the cost of making eligibility for state aid conditional on various levels of local ability to pay (local taxable value per pupil). We assume that the state amortizes its investment in school infrastructure over 20 years at a six percent interest rate.

Table 3 displays the annual revenues required to fund a menu of alternative policy choices. For example, an investment of \$1.6 billion would be needed to bring the infrastructure in every Michigan school district up at least \$14,000 per pupil, which when amortized would require about \$133 million per year to pay off. The required state revenue declines sharply, however, if facility aid is restricted to low-wealth school districts. If state aid is targeted

An investment of \$1.6 billion would be needed to bring the infrastructure in every Michigan school district up at least \$14,000 per pupil.

to the lowest taxable value quintile, for example, the \$14,000 per-pupil capital standard could be attained in these districts with an investment of \$400 million or an annual payment of \$33 million. Alternatively, if state facility aid were restricted to districts in the two lowest property-wealth quintiles, a state investment of \$3.6 billion (\$295 million annual payment) would bring all facilities in these districts up to adequacy. Finally, if the state were to finance all unmet capital need statewide without regard to district ability to pay, this would require an investment of \$7.6 billion at an annual revenue cost of \$621 million.

The revenue to fund any new public investment in school facilities could be obtained from state property, income, or sales taxes, or from a combination of these and other revenue sources. Income and property taxes, unlike sales taxes, have the important advantage of being deductible from the federal income tax. Consequently, the net cost to state taxpayers of raising additional revenue for school facilities from either a state income or property tax would be less than from the sales tax. The income tax has the additional advantage of being more closely tied to taxpayer ability to pay than the two other main taxes, and that is an especially important consideration given the significant increase in income inequality across Michigan households over the last two decades. By that standard, a graduated income tax would be better still.

Table 4: Statewide Property Tax Mills Required to Attain Alternative Facility Standards for Different Groups of Districts

Districts Receiving Aid By District Taxable Value per Pupil Quintile	To Attain \$14,000/Pupil Minimum Capital Stock	To Attain \$16,000/Pupil Minimum Capital Stock	To Attain Adequate Capital Stock
Quintile 1 (lowest wealth districts only)	0.108	0.224	0.663
Quintiles 1-2	0.203	0.369	0.980
Quintiles 1-3	0.324	0.575	1.446
Quintiles 1-4	0.382	0.675	1.780
Quintiles 1-5 (All Districts)	0.440	0.769	2.060

For the sake of illustration, we assume that the revenue to fund the various facility aid options depicted in Table 3 is derived from a statewide property tax. Table 4 shows the millage rates that would be required to pay for each option. So for example, a millage rate of 0.1079 would be sufficient to raise the capital stock in the poorest quintile districts up to at least \$14,000 per pupil. How much would this cost the average Michigan homeowner? The answer is about \$6.00 per year.⁴ Alternatively, 0.369 mills (or about \$21 per year for the average homeowner) would be sufficient to pay for investments that would bring the capital stock in the poorest 40 percent of Michigan school districts up to at least \$16,000 per student.⁵ If the goal were to finance investment to establish adequate facilities in the poorest 40 percent of districts, this would require 0.9797 mills or an annual property tax payment of about \$55 for the typical homeowner.

To finance adequate capital stock in the poorest 40% of Michigan school districts through a statewide property tax would cost about \$55 annually for the typical homeowner.

Conclusions

Michigan offers a striking example of a state in which funding for school operating expenditures is highly centralized and relatively equal across districts, whereas the funding of school buildings remains exclusively a local responsibility. Michigan’s reliance on this decentralized system of capital funding enables local communities to express their distinctive preferences for the physical features of the schools their children attend. On the other hand, it also produces a distribution of school capital across districts that measures poorly against standards of equity and adequacy. Michigan’s current system of school facility finance creates very unequal opportunities for students and unequal burdens for taxpayers. Many Michigan students attend schools with inadequate facilities. It is difficult to imagine how serious progress in addressing these problems can be made without the state assuming greater responsibility for the finance of school infrastructure.

In recent years, the State of Michigan’s structural budget deficit has made it difficult for policy makers to think creatively about new initiatives that promise high returns on public investment dollars. The state’s structural deficit did not emerge overnight, nor will it be fully resolved in the short run. As policy makers work to reposition the activities of state government, both through shoring up the revenue system and reassessing expenditure commitments, new initiatives to support investment in school capital facilities in Michigan’s most needy communities deserve serious consideration. Our analysis indicates that, at a very moderate cost to state taxpayers, significant progress could be made towards providing adequate facilities for Michigan children who, through no fault of their own, must spend their days in dilapidated and poorly equipped buildings. A state facility aid program targeted to low-wealth communities would improve school outcomes, help stabilize neighborhoods, and provide needed demand in construction and allied industries. It is one of the most promising forms of public investment available to state policy makers.

Notes

- 1 Our school capital asset data were obtained from the Michigan Department of Education. Charter schools were excluded from the analysis.
- 2 Complete descriptions of our methods for measuring the value of school districts’ capital stock can be found in:
 Arsen, D., & Davis, T. (2006). Taj Mahals or decaying shacks: Patterns in local school capital stock and unmet capital need. *Peabody Journal of Education*, 81(4), 1-22.
 Arsen, D., & Davis, T., Underinvestment in capital facilities of Michigan’s urban schools: Dimensions of the problem and state policy options. *Michigan Policy Analysis Report Series, Land Policy Institute at Michigan State University.*
- 3 The other states without state school infrastructure funding programs are Louisiana, Missouri, Nevada, North Dakota, Oklahoma, Oregon, and South Dakota.
- 4 The median valued home in Michigan is worth about \$140,000. In Michigan, taxable value is no more than 50 percent of market value and for most property owners somewhat less. One mill represents one dollar of annual property tax payment for every thousand dollars of taxable value (i.e., a tax rate of 0.001). So one can simply multiply taxable value, expressed in thousands of dollars, by the millage rate to determine the annual tax payment. Further suppose, conservatively, that the taxpayer is subject to a 20% marginal tax rate on the federal income tax. Thus annual tax payment on the median valued home associated with a tax rate of 0.1079 would be $\$140 \times 0.5 \times 0.1079 \times 0.8 = \6.04 .
- 5 $\$140 \times 0.5 \times 0.369 \times 0.8 = \20.66 .

About the Authors:

David Arsen received his A.B in Economics from the University of Michigan and his Ph.D. in Economics from the University of California, Berkeley. He taught at Barnard College, Columbia University and James Madison College at Michigan State University where he chaired the Political Economy program. Professor Arsen is currently in the Department of Educational Administration and affiliated with the Education Policy Center in the College of Education at Michigan State University. His research focuses on school finance and education policy

Tom Davis received his A.B. in Economics and Mathematics from the University of Michigan, before he worked as an actuary, a computer programmer, and a math and physics teacher in Kenya with the Peace Corps. He earned his master's degree in Economics and Ph.D. in Education Policy at Michigan State University. Professor Davis is currently in the Department of Education Leadership, Higher Education and International Education at the University of Maryland. His research interests include school capital and facilities, education and economic development in Africa, and school finance.

Visit <http://ced.msu.edu/> to obtain a copy of the full report summarized in this brief.

About the Series:

The **Urban Policy Research Series** addresses critical urban policy issues facing our State by connecting Michigan's core city mayors and legislative leaders with its finest urban scholars. By supporting of policy research on priority issues identified by mayors themselves, the Policy Research Series mobilizes practical scholarship concerning urgent issues facing Michigan's older central cities. In 2007, with support from the W. K. Kellogg Foundation through the MIHELP consortium, Michigan scholars were invited to propose policy research and analysis projects concerning specific issues identified as of high priority to members of the Urban Core Mayors. Six projects were selected, and researchers were commissioned to conduct the first of what is intended as an annual cycle of targeted policy research.

The resulting policy forums, Policy Briefs, and Research Reports is intended to provide current, credible and practical information for local and state officials as they consider important public policy decisions that will affect Michigan cities. By supporting the development of a growing network of scholars actively researching issues that have practical implications for urban and metropolitan Michigan, the Urban Policy Research Series is also intended to increase the capacity of the higher education community to contribute its unique added value to the ongoing civic discourse that shapes Michigan's local and state policy environment.

About the Partners:

The Urban Policy Research Series is the result of a partnership between elected leaders in local and state government and Michigan's higher education community. Special thanks to Faron Supanich for his leadership in coordinating this project, and Graham L. Pierce for preparing this report for publication.

The **Urban Core Mayors** is a bipartisan, multi-regional group established in 1992 to work together for local and state solutions to common problems facing Michigan's core cities. Urban Core Mayors members include the Mayors of Ann Arbor, Battle Creek, Bay City, Dearborn, Detroit, Flint, Grand Rapids, Jackson, Kalamazoo, Lansing, Muskegon, Pontiac, and Saginaw.

The **Bipartisan Urban Caucus** is a bicameral, bipartisan network of legislators, established in 1995 by legislators seeking to develop a state policy agenda to support the revitalization of Michigan's core cities.

The **Center for Community and Economic Development** is a Lansing-based unit of Michigan State University's Office of University Outreach and Engagement. Established in 1969 to initiate and support innovative problem-solving strategies to improve the quality of life in distressed communities throughout Michigan, CCED provides a multidisciplinary capacity to respond to the complex, interrelated issues of communities. In fulfilling its mission to engage university resources in support of Michigan communities, CCED has provided assistance and information to the Urban Core Mayors since 1993. For more information visit <http://www.ced.msu.edu/>

The **Michigan Higher Education Land Policy Consortium (MIHELP)** is a public-private, multi-university, inter-disciplinary partnership between Michigan State University, Wayne State University, Grand Valley State University, and Public Sector Consultants, headquartered at MSU's Land Policy Institute. Established in 2005 with generous support from the W. K. Kellogg Foundation, the mission of MIHELP is to help make Michigan's urban and metropolitan areas vibrant and successful communities by addressing the fundamental research and outreach void in urban and metropolitan issues in the State. For more information



ADA Compliant, June 12, 2018