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Which Districts Get Into Financial Trouble and Why: Michigan's Story
David Arsen, Thomas DeLuca, Yongmei Ni, and Michael Bates

ABSTRACT

Like other states, Michigan has implemented a number of policies to change governance and administrative arrangements in local school districts deemed to be in financial emergency. This paper examines two questions: (1) Which districts get into financial trouble and why? and (2) Among fiscally distressed districts, are there significant differences in the characteristics of districts in which the state does and does not intervene? We analyze factors influencing district fund balances utilizing fixed effect models on a statewide panel dataset of Michigan school districts from 1995 to 2012. We evaluate the impact of state school finance and choice policies, over which local districts have limited control, and local district resource allocation decisions (e.g., average class size, teacher salaries, and spending devoted to administration, employee health insurance, and contracted services). Our results indicate that 80% of the explained variation in district fiscal stress is due to changes in districts' state funding, to enrollment changes including those associated with school choice policies, and to the enrollment of high-cost, special education students. We also find that the districts in which the state has intervened have significantly higher shares of African-American and low-income students than other financially troubled Michigan districts, and they are in worse financial shape by some measures.

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INTRODUCTION

Legislation in a growing number of states authorizes state governments to take over local school districts experiencing financial emergencies (Anderson, 2012; Bowman, 2013 and 2011). While the design and implementation of takeover statutes vary across states, school districts often emerge from takeovers with increased fiscal stability (Oluwole & Greene, 2009), but they seldom produce academic gains (Bowman, 2011).

In 2011, Michigan passed the Local Government and School District Accountability Act, Public Act 4, which attracted national attention because of its strong provisions. For districts deemed to be in financial emergencies, PA 4 empowered the governor to appoint an emergency manager (EM). All powers and duties of the district superintendent and school board transfer to the EM, who has authority to reshape academic programs, to nullify labor contracts, to open and close schools, and to sell district assets (Arsen & Mason, 2013).¹ In 2013, Michigan passed PA 96 which authorizes state officials to dissolve local districts deemed to be financially unviable. In 2015, the state passed “early warning” legislation (Public Acts 109-114) that increases local education agencies’ financial reporting requirements and the state’s powers to intervene in the budgeting of school districts with low fund balances. It also broadens the circumstances under which an emergency manager may be appointed (Summers, 2015).

An underlying premise of Michigan’s recent laws to guide state intervention in instances of local district financial distress is that the financial problems are due to poor or misguided decision making by local district officials. The laws presume that local officials—central office

¹ PA 4 supplanted PA 72 of 1990. The earlier act authorized the appointment of emergency *financial* managers with much more restricted powers. Michigan voters overturned PA 4 in the November 2012 general election in a referendum on the EM law. The state legislature responded quickly, passing a replacement law without holding hearings in either chamber. The governor signed PA 436 into law in lame duck session in December 2012. The new EM law preserves most of PA 4’s features, and includes an appropriation which under the Michigan Constitution makes it immune to repeal by referendum.

administrators and the elected board—fail to take necessary though perhaps difficult steps that are needed to place their districts on sound financial footing. In order to resolve this problem, the state must exercise more forceful oversight or supplant these local officials with better and more empowered, state-appointed administrators.

Michigan offers an interesting case of a state with a highly centralized school finance system in which the state sets per pupil funding levels for each district, and most operating revenues follow students when they move among districts or charter schools. Districts have very limited authority to raise additional tax revenues for school operations from local sources. Consequently local responses to financial stress focus primarily on efforts to reduce spending.

Roughly ten percent of Michigan's 550 districts had operating deficits at the end of each fiscal year from 2012 to 2014. Thus far, three districts, each predominantly African-American and urban, have been placed under an emergency manager's control, including the state's largest district, Detroit Public Schools. Two more predominantly African-American districts were dissolved soon after PA 96's passage. State review teams have recently declared financial emergency in two additional predominantly African-American, urban districts that are currently operating under consent decrees.² These recent laws and their implementation provide state officials with much greater authority to reshape not only the finances and operations, but also the educational programs in districts serving many of Michigan's highest-need students. They simultaneously greatly diminish the power of local citizens and educators in these districts to shape education service provision.

² Michigan's emergency management law (PA 436 of 2012) permits school districts to negotiate agreements with the state treasurer to resolve financial emergencies, in lieu of, or before, an emergency manager's appointment. This provision provides broad powers to the state treasurer and enhanced financial reporting and compliance conditions for the local district.

This paper seeks to determine why some school districts fall into financial trouble. We evaluate in particular the impact of a range of variables corresponding to state school finance and school choice policies, on the one hand, and local district resource allocation decisions on the other. We also analyze whether among the state's fiscally distressed districts there are significant patterns in the demographic and financial characteristic of districts in which the state does and does not initiate emergency intervention.

Although it has received limited attention, financial accountability could assume growing prominence in the accountability movement. Legislation such as Michigan's emergency management law changes the politics of state intervention and governance reforms by providing state officials greater legitimacy to intervene in local districts (Arsen & Mason, 2013). To be viewed as legitimate, it is necessary to define the heart of the educational problem as administrative incompetence or the failure of local democratic governance structures. The legitimacy of state takeovers on academic grounds is sometimes undermined by concerns that test-based accountability penalizes schools for failing to overcome disadvantages related to students' poverty over which they have little control. State takeovers of "academically failing" districts might be criticized, therefore, as unfairly targeting districts that face the greatest educational challenges or "blaming the victims" (McDermott, 2007).

In contrast, administrators and elected representatives in any local community, rich or poor, can be expected to handle public funds honestly and competently. If local officials lack the basic administrative competence to balance their budgets (like everyone else), it is hardly surprising that they also lack the capability to educate their students. By framing school failure in terms of financial accountability, state policy makers may undercut traditional education

actors' legitimacy over academic affairs and establish more politically salient grounds for changes in the control and operation of local schools.

Previous researchers have used a wide variety of concepts and measures to represent the financial condition or stress of municipal governments (e.g., Trussel & Patrick, 2009 and Kloha, Weissert, & Kleine, 2005) and school districts (e.g., Ammar, et al., 2005; Berney, 1982; DeLuca, 2006 and Smith, 1986). There is no consensus in the literature, however, about either how to define fiscal stress or how to measure it. A primary object of past studies has been to identify variables capable of predicting insolvency or serious financial imbalances so that corrective actions might be taken.

This paper differs from past research in two key respects. First, we utilize fixed effects methods to identify the causes of local fiscal stress, rather than factors that are correlated with it. Second, we apply them to an institutional context—one that is becoming more common nationally—in which school funding is highly centralized at the state level and local districts have limited discretion to raise operational revenue from local tax sources.³

MICHIGAN CONTEXT

Since the passage of Proposal A in 1994, Michigan has maintained one of the nation's most centralized funding systems for K-12 schools. Proposal A established a foundation system which constitutes the primary source of discretionary operating revenues for all districts and charter schools. Nearly all funding moves with students when they transfer to other districts or charter schools, and local districts have very little discretion to raise additional tax revenues. The horizontal equity of funding has improved under Proposal A; 80 percent of pupils are in districts and charter schools that receive a foundation allowance at or within \$500 of the state's

³ In contrast to the previous literature on local fiscal stress, changes in local district fiscal capacity (for instance, changes in taxable property value per pupil) have no direct bearing on operating revenues available to Michigan districts.

minimum foundation allowance of \$7,076 in 2014.⁴ State funding, however, is poorly adjusted to compensate for the additional local costs of educating high-cost students, so the funding system fares less well in terms of vertical equity (Addonizio & Kearney, 2012; Michigan State Board of Education, 2014).⁵ Funding for school facilities, by contrast, is unusually decentralized; the state provides local districts with no state aid for facilities. They are funded entirely by local property taxes (Arsen and Davis, 2006).

Michigan has high and growing participation rates in its two school choice programs--charter schools and inter-district choice--especially in urban areas. Over 8 percent of Michigan's public K-12 students are enrolled in charter schools and over 7 percent participate in inter-district choice. In a state-by-state review of conditions that are favorable to charter school growth, the National Alliance for Public Charter Schools (2014) ranked Michigan third among states--after Washington, DC and Louisiana--in its 2014 Health of the Public Charter School Movement Rankings. The Alliance ranks Detroit second only to New Orleans among communities in terms of its share of students attending charter schools (2013). Other Michigan cities are also among the nation's highest in local market charter participation. In recent years, the state's charter school policy implementation has been sharply criticized for poorly regulating the supply, business operations, and quality of schools (Education Trust-Midwest, 2015; Detroit Free Press, 2014)

TRENDS IN FISCAL STRESS

After rising for several years following Proposal A's passage, real per-pupil funding for Michigan schools has declined sharply since 2002. As indicated in Figure 1, adjusted for

⁴ Throughout this paper, we refer to fiscal and academic years by the latter year, so, for example, the 2013-14 fiscal year is noted as 2014.

⁵ For example, the state reimburses only 28.6 percent of approved special education spending by local education agencies. The state, however, counts the general education per-pupil foundation grant for students with disabilities towards its special education funding obligation (Citizen's Research Council of Michigan, 2012).

inflation, statewide general fund revenue per-pupil has declined by roughly 25 percent since 2002.

[Figure 1 about here]

Whereas Figure 1 includes foundation and categorical funding, Table 1 displays changes in foundation revenue alone since 2002. Foundation revenue is of particular interest since it constitutes the primary source of discretionary funding available to Michigan districts and charter schools. Categorical grants, by contrast, typically entail spending obligations and restrictions on how these funds can be used. Table 1 displays changes in enrollment, per-student foundation grants, and total foundation revenue by school district type.⁶ Most of the improvement in the horizontal equity of per-pupil foundation grants occurred between 1994 and 2002. The narrowing of the per-pupil gap continued during the 2002-2013 period, as indicated, for instance, by a larger gain in nominal per-pupil foundation grants in formerly low-spending rural districts (9.2%) than high-income suburban districts (4.8%). For all community types, however, the growth of per-pupil funding fell substantial shy of inflation, producing average declines in *real* per-pupil foundation grants from 2002 to 2013 in excess of 25% in all district groups.

The (nominal) per-pupil foundation grants of all Michigan districts remained unchanged for three consecutive years from 2003 to 2005. By contrast, per-pupil funding declined for all

⁶ We define a five-way classification of school district community types. *Central city* districts are those that the National Center for Education Statistics (NCES) classifies as serving large cities and mid-sized cities. *Rural* includes districts classified by NCES as outside a metropolitan statistical area (MSA) plus those within an MSA with population density less than 20 people per square mile. Suburban district are those classified by NCES as “serving an MSA but not primarily its central city” and having population density greater than 20 people per square mile. The suburban classification is disaggregated based on median home value (MHV) in the 2000 U.S. Census-- *Low-income suburb*: \$32,500 <MHV< \$75,000; *Middle-income suburb*: \$75,001≤MHV<\$170,000; *High-income suburb*: MHV≥\$170,000. Low-income suburban districts are very similar to Michigan’s central cities in racial composition and student poverty rates.

districts for three consecutive years after 2009. The state's basic foundation allowance in 2013 was \$470 below its level in 2009.

However, differential patterns of district enrollment change had a much more dramatic impact on total foundation revenue available to local decision makers. Over a span of 11 years, Michigan's central city districts on average lost a third of their enrollment, producing an average decline of 21.6% in total foundation revenue, or a striking 46.5% revenue decline in real terms. Meanwhile, enrollment growth mitigated the funding squeeze in high-income suburbs, despite their slow growth in per-pupil funding. As indicated in the final column of Table 1, however, average total real foundation revenue declined substantially over the last decade in all community type groups.

[Table 1 about here]

One key indicator of the much tighter budgetary conditions faced by Michigan's public schools is the statewide decline in fund balances. As noted, negative or low fund balances are a trigger for state intervention in local districts' financial affairs under Michigan law. As indicated in Figure 2, the aggregate fund balances for all Michigan districts and charter schools, adjusted for inflation, have declined by over half since 2002, from \$2.7 billion in 2002 to \$1.0 billion in 2013. It is noteworthy that the shape of the aggregate fund balance trend in Figure 2 broadly corresponds to the shape of the aggregate real per pupil funding trend in Figure 1.

[Figure 2 about here]

Although most Michigan districts have faced very tight budgetary circumstances over the last decade, the increase in fiscal stress appears to vary by district characteristic. Figure 3, for example, shows that the decline in fund balances is especially large and striking in districts with high concentrations of African-American students. Since 2009, the average fund balance has

been negative (i.e. in deficit) for districts in which at least 40 percent of the students are African-American. Remarkably, by 2012, the average fund balance as a percent of general fund revenues in these districts was -15%.⁷

[Figure 3 about here]

Another indicator of growing fiscal stress in Michigan school districts comes from national credit rating agencies. Moody's Investor Service noted that "[S]chool districts in the State of Michigan have faced unprecedented fiscal stress over the past few years stemming from direct funding cuts, enrollment declines and limited revenue and expenditure flexibility" (Butler, 2012, 1). It reported ratings downgrades in a quarter of Michigan school districts between 2009 and 2012, three times the rate for school districts nationwide, as well as multi-notch downgrades during the same period at a rate six times the rate for districts nationwide. The report concluded that "The outlook for the Michigan school district sector remains negative going forward. Additional downgrades are likely to occur in the near term." Indeed Moody's has continued to cut credit ratings for scores of Michigan districts during the current year of this writing (Lewis, 2015).

Even if most Michigan districts have faced tighter fiscal circumstances in recent years requiring many to cut spending and draw down their fund balances, it does not necessarily follow that instances of acute financial stress have dramatically increased in recent years. After all, districts could implement expenditure reductions in a variety of ways to avoid deficits even as real revenues decline. There has been a clear increase in the number of deficit districts over time, however. Over each of the four years 1996 to 1999, eight Michigan districts on average

⁷ The trends for fund balance *per pupil* for districts grouped by student racial composition are very similar to those depicted in Figure 3.

had end-of-fiscal-year general fund balance deficits, while from 2000 to 2013 an average of 42 districts were in deficit.

Table 2 offers further perspective on this uptick in district fiscal stress, by documenting instances of districts with deficits in their general fund balances over the entire post-Proposal A period. The table breaks the 19-year span into two sub-periods (1995-2004 and 2005-2013). If the rate at which districts fall into deficit is constant between the two sub-periods, then the third column in Table 2 should indicate that 48% of the district-by-year deficits occurred in the second period. Yet Table 2 shows that the rate of districts falling into deficit for one, two, three or four years has increased dramatically in the second period relative to the first. Likewise, as revealed in the bottom panel of Table 2, there was a sharp increase during the latter period in the number of districts with large deficits relative to their general fund revenues.

[Table 2 about here]

Given the relative frequency with which Michigan school districts have fallen into and remained in deficit in recent years, it is perhaps worth noting that Michigan law specifies that “A district or intermediate district receiving money under this act shall not adopt or operate under a deficit budget, and district or intermediate district shall not incur an operating deficit in a fund during a school year.” (MCL 388.1702(1)) Even though the law proscribes district administrators and school boards from adopting deficit budgets, it also details how districts are to create deficit elimination plans. These plans are submitted to and monitored by the state department of education.

RESEARCH QUESTIONS

We set out to address the following research questions.

1. Which Michigan school districts get into financial trouble and why?

- a. What is the relative role of districts' resource allocation decisions versus factors largely outside districts' control?
2. Among districts that fall into sustained deficits, how do those in which the state intervenes differ, in terms of their demographic and financial characteristics, from those in which it does not?

METHODS AND DATA

Our empirical work to address Research Question 1 takes the form of explaining variations in district fund balances, since under Michigan law, low fund balances and deficits are the key triggers for state intervention. We focus on the districts' general fund which includes all financial transactions related to districts' operations, except those required by law to be entered in other funds, such as capital projects, long-term debt and food service. General fund revenues and expenditure encompass the elements of district fiscal health in which we are interested. All Michigan districts in which the state has staged emergency intervention have had serious problems (deficits) in their general funds.

The balance on district i 's general fund in year t , FB_{it} , is given by:

$$FB_{it} = \text{Revenue}_{it} - \text{Expenditures}_{it} + FB_{it-1}$$

Conceptually, therefore, we seek to model influences on district revenues, on the one hand, and expenditures on the other. For revenues, we focus on districts' per-pupil foundation funding and other non-foundation funding which is comprised mostly of state and federal categorical revenues. We also consider changes in enrollment which affects districts' total revenue directly through state funding formulas, but also may influence the relationship between district revenues and expenditures. In Michigan, when a student leaves a district all funding associated with that student is lost, but certain costs may be fixed in the short run so expenditures decline more

slowly than revenues. So revenues are likely to decline more rapidly than costs in declining-enrollment districts.⁸ Consequently, declining-enrollment districts would be forced to reduce services on remaining students or draw down their fund balances.⁹ In addition, we isolate the influence of school choice policies on enrollment, since these enrollment shifts may impact district finances differently than those associated with residential population change.

For expenditures, we focus on the density of high-cost students in districts. We also examine a set of local district resource allocation decisions that directly influence expenditures and possibly fund balances.

We utilize fixed effects models to estimate the influence of different factors on the fund balances of Michigan school districts. The basic model takes the following form:

$$FB_{it} = \mathbf{Revenue}_{it} \mathbf{B}_1 + \beta_2 \text{Enrollment}_{it} + \mathbf{Choice}_{it} \mathbf{B}_3 + \mathbf{StudentCharacteristics}_{it} \mathbf{B}_4 + \mathbf{ResourceAllocation}_{it} \mathbf{B}_5 + \theta_i + u_{it} \quad (1)$$

In which FB_{it} is the fund balance per pupil in district i in year t . $\mathbf{Revenue}_{it}$ is a vector of two variables reflecting revenues received by district i in year t , including *Foundation* revenue per pupil¹⁰ and *Nonfoundation* revenue per pupil from local, state and federal sources. We expect district fund balances to increase with increases in both types of revenue, although foundation funding may have a stronger positive influence than nonfoundation funding. Whereas the use of

⁸ The state’s pupil count for the allocation of state aid is based on a weighted average of enrollment on the second Wednesday in the previous February (10%) and first Wednesday in October in the current school year (90%). Districts losing a student any time between the previous February count day and the first October Wednesday of the current academic year will lose 90% of funding for that student in the current year.

⁹ Conversely, so long as they have excess capacity (a nearly universal condition in Michigan school districts), in growing-enrollment districts, the additional revenue associated with gaining a student is likely to exceed the increased cost and tend to increase fund balances.

¹⁰ In a few years covered in this study, districts did not receive the full amount of their authorized foundation funding, due to unanticipated short-falls in state revenue collections. Our Foundation variable is adjusted to incorporate this “pro-rationing” of funding.

foundation funding is entirely discretionary to local districts, most nonfoundation funding is categorical with conditions attached to how it must be spent.

We expect district fund balances to be a positive function of $Enrollment_{it}$, defined as full-time equivalent student enrollment. This implies that the marginal revenue associated with gaining an additional student exceeds the marginal cost of additional service provision. **Choice_{it}** is a vector of two variables reflecting the share of a district's resident students who participate in each of Michigan's two choice policies. It includes *%Charter*--the percent of students residing in district *i* who attend charter schools--and *%Net_IDC*, the net gain or loss of students to inter-district school choice as a percentage of students residing in district *i*.¹¹ We expect increases in charter penetration to decrease district fund balances, and a net inflow of out-of-district students to increase fund balances. (Conversely, net outflows of students through inter-district choice are expected, like the loss of students to charter schools, to decrease fund balances.)

StudentCharacteristics_{it} captures the net influence of a vector of student attributes that are associated with added categorical funding, as well as additional costs of service provision. Within the model specified by Equation 1, these variables can be interpreted as the extent to which the added funding covers the service provision costs for high-cost students.

StudentCharacteristics_{it} includes the percent of students who receive special education services, *%SpecEd*, and the percent of students eligible for free and reduced-priced lunch, *%FRL*.¹² For both variables, a negative sign on their estimated coefficient implies that the additional revenue associated with these special-need students is less than the additional

¹¹ Specifically, $\%Net_IDC = (\text{incoming out-of-district students} - \text{resident students enrolling in other districts}) / \text{students residing in district } i$.

¹² Special education enrollment is measured by individual education plans (IEPs).

expenditures for services they receive, whereas a positive implies additional revenues exceed additional expenditures.

ResourceAllocation_{it} is a vector of five variables reflecting key local resource allocation decisions by district i in year t . Unlike the other variables in Equation 1, which are entirely or largely outside local districts' control, the resource allocation variables fall squarely within the domain of local district decision makers. We expect increases in average teacher salary, *Teacher_Salary*, to have a negative impact on fund balances. Increases in class size represent an important option to reduce spending. We consequently expect increases in a district's average pupil-teacher ratio, *P-T ratio*, to have a positive impact on fund balances. High levels of administrative spending are often taken as indicators of inefficiency in school operations, although empirical support for this view is limited (Brewer, 1996). We test the hypothesis that administrative "bloat" is associated with declines in district fund balances with *%Admin*, the percent of spending devoted to administration.

The rising cost of employee health insurance has squeezed school district budgets across the nation in recent years and prompted a variety of local strategies to curtail these costs through changes in coverage and payments. We include the percent of spending devoted to employee health insurance, *%Health*, with the expectation that it is negatively related to district fund balances. Finally, private contracting of services, especially support services such as transportation, custodial, food service, has been advocated as a promising strategy for local districts to lower costs and diminish fiscal stress (LaFaive, 2007). Private contracting by Michigan school districts has increased over the past decade (Holman & Fryzelka, 2014). We test this hypothesis with *%Purchases*, the share of spending devoted to purchased services, with the expectation that it is positively related to fund balances.

θ_i is the time-constant district fixed effect, which picks up all unobserved characteristics of a school district that are stable over time, including historical differences in local cost of living or other geographical or structural influences on district revenues or spending that influence fund balances. The idiosyncratic error that changes across time for each district is u_{it} . All Equation 1 variables which are expressed in monetary units (*FB*, *Foundation*, *Nonfoundation*, and *Teacher_Salary*) are converted to real 2012 dollars using the U.S. Department of Commerce's GDP price deflator for state and local government purchases.

Our panel dataset covers the years 1995 to 2012, with the exception of the two school choice variables (*%Charter* and *%Net_IDC*) which are only available for the years 2001 to 2012. We estimate our models that do not include the choice variables over the entire 1995-2012 period, and those that include the choice variables over 2001 to 2012. We estimate Equation 1 for all Michigan school districts with enrollment of at least 100 students.

The data were assembled from two main sources: the Michigan Department of Education (MDE) and the State of Michigan's Center for Educational Performance and Information (CEPI). MDE was the source for data on district foundations, fund balances (Bulletin 1011), and district enrollment, average salaries and pupil-teacher ratios (Bulletin 1014). All other district financial data came from CEPI's Financial Information Database. CEPI was also source for the school choice and student demographic variables.

RESULTS

Table 4 presents the estimates of the district fund balance models. Models 1-5 in Table 4 introduce the variables specified in Equation 1 sequentially. Model 5 is the full model.

In all specifications, both revenue variables have highly significant positive impacts on district fund balances. As districts receive more revenue, their fund balances increase.

Moreover, the estimated coefficients indicate that an additional dollar of discretionary foundation revenue is equivalent to roughly two dollars of non-foundation revenue. This is intuitively plausible since non-foundation revenue is primarily categorical funding which comes with corresponding expenditure requirements.

[Table 4 about here]

Model 1 in Table 4 indicates that a one dollar increase in foundation revenue and non-foundation revenue lead to \$.376 and \$.283 increase in FB, respectively. The influence of foundation revenue on fund balances intensifies, after controlling for the enrollment and resource allocation variables, as shown in Model 5.

As expected, district enrollment growth also consistently exerts a significant positive impact on district fund balances. Gaining one student increases fund balances by \$.03 per total district pupil. This implies that for growing districts the marginal revenue gain associated with an additional student exceeds the marginal cost. Conversely, for declining enrollment districts, revenues decline faster than costs, causing district fund balances to decline.

The results for the school choice variables are interesting. In all specifications, as expected, a net inflow of inter-district student transfers significantly increases district fund balances, and correspondingly net out-flows of students lower fund balances. By comparison, the results for districts' loss of students to charter schools are more tentative. While significant in the parsimonious models (Models 3 and 4 in Table 4), *%Charter* is only significant at the 90% level in the full model, after the resource allocation variables are introduced (Model 5). Below we test for the possibility that very high and sustained levels of charter penetration have differential impacts on district finances that are not captured in our linear specification of *%Charter*.

It is noteworthy that the point estimate on *Enrollment* falls by 44 percent when the charter school and inter-district choice variables are added in Model 3. This implies that 44 percent of the enrollment effect is explained by charters and inter-district choice. It also implies that since *Enrollment* is included with the school choice variables, the point estimates on *%Charter* and *%Net_IDC* do not reflect their full impact on district fund balances since much their effects pass through enrollment.

Student characteristics also influence district fund balances. As expected, the percent of a district's students who are eligible for special education service is strongly related to district fund balances. A one percentage increase in a district's students receiving special education services in Model 5 generates roughly a \$43 decline in district fund balance per student. As noted above (footnote 2), under Michigan's special education funding arrangements, special education students typically represent a financial burden to local districts, and the more costly a student's disability, the larger the burden.¹³

Meanwhile, increases in the percent of students who are poor (*%FRL*) do not have a similar negative impact on district fund balances. The percent of students who are eligible for free and reduced priced lunch is positively related to district fund balances, although this relationship is only marginally significant.¹⁴ This implies that for Michigan districts as a whole, the additional revenue they receive to serve low-income students roughly corresponds to their

¹³ The portion of special education costs that are borne by local districts and charter schools varies across intermediate school districts (mostly county-level agencies) in Michigan, because ISDs differ in the extent to which they provide supplemental special education funding to the local units.

¹⁴ We explored the possibility that the impact of student poverty on fund balances is nonlinear, including specifications testing for the possibility of differential budget impacts in districts with very high thresholds of student poverty (e.g., *%FRL* = 70%, 80% or 90%). In none of these specifications was the measure of student poverty statistically significant.

additional spending for these students, producing no significant residual impact on fund balances.

In Model 5, three of the five district resource allocation variables are significant (*P-T ratio*, *Teacher_Salary*, and *%Admin*) each with the expected signs. An increase in a district's pupil-teacher ratio by one student increases its fund balance by \$80 per pupil. Meanwhile, a \$1000 increase in average teacher salaries decreases fund balances by \$29 per pupil. A one percentage point increase in the administrative spending (as a share of total general fund spending) lowers district fund balances by \$112 per pupil.

Two of the district resource allocation variables, *%Health* and *%Purchases*, are not significantly related to district fund balances. These results are noteworthy in view of the fact that within the Michigan policy context both are associated with steps (cutting expenditures on employee health benefits and contracting service provision to private vendors, respectively) that have been widely advocated for local districts in fiscal distress (e.g., Washburne & Jahr, 2007; LaFaive, 2007). Whatever the merits of these strategies as emergency measures for district in fiscal distress, our results fail to indicate that they are systematically related to districts' fiscal health as measured by their fund balances.¹⁵

Whereas a simple correlation suggests that districts with high concentrations of African Americans are more likely to be in financial distress, as indicated by Figure 3, our results in Table 4 suggest a more nuanced relationship. Districts with high concentrations of African American students are much more likely to be subject to intense charter school penetration, to lose students to inter-district choice, and to have higher concentrations of students with

¹⁵ We also tested districts' contribution rate to the Michigan Public School Employee Retirement System in our models. MPSERS is a state defined-benefit pension system. The system's eligibility and benefit provisions are established at the state level, and it is funded by local districts through a uniform statewide contribution rate set annually by the state and assessed against districts' payroll spending. MPSERS contributions were not significant in any of our models and its inclusion did not change the results for any other variables in the model.

disabilities.¹⁶ Once these and other factors are controlled, however, districts' level of financial distress is not significantly related to their racial composition as indicated by the *%Black* variable in Model 6 of Table 4. Moreover the results for other variables are highly stable with the inclusion of *%Black* in the model.

In assessing factors that determine local districts' fiscal health, Table 4 provides insight into the relative contribution of local districts' budgetary decision-making versus factors entirely or largely outside their control. Model 4 in Table 4 omits the resource allocation variables that fall within local districts' control (*P-T ratio*, *Teacher_Salary*, and *%Admin*, *%Health* and *%Purchases*). The R-square of Model 4, including the variables that are outside local districts' control (*Foundation*, *Nonfoundation*, *Enrollment*, *%CS*, *%Net_IDC*, *%SpecEd* and *%FRL*) is 0.21. The R-square of Model 5 increases to 0.26 with the addition of the resource allocation variables. Consequently, local districts' resource allocation decisions account for only 20% of the explained variation in district fund balances, while factors outside districts control accounted for the remaining 80%.

Districts with High Levels of Charter Penetration

We next consider the possibility that the impact of the loss of students to charter schools on district financial health is not linear, but rather intensifies in situations where charter penetration reaches high and sustained levels. Such a nonlinear relationship is suggested by Ni (2009) who found an adverse impact of Michigan charter schools on district efficiency at high and sustained levels of charter penetration, but not low levels. Arsen & Ni (2011) also found that high levels of charter penetration produce greater declines in Michigan districts' revenues than expenditures.

¹⁶ The correlations between *%Black* and these variables in 2012 were: *%Charter* (0.654), *%Net_IDC* (-.092), and *%SpecEd* (0.222). The correlations over the entire 1995-2012 period were: *%Charter* (0.601), *%Net_IDC* (-.052), and *%SpecEd* (0.193). *%Black* is measured by head count data.

Table 5 displays the results for our full model in which *%Charter* is replaced by variables that count the number of consecutive years that a district has reached alternative thresholds (5%, 10%, 15%, 20% and 25%) of charter penetration. Under this specification, the loss of resident students to charter schools has a strong negative impact on district fund balances. Moreover the adverse impact on district finances increases progressively as the charter threshold increases from 5% to 25% of resident students. The results indicate that in the relatively small number of Michigan districts in which charter penetration reaches very high and sustained levels, the loss of students to charters causes district fund balances to sharply deteriorate.¹⁷

[Table 5 about here]

Finally we examine the possibility that charter schools have an indirect impact on district fund balances by changing the share of students who remain in district schools and receive special education services. Charter school enrollment would cause an increase in the share of special education students in district schools, for instance, if a disproportionately low share of students enrolling in charter schools received special education services. Table 6 shows estimates of fixed-effect regressions in which special education students as a percent of district enrollment (*%SpecEd*) is the dependent variable and charter school penetration (*%Charter*) is a predictor. In each specification, increases in the share of a district's resident students attending charter schools increase the percentage of special education students among students who remain in district schools.

To test whether the share of special education students mediates the relationship between charter enrollment and the district fund balance, we estimated a fixed-effects regression that is identical to Model 5 in Table 4, except excluding the *%SpecEd* variable. The coefficient on

¹⁷ In 2012, *%Charter* was greater than 25% in 13 districts. Four of those districts had surpassed this charter penetration threshold for at least five years; one district for ten years.

%Charter becomes -52.627 ($p < 0.05$), suggesting that one percentage increase in charter school enrollment has an indirect effect of decreasing district fund balance by \$4.9 ($-52.627 + 47.684 = -4.9$) through increasing the share of special education students in district schools.

[Table 6 about here]

Patterns of State Intervention

We turn now to address Research Question 2: among districts that fall into sustained deficits, which ones does the state take over? Michigan's emergency manager law affords the state considerable discretion in the determination of when a financial emergency exists in a local school district or municipality. There are no well-defined triggers for state intervention (Arsen & Mason, 2013).

Thus far, the state has appointed emergency managers in three school districts (Detroit, Muskegon Heights, Highland Park), has dissolved two school districts (Inkster and Saginaw Buena Vista) and established consent decrees in one (Pontiac).¹⁸ As the top panel of Table 7 shows, students in all of these districts are predominantly poor and African American. All except Inkster experienced large declines in enrollment between 2002 and 2012. Compared to districts statewide, all six of these districts experienced much higher loss of resident students to charter schools and higher shares of special education students.

[Table 7 about here]

We set out to determine whether district demographic or financial characteristics were related to in which of the fiscally distressed districts the state intervened. To do so we examined all Michigan school districts that were in deficit for at least two consecutive years in 2012.

¹⁸ The state intervened in yet another predominantly poor and African-American school district, Benton Harbor, too recently to include in the analysis. Benton Harbor is currently operating under a consent decree.

Under the emergency manager law, this condition would permit emergency state intervention. In 2012 there were 34 Michigan districts that satisfied this condition. We ask whether the six districts in which the state intervened differed significantly from the deficit district in which it did not in terms of their demographic or financial characteristics.¹⁹

We measured district demographics by the percent of student who are black and the percent that are eligible for free- and reduced-priced lunch. We also include the percent of resident students enrolled in charter schools. We measured district financial status in three ways:

- number of consecutive years in deficit (in 2012),
- 3-year trend in deficit relative to general fund revenues (2009 to 2012),²⁰ and
- fund balance as a percentage of general fund revenue.

As indicated in Table 8, the deficit districts in which the state intervened were significantly different from deficit districts in which it did not intervene on each of the demographic characteristics examined. They had significantly higher shares of African-American students (86% versus 40%), and significantly higher shares of low-income students (85% versus 67%). Districts in which the state intervened also had significantly higher charter penetration (29% versus 11% of resident students).

[Table 8 about here]

On two of the three measures of district financial status (fund balance as a percentage of general fund revenues and the 3-year deficit trend), the six districts in which the state intervened were in significantly worse shape than those in which it did not.

¹⁹ The state intervened in two districts in 2012 and three in 2013. The state declared a financial emergency in Detroit Public Schools in 2009.

²⁰ We measure this as $(\text{FB}/\text{General fund revenue})_i^{2012*} 100 - (\text{FB}/\text{General fund revenue})_i^{2009*} 100$

On one measure of district financial status, the number of consecutive years in deficit in 2012, there was no significant difference between the districts in which the state did and did not undertake emergency intervention.²¹

Clearly the districts in which the state has undertaken various forms of emergency intervention are significantly blacker and poorer than other financially troubled districts in Michigan. The question of whether these districts are also in significantly worse financial shape yields mixed results depending on the measure of financial status. But by at least two important measures, the intervention districts were indeed significantly worse off.

DISCUSSION AND CONCLUSION

Given states' constitutional obligation to provide education services to all students, it is appropriate for them to oversee and support local district operations and to intervene when serious problems arise. In recent years, the State of Michigan has taken over and suspended traditional democratic governance arrangements in, or dissolved, several predominantly African-American and poor school districts. Such actions have been implemented only in poor, African-American districts. Although these districts were not performing well on academic metrics, the grounds for this emergency intervention under state law are strictly financial. State policy presumes that local district fiscal distress is caused by local officials' poor decision-making and management, and therefore it seeks to shift administrative authority to other parties.

Our findings, however, indicate that state school finance and choice policies significantly contribute to the financial problems of Michigan's most hard-pressed districts. Most of the explained variation in district fund balances is due to changes in districts' state funding,

²¹ The tests reported in Table 8 were also conducted for the same set of school districts for 2011. The pattern of significant and insignificant differences between the intervention and non-intervention groups was unchanged for all district characteristics.

enrollment changes including those associated with school choice policies, and special education students whose required services are inadequately reimbursed by the state.

Michigan participated in one of the most important transformations in American K-12 education over the last half century by shifting most funding responsibility from local districts to the state government. The conventional wisdom holds that a larger revenue raising role for states renders funding less stable (since state revenue sources are more cyclically sensitive than local property taxes), but an expansion of the state's funding role is generally viewed as increasing school funding equity (Ladd & Hansen, 1999).

After 20 years, Michigan's centralized funding system is generating outcomes at odds with standard conceptions of improved equity. Between 1994 and 2002, Proposal A did indeed narrow (but not eliminate) funding inequities among districts, thus improving horizontal equity. The system, however, took slight account of local cost variations, especially for high-cost special needs students, so it fares less well against the standard of vertical equity. Moreover, after rising steadily for eight years following Proposal A's passage, total real per-pupil funding has declined sharply since 2002, increasing fiscal stress in districts statewide as a growing number of districts fell into deficit.

During this period of statewide fiscal retrenchment, differences in district enrollment trajectories have generated large variations in revenue growth or decline and fiscal stress. Michigan's declining-enrollment districts have faced the greatest fiscal pressures. Our results show that the state's school choice policies powerfully exacerbate the financial pressures of declining-enrollment districts, particularly those with sustained high levels of charter school penetration. Despite the long-term decline of school-age children in Michigan cities, charter schools now represent a large and growing parallel system of schools that operate alongside

traditional public schools. With no coordination of the total supply of schools, some urban areas are characterized by a chaotic excess supply of public schools (Coalition for the Future of Detroit Schoolchildren, 2015).

While most variation in district fiscal stress is explained by factors largely outside local decision-makers' control, local decision-making does matter. Our results indicate several ways in which local resource allocation decisions (larger class size, lower teacher salaries, lower administrative spending) increase district fund balances and thereby reduce fiscal stress. We do not, however, attempt to assess the impact of such measures on the quality of education services.

By failing to account for the budgetary consequences of rapid enrollment loss and local cost differences, Michigan's school finance and choice policies reinforce a fierce downward spiral in the state's urban districts. Indeed rather than rectify the mismatch between state revenues and local costs in declining-enrollment districts, state policy changes have made them worse. In 1994, district pupil counts for state funding were a 50-50 weighted average of district enrollment in the previous spring and fall of the current academic year. Since then, the state has progressively decreased the weight of past enrollment, so that by 2015 previous-year enrollment is weighted only 10%.²²

By comparison to their counterparts in more affluent districts, school boards and administrators in urban districts have been forced to enact more substantial cuts to programs, services and employee compensation. These budgetary changes, in turn, influence households' perceptions of local school conditions. In settings with high levels of school choice participation, school closures and teacher layoffs can create negative perceptions that enhance the prospect that additional families will leave, creating a self-reinforcing cycle. This process

²² The current pupil-count weighting means that districts must establish their budgets each year based on enrollment estimates, but do not know their actual funding until over a month after the start of the academic year. It also dramatically heightens the stakes of school choice competition.

has triggered financial emergencies in a small but vital subset of Michigan districts and established grounds for state intervention, but state policies were in large part responsible for the underlying financial problems.

We recognize the limits to the external validity of these results. They are conditional on specific features of state policy design in Michigan. By the same token, changes in state policy could improve matters and help stabilize district finances.

One indication that state policies are implicated in the precarious finances of hard-pressed Michigan districts is that emergency managers with complete powers to determine all aspects of district operations have thus far--after six years in Detroit and three years in Muskegon Heights and Highland Park—been unable to eliminate budget deficits. Although they have reduced staffing and employee compensation, closed schools and privatized service delivery, they have been unable to increase student enrollment (and thus revenues) sufficiently to balance district budgets. The analysis of why emergency state-appointed financial management is apparently less successful in Michigan than elsewhere remains a subject for future research.

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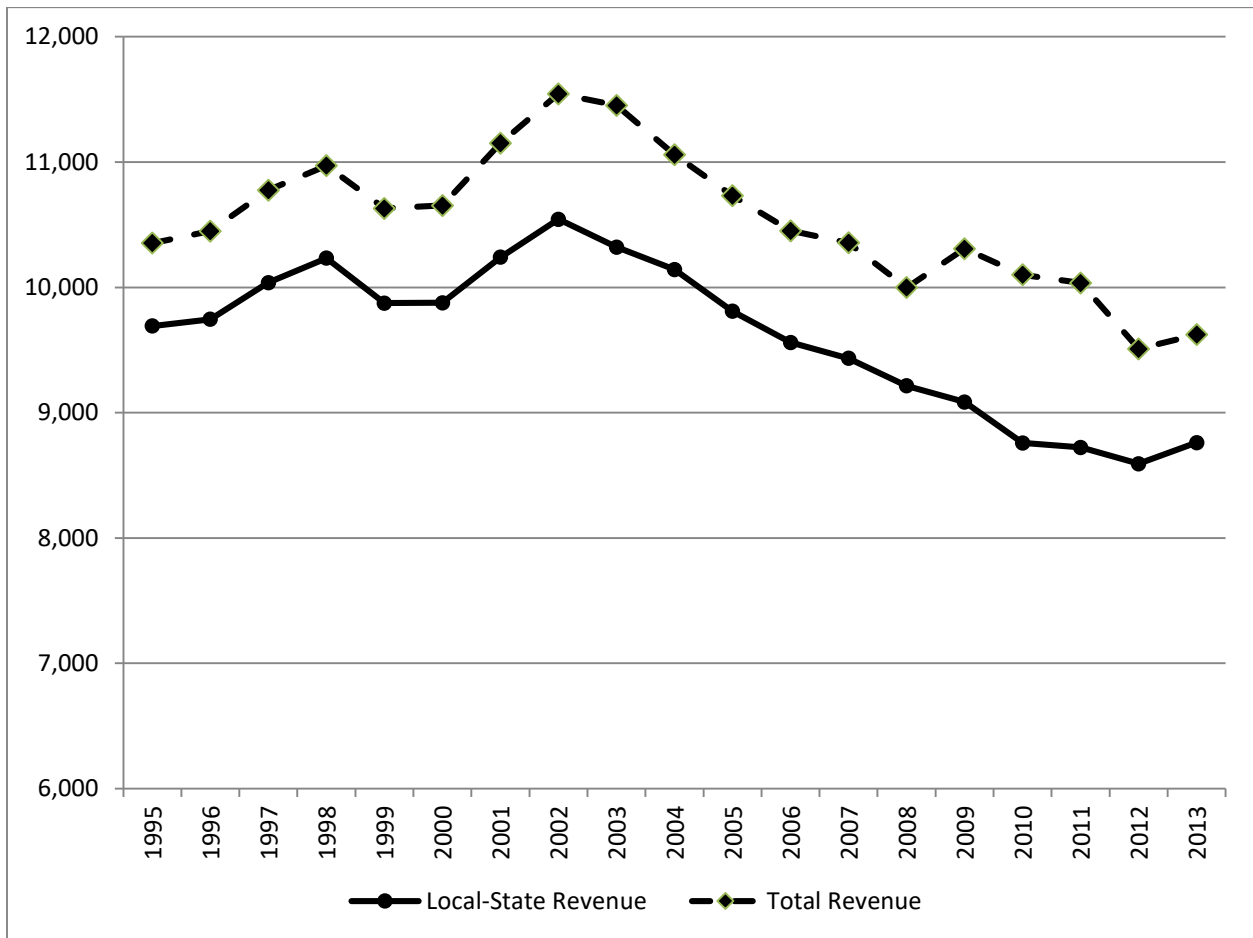
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Figure 1. Michigan Real Total General Fund Revenue per Pupil (2012\$)

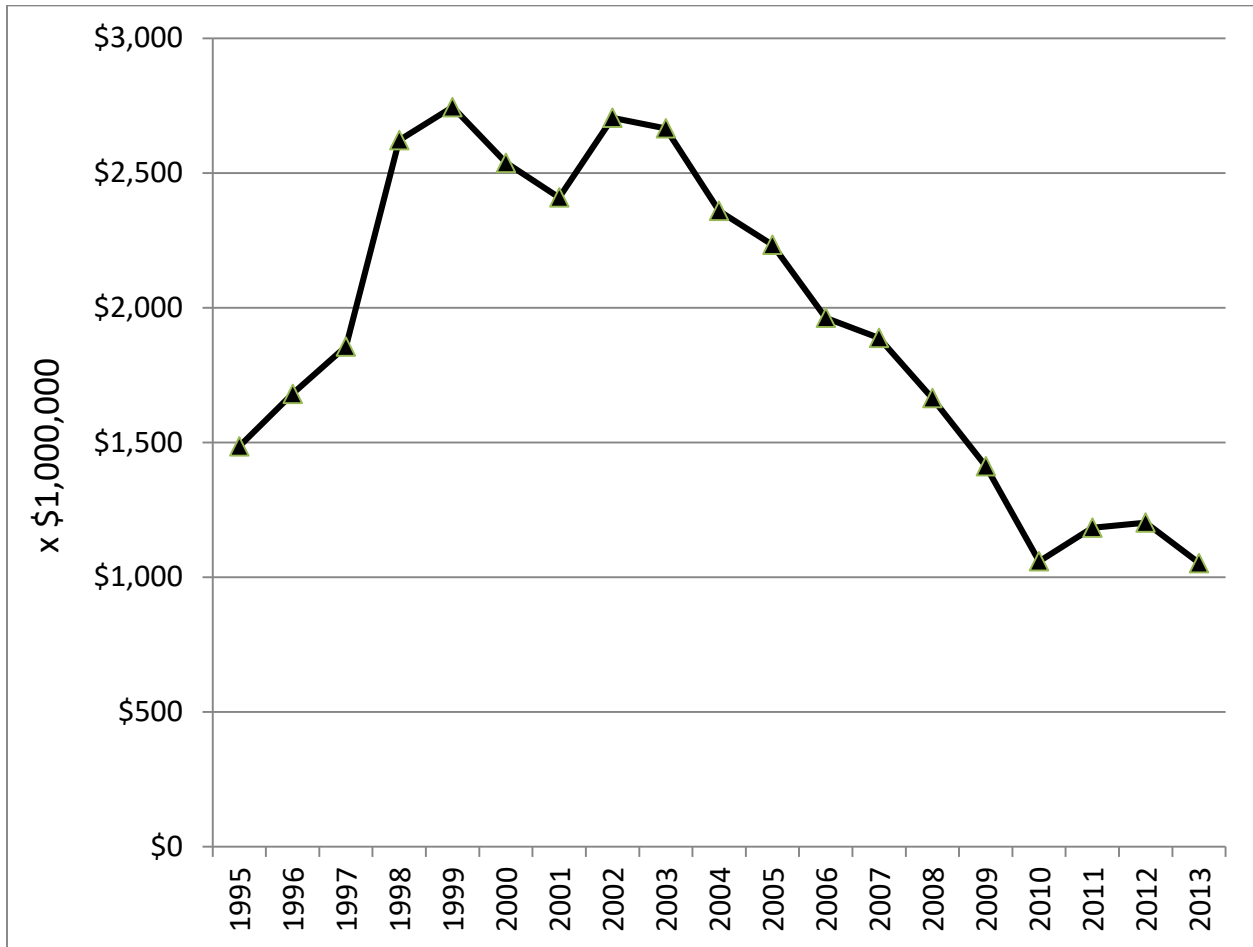


Sources: Michigan Department of Education, Bulletin 1040; U.S. Department of Commerce, GDP price deflator for state and local government purchases.

Table 1. Change in Foundation Grants and Enrollment by School District Type, 2002-2013

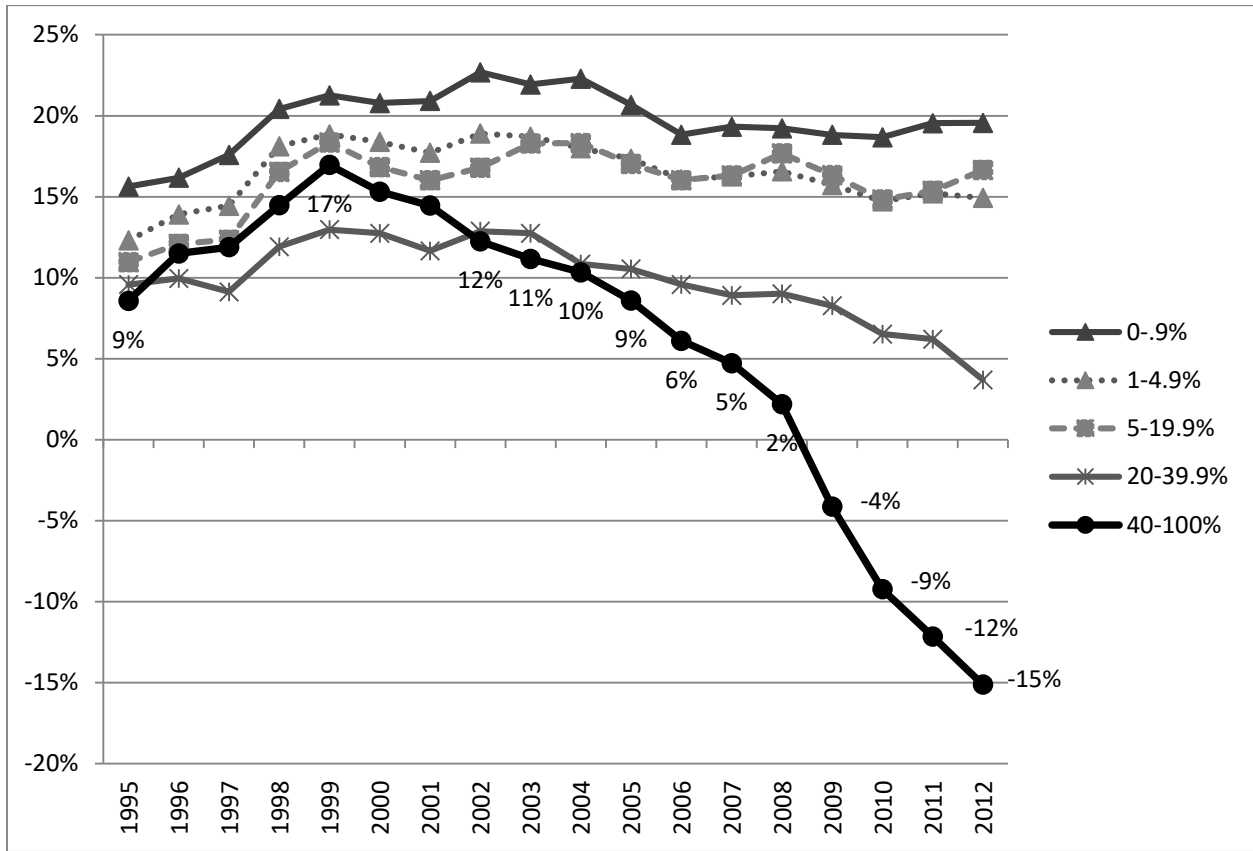
School district type	% change enrollment	% change nominal per-pupil foundation grant	% change real per-pupil foundation grant	% change nominal total foundation revenue	% change real total foundation revenue
Central city	-26.6	6.7	-27.2	-21.6	-46.5
Low-income suburb	-7.9	6.8	-27.1	-1.2	-32.6
Mid-income suburb	0.1	7.6	-26.6	7.7	-26.5
High-income suburb	5.8	4.8	-28.5	10.8	-24.4
Rural	-14.7	9.2	-25.5	-6.9	-36.5

Figure 2. Aggregate Fund Balance for All Michigan School Districts (2012\$)



Sources: Michigan Center for Education Performance and Information; U.S. Department of Commerce, GDP price deflator for state and local government purchases.

Figure 3. Fund Balance as Percent of General Fund Revenues by School District Racial Composition, % Black.



Note: Composition of district groups is fixed over time period displayed in figure. District racial composition is derived by %Black in (1995 + 2004 + 2013) / 3.

Table 2. Michigan School Districts with Deficit General Fund Balances, 1995-2013

	Number of Districts		
	1995-2004	2005-2013	% of total after 2005
In deficit at least: (need not be consecutive years)			
1 year	33	77	70.0%
2 years	22	56	71.8%
3 years	14	40	74.0%
4 years	9	31	77.5%
>4 years	6	27	79.4%
With deficits at least:			
5% of general fund revenue	41	157	79.3%
10% of general fund revenue	17	102	85.7%
20% of general fund revenue	5	41	89.1%

Source: Michigan Center for Education Performance and Information

http://www.michigan.gov/cepi/0,4546,7-113-21423_35782_49874---,00.html

Districts with deficits for more years or higher percentages of revenue are included in the prior (smaller) amounts. So districts in deficit for 2 years are also included among districts in deficit for 1 year.

Table 3. Description of Variables

Variable	Description	Obs.	Mean	Std. Dev.
FB	Fund balance per pupil	10484	1618	4383
Foundation	Per-pupil foundation	11049	6753	1179
Nonfoundation	Nonfoundation revenue per pupil	10489	862	2134
Enrollment	Full-time equivalent student enrollment	10489	2901	6781
% Charter	% of students residing in a district who attend charter schools	6576	2.39	4.60
% Net_IDC	Net gain or loss of students to Inter-district school choice as % of students residing in a district	6576	2.56	43.36
% Black	% of students who are black	10483	6.13	15.39
% FRL	% of students eligible for free and reduced-priced lunch	9937	35.79	19.75
% Spec Ed	% of students who receive special education services	9939	12.05	4.22
Teacher_Salary	Average teacher salary (\$)	10485	50164	9946
% Health	% of spending devoted to employee health insurance	9905	10.86	2.98
P/T ratio	Average pupil-teacher ratio	10485	20.82	3.76
% Admin	% of spending devoted to administration	9850	5.79	3.14
% Purchases	% of spending devoted to contracted or purchased services	9935	6.35	4.22

Note: The descriptive statistics are based on data from year 1995 to 2012, with the exception of the two school choice variables (% Charter and % Net_IDC), which are only available for the years 2001 to 2012.

Table 4. Fixed Effects Estimates of School District Fund Balances

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Foundation	.376** (.03)	.37** (.03)	.363** (.032)	.4** (.044)	.63** (.071)	.628** (.071)
Nonfoundation	.283** (.091)	.285** (.092)	.266* (.107)	.209+ (.107)	.3** (.104)	.298** (.105)
Enrollment		.034** (.011)	.019* (.008)	.027** (.009)	.03** (.008)	.031** (.008)
% Charter			-60.329* (24.068)	-50.571* (25.275)	-47.684+ (25.265)	-43.35+ (24.475)
% Net_IDC			15.297** (5.633)	11.559* (5.575)	10.451* (5.134)	10.195* (5.039)
% FRL				6.368+ (3.422)	6.091+ (3.643)	6.828+ (3.583)
% SpecEd				-45.881** (15.262)	-43.055** (14.992)	-43.51** (14.934)
Teachere_Salary					-.029** (.006)	-.029** (.006)
% Health					-36.141+ (19.051)	-36.494+ (19.11)
P/T ratio					79.335** (15.496)	80.978** (15.646)
% Admin					-111.557** (34.058)	-112.996** (33.801)
% Purchases					6.388 (7.144)	5.851 (7.256)
% Black						-9.975 (11.706)
Constant	-2077.45** (286.051)	-2139.45** (287.007)	-1847.13** (342.147)	-1790.56** (579.059)	-2734.32** (781.056)	-2684.51** (784.111)
N	9856	9856	6217	5702	5695	5695
R-squared	0.14	0.15	0.2	0.21	0.26	0.26

Huber-White robust standard errors are in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 5. Fixed Effects Models: District Fund Balance Models with Alternative Charter Penetration Thresholds

	% Charter				
	>5% Model 1	>10% Model 2	>15% Model 3	>20% Model 4	>25% Model 5
Foundation	.624** (.067)	.613** (.066)	.609** (.066)	.592** (.065)	.606** (.066)
Nonfoundation	.292** (.103)	.287** (.103)	.289** (.103)	.292** (.103)	.293** (.103)
Enrollment	.034** (.007)	.021** (.008)	.011 (.01)	-.006 (.011)	-.001 (.012)
% Charter	-77.167** (29.163)	-182.479** (66.496)	-306.114** (104.901)	-538.472** (119.386)	-676.429** (180.463)
% Net_IDC	9.737* (4.738)	10.067* (4.501)	11.552** (4.358)	12.936** (4.208)	13.267** (4.111)
% FRL	6.191+ (3.615)	4.569 (3.437)	3.415 (3.391)	2.347 (3.448)	2.794 (3.466)
% Spec Ed	-48.956** (16.674)	-49.483** (16.433)	-50.138** (16.068)	-49.663** (14.738)	-49.081** (14.291)
Teacher_Salary	-.03** (.006)	-.029** (.006)	-.028** (.006)	-.026** (.005)	-.027** (.005)
% Health	-38.791* (18.871)	-38.5* (18.045)	-34.011+ (18.694)	-33.105+ (18.874)	-38.034* (18.805)
P/T ratio	81.33** (16.231)	79.993** (15.908)	78.348** (15.556)	74.233** (14.505)	75.931** (14.329)
% Admin	-114.6** (33.807)	-110.443** (33.828)	-106.317** (34.162)	-100.657** (34.624)	-108.078** (33.988)
% Purchases	7.345 (7.126)	7.922 (6.836)	8.483 (6.727)	8.995 (6.711)	7.77 (6.732)
Constant	-2598.77** (692.254)	-2463.74** (664.068)	-2467.46** (697.082)	-2337.54** (713.286)	-2391.54** (736.379)
n	5695	5695	5695	5695	5695
R-squared	0.255	0.268	0.277	0.295	0.289

Huber-White robust standard errors are in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 6. Fixed Effects Estimates of Determinants of Special Education Enrollment as % of District Enrollment

	Model 1	Model 2	Model 3	Model 4	Model 5
% Charter	.119** (.02)	.115** (.021)	.114** (.022)	.114** (.022)	.107** (.023)
% FRL		.003 (.005)	.003 (.006)	.003 (.006)	.003 (.006)
% Black			.002 (.015)	.002 (.014)	.003 (.015)
% Net_IDC				-.009 (.009)	-.009 (.009)
Enrollment					-0.000** (0.000)
Constant	13.099** (.048)	12.978** (.205)	12.972** (.208)	12.981** (.207)	13.081** (.212)
n	5702	5702	5702	5702	5702
R-squared	0.02	0.02	0.02	0.02	0.02

Huber-White robust standard errors are in parentheses. ⁺*p* < 0.10, **p* < 0.05, ***p* < 0.01

Table 7. School Districts with State Intervention

	Detroit	Highland Park	Muskegon Heights	Inkster	Buena Vista	Pontiac	State
Intervention year	2009	2012	2012	2013	2013	2013	
Intervention type	EM	EM (EMO managed)	EM (EMO managed)	Dissolved	Dissolved	Consent agreement	
<i>Demographics (2012)</i>							
% Black	84.0	94.6	89.9	96.9	90.5	59.7	15.4
% FRL	81.6	81.8	88.2	88.3	95.0	75.6	46.3
% Spec Ed	16.9	19.0	18.5	12.1	24.8	16.7	13.6
Enrollment	67,969	1,024	1,425	2,680	637	5,685	1,440,995
% Change enrollment 2002-2012	-58.3	-76.8%	-40.6	64.8	-55.5	-51.7	-13.5
% Charter	38.7	49.1	13.1	27.6	11.8	32.0	8.3
<i>Financial (2002-2012)</i>							
% Change GF revenue (nominal)	-17.4	-56.6	-33.9	67.2	-36.5	-33.3	4.7
% Change GF revenue (real)	-44.1	-69.6	-54.8	15.4	-55.8	-53.5	-27.5
FB as % of GF Revenue in intervention year	-11.8	-75.2	-51.5	-4.5	-10.7	-86.7	
Consecutive years in deficit at time of intervention	1	4	7	7	2	5	

Sources: Michigan Department of Treasury (http://www.michigan.gov/treasury/0,1607,7-121-1751_51556-201116-.00.html);

Table 8. Comparison of Financially Troubled Districts in Which the State Did and Did Not Intervene

Variable	Districts in which state intervened		Districts with FB < 0 for 2 consecutive years, but no intervention		t-value
	Mean	SD	Mean	SD	
<i>Demographics</i>					
% Black	85.95	13.60	39.96	6.18	-3.41 **
% FRL	85.09	6.80	66.95	19.72	-2.20 *
% Charter	28.73	14.52	11.22	10.37	-3.50 **
<i>Financial</i>					
% FB/Revenue	-40.46	26.78	-14.36	9.83	4.33 ***
Years in deficit	4.67	.72	4.25	.37	-.48
3-year deficit trend	-26.79	11.60	-9.86	11.43	2.45 *
Observations	6		28		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$