How State Takeovers of School Districts Affect Education Finance, 1990 to 2019

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Abstract

State takeovers of school districts—a form of political centralization that shifts decision-making power from locally elected leaders to the state—have increased over time, often with the purported goal of improving district financial condition. Takeover has affected millions of students since the first takeover in 1988 and has been more common in districts serving marginalized communities. We investigate whether takeovers from 1990 to 2019 improved financial outcomes using an event study. We find takeovers increased annual school spending by roughly $2,000 per pupil after five years, on average, leading to improvements in some aspects of financial condition (budgetary and long-run solvency). These effects were concentrated in the takeovers undertaken for non-fiscal reasons, such as low academic achievement, and new funds mostly went to cover districts' legacy costs (debt and employee benefits). However, takeover did not affect spending or improve fiscal condition for districts with majority-Black student populations, potentially due to partisan political differences between majority-Black takeover communities and their state-level leaders. This suggests political centralization can promote fiscal health, except when local communities are not well-represented at the more centralized level of government.

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Introduction

State takeover of local school districts is a controversial form of political centralization that involves removing the decision-making authority of locally elected school board leaders and instead placing that power in the hands of the state. Takeover is a relatively rare intervention, generally reserved as a reform of last resort; however, it has become an increasingly common response to both fiscal and academic challenges since the first documented case in the late 1980s (see Figure 1). Takeover has more commonly occurred in larger districts, such that over the past 30 years takeover has affected millions of students throughout the U.S. in districts including New York City, Chicago, Philadelphia, Detroit, Cleveland, Houston, and Newark. It also more often occurs in districts serving disproportionately large numbers of low-income children and students of color, and therefore has important implications for equity.

It remains unknown why takeovers have become more common over the last 30 years. This is puzzling given prior work has found that they do not, on average, benefit students in terms of standardized test scores (Schueler and Bleiberg 2021; Wong et al. 2007). Takeovers are also known to generate significant resistance from targeted communities (Marsh et al., 2020; Mason and Reckhow 2016; Morel 2018; Welsh et al. 2019). The present study allows us to investigate a possible explanation that has not yet been considered empirically: state takeovers may persist because they achieve their purported goals of improving fiscal condition. Indeed, takeover often occurs for the explicit purpose of improving district fiscal health. Seventy five percent of takeovers have occurred, at least in part, for fiscal reasons (see Table 1).

Despite the use of takeovers to achieve fiscal goals, little is known about how they impact school district finance. The small literature on the topic is based on a limited number of years, cases, and contexts—some of it deploying methods with important limitations—providing mixed

results. Wong and Shen (2003) find takeovers in the 1990s were associated with lower per pupil spending while Schueler and Bleiberg (2021) find no evidence that takeovers from 2011 to 2016 affected expenditures. In contrast, Bleiberg, Lyon, and Schueler (2023) find takeovers from 2013 to 2019 increased per pupil spending. The literature on fiscal oversight of school districts—a related but distinct intervention—provides similarly mixed results. Thompson (2016) finds that fiscal oversight decreased per-pupil spending and increased tax revenue in Ohio. Spreen and Cheek (2016) find that Michigan's early warning fiscal stress designation system did not affect fiscal health. Kim and Park (2022) find fiscal monitoring nationally has had, on average, no effect on the fiscal health of local governments including schools.

In this paper, we attempt to reconcile these inconsistent findings by examining state takeovers of school districts over a longer period, using a larger sample of takeover districts, and estimating effects on both expenditures *and* fiscal condition. This allows us to delve deeper into questions of fiscal responsibility and management. We use an event study approach that allows for more credible causal inferences than many previous studies, with an original dataset tracking all takeovers through 2019 combined with district finance information from the National Center for Education Statistic's Common Core of Data and the U.S. Census.

We observe 104 first-time takeovers during the 29-year period for which school finance data are available (1990 to 2019), covering a near census of takeovers which began in 1988 (Oluwole and Green 2009). The relatively detailed finance data in F-33 surveys allow us to examine district financial condition, defined as the government's ability to provide adequate services while meeting both current and future financial obligations. Because there is no one agreed upon measure of fiscal health for local school districts, we propose a three-pronged approach involving cash, budgetary, and long-term solvency, based on public finance literature

(Wang, Dennis, and Tu 2007). To understand how financial impacts occur, we also analyze the sources of revenues and types of expenditures.

Our analysis reveals that political centralization in the form of state takeover of school districts can improve some aspects of local fiscal condition, although not across all types of communities and not without substantial costs to both state budgets and local leaders. Specifically, takeover increased annual per-pupil spending by roughly $2,000 per student after five years, leading to improvements in both budgetary solvency and long-run solvency, on average. These effects were concentrated in the districts taken over for non-fiscal reasons, such as low academic performance, suggesting that states have been reticent to spend more in districts that were already struggling to manage their finances. A deeper investigation into how the money was spent suggests that takeover led to increased expenditures on legacy costs (employee benefits and debt retirement). We also find takeover has functioned as a means of providing financial assistance to the district (i.e., a state bailout), as the resulting increase in funding reflects an infusion of state revenues to targeted districts.

Nevertheless, the impact of takeover has not been consistent across all communities. Notably, takeover did not have a positive impact on school expenditures in districts serving a majority-Black student population, which have been disproportionately targeted for takeover. This may be explained—at least in part—by partisan mismatch. Takeovers in majority Black districts were more likely to occur under the leadership of Republican governors, relative to takeovers in districts with smaller shares of Black students. This corroborates a growing trend in takeover research, which demonstrates that the impact of takeover varies depending on the racial and ethnic composition of the communities being taken over. Specifically, takeovers in majority-Black communities are the least effective in terms of boosting academic performance for

students (Schueler and Bleiberg 2021), often disempower Black elected officials politically (Morel 2018), do not change per-pupil expenditures, and generate fewer improvements to fiscal condition. As a result, takeovers pose a particularly high risk for majority-Black communities.

How Centralization Could Affect Fiscal Condition

Recent years have seen a shift towards greater centralization in education, including increased policymaking roles for state executives and legislatures and city mayors, as well as state takeovers of school systems (Henig 2013; Morel 2018; Peterson 1995). However, the institutional arrangements remain contested, as policymakers, advocates, and researchers continue to debate the proper roles of federal, state, and local authorities in education governance (Wong 2020). Resulting governance shifts provide valuable opportunities to study whether centralizing and decentralizing education policies achieve their goals. While there are strong theoretical reasons to suggest that centralization could either harm or improve fiscal condition and either decrease or increase educational spending, it remains unclear based on the empirical evidence which are more likely to occur.

Centralization Could Harm Fiscal Condition

There are several reasons why centralization—particularly from the local to the state level—might harm fiscal condition within localities. First, scholars from the classical liberal economics tradition have argued that decentralization encourages efficiency because of increased responsiveness and accountability at lower levels of government, as well as greater competition between localities (Hayek 1939; Tiebout 1956). In short, state leaders may have fewer incentives than local ones to tax and spend efficiently because they perceive less risk that residents will exit their jurisdiction, given it is typically more challenging and costly to move across state lines than across city, county, or school district boundaries.

Second, state leaders are often less representative of local communities than local leaders and therefore may be less responsive to constituents or less incentivized to foster fiscal health. For these reasons, proponents of "progressive federalism" argue that minoritized groups can gain greater influence at more localized levels of government, especially in contexts where they represent a minority at the state but not local level (Gerken 2012). In the case of school systems, takeover has been shown to decrease the descriptive representation of Black citizens in local elected office when it occurs in majority-Black districts. However, the reverse has been true when takeover has occurred in majority-Latino communities where it tends to increase descriptive representation of Latino residents (Morel 2018). Therefore, centralization can impact the extent to which local leaders demographically represent their communities and, by extension, the interests of the people they serve. This is at least part of the reason takeovers are less popular among members of targeted communities than the state as a whole (Schueler and West 2021).

Furthermore, state intervention may be destabilizing or disruptive to local communities in ways that could make fiscal management more challenging (Henig et al. 2001). In particular, takeover removes authority from the sitting school board and is often accompanied by significant staff turnover at both the central office and school levels. These changes could create challenges for effective financial planning and management, as new staff need to learn about the district. Uncertainty and instability make financial projections more challenging. Local decision-makers closer to the schools may also have better knowledge of the community, as well as the strengths and needs of individual schools and specific subgroups of students, than a more centralized authority at the state level. Local decision-makers may encounter fewer bureaucratic challenges and less "red tape" in the process of enacting and implementing policy than state-level leaders. Therefore, centralization could reduce efficiency (Oates, 1999; Wallis and Oates, 1988;

Acemoglu et al., 2007). Greater local control could also encourage higher levels of family involvement in the schools, increasing oversight of educational leaders and their use of funds (Buerger, Lincove, and Mata 2023; Hanushek, Link, and Woessman 2013). For all these reasons, centralization could create challenges for decision-making around the efficient use of resources.

Centralization Could Improve Fiscal Condition

On the other hand, there are several reasons to believe that centralization might improve fiscal condition. First, some scholars of fiscal federalism suggest that decentralization encourages fiscal irresponsibility among localities because local leaders believe they will be bailed out by higher levels of government if they run into major financial troubles (Rodden 2006; Singla, Spreen, and Shumberger 2023). Creditors may also expect local governments to be bailed out by higher levels of government and will therefore be more willing to take on risky endeavors with decentralized governments. Fiscal irresponsibility among localities may be especially likely to arise in the case of special function jurisdictions—which in the U.S. are most commonly school districts. Special function jurisdictions can lead to "overfishing"—or overtaxing and overspending—as each special authority seeks to maximize funding for its own priority (e.g., school boards for education; Berry 2008). In contrast, more centralized state policymakers must negotiate a broader agenda of priorities, reducing the likelihood of overfishing.

Next, centralization could improve a district's fiscal condition if the interests of residents are better represented at the state than local level. In contrast to the progressive federalism perspective, McDermott (1999) among others, argues that local school district governance has not lived up to its promise of allowing for citizen voice in the policymaking process. Centralization shifts the venue of decision-making, changing the composition and influence of

special interest groups. Some argue this shift would improve fiscal condition in cases where local teachers' union influence has led to inefficient or unsustainable spending (Burns 2003).

Finally, centralizing to the state level could improve fiscal condition because states may simply have greater administrative capacity than local governments to manage fiscal issues effectively (Kogan 2017). There may be economies of scale at the state level that can improve efficiency of resource use. Additionally, stronger state-level oversight could better prevent local interest groups and local bad actors to capture resources in ways that could be harmful to fiscal conditions (Buerger, Lincove, and Mata 2023; Hanushek, Link, and Woessman 2013).

How Centralization Could Impact Educational Spending

A related question surrounds how centralization impacts overall levels of spending on school systems. Higher spending levels could either negatively or positively impact fiscal condition depending on a district's need and how resources are used. Greater overall resources could make it easier for leaders to pay off debts, cover important expenses, and launch new initiatives to benefit students, families, and community members. On the other hand, higher spending could harm fiscal condition if funds are being spent inefficiently or irresponsibly. However, it is not yet clear based on the theory or empirics how state takeovers impact spending levels. Theory on the impact of centralization provides reasons on both sides of this debate.

First, centralization may affect spending via effects on productive competition between localities. Centralization from the local to the state level may reduce spending if it reduces competitive pressure to provide services, since state leaders are less likely to worry about losing residents to a neighboring state than localities are about losing residents to a neighboring district. On the other hand, centralization could increase spending if the relative lack of competition (compared to lower levels of government) reduces pressure for more efficient use of resources.

Representation is another pathway through which centralization could impact educational spending. If local constituents are less-well represented at the state than local level, that could decrease the willingness of state leaders to devote resources to a given local community. Previous research demonstrates that state takeover impacts local descriptive representation (Morel, 2018). Decreased descriptive representation could lower spending, given scholars have documented that decreases in non-White political representation on school boards lead to decreased spending on non-White students (Fischer 2020; Kogan, Lavertu, and Peskowitz 2021).

States do have one key advantage over localities when it comes to educational spending, and that is their ability to redistribute resources across localities. Indeed, school finance reforms from 1989 to 2010, which were intended to address unequal levels of funding across local districts due to inequity in local property wealth, centralized and redistributed resources across localities (Candelaria and Shores 2019). State funding formulas have counteracted regressive local funding schemes, on average, raising spending on traditionally disadvantaged communities (Chingos and Blagg 2017). Given that takeover districts tend to be less advantaged on a number of dimensions, centralization in this case could increase state spending on districts if states are inclined to redistribute. This likely depends on state willingness to bail out struggling school districts. They may have incentives to do so if they perceive that greater spending will improve system performance. Alternatively, states may want to limit their spending on these struggling districts if states view local leaders as incapable of serving as responsible stewards of state funds.

Finally, takeover could impact spending levels by altering the influence of non-governmental actors. More specifically, shifting the venue of decision-making from the local to the state level could reduce the power of interest groups with established influence at the current level of government, such as teachers' unions (Anzia 2013). This may, in turn, decrease overall

spending on education in the local district, given unions are some of the most powerful advocates for increased education spending (Burns 2003).

Potential Variation in the Effect of Centralization

The resolution of the puzzle about how centralization impacts fiscal outcomes may depend on a few factors. First, it may depend on the unit of centralization (federal versus state; Peterson, 1995; Peterson et al., 2010). Here, we focus on centralization from the local to state level, acknowledging centralization from the states to the federal level or from schools to the district could have different consequences. Second, centralization's effects may depend on the type of centralization being deployed. Scholars outline three primary types of centralization: (1) political, (2) administrative, and (3) fiscal (Manna 2013).[1] Definitionally, state takeover involves political centralization, though it could be accompanied by other forms of centralization or decentralization. Regardless of accompanying fiscal centralization, takeover may still have fiscal impacts given the common fiscal motivations for takeover and potential for a fiscal bailout.

Another dimension that might explain variation in the effect of centralization is the reason for the centralizing effort—in our case, the stated reason for takeover. Takeovers undertaken for purportedly financial reasons might generate greater improvements in fiscal health since this is the stated goal, whereas we might not expect to see changes in fiscal outcomes for takeovers due to low academic performance. Fiscal takeovers could increase spending if states want to provide a bailout for districts struggling financially. On the other hand, states may not increase spending in fiscal takeovers, if they view local actors as irresponsible or worry new funds would be inefficiently allocated or mismanaged. Academic takeovers may

[1] Political centralization refers to the locus of decision-making power. Administrative centralization concerns the extent to which a central authority relies on bureaucracies to implement policy. Fiscal centralization is the degree of responsibility for collecting, distributing, and spending public revenues assigned to different levels of government.

increase spending even more than fiscal takeovers if states are more inclined to believe additional resources are necessary to improve academic performance.

The effects of centralization may also depend on the policy context. One important policy factor may be the extent to which higher levels of government have mechanisms to hold local systems accountable for the outcomes they produce, so called "performance-based federalism" (Kogan, Lavertu, and Peskowitz 2021; Wong 2013). Greater accountability may make states more willing to provide funding to relatively low-resource communities and focus takeover efforts on improving academic achievement rather than improving fiscal condition. Indeed, other scholars have found that the effect of decentralization depends in part on the presence of accompanying accountability policies (e.g., Buerger, Lincove, and Mata 2023; Woessman 2013). Therefore, the presence of test-based accountability policies may moderate the impact of takeover on fiscal outcomes. Similarly, the impact of takeover could depend on the presence of preexisting fiscal centralization policies, such as school finance reforms designed to facilitate greater redistribution across districts.

The effect of centralization on fiscal outcomes may also vary depending on the size of the locality in question. State governments may be uncomfortable with authorizing the takeover of very large school districts because of the logistical difficulty of running large systems. Larger districts have the capacity to borrow more debt and therefore may have more substantial fiscal troubles that states are less able to address, given the sheer magnitude of the debt that a district like the New York City Department of Education would be able to take on. Though states are the primary authorities controlling public education, state education agencies have tended to delegate that authority to localities and in turn tend to have relatively low levels of administrative and technical capacity (Moffitt et al. 2021). Larger districts may also have more success mounting

political opposition to takeover efforts which could complicate the implementation of reforms. Superintendents of large districts are often more visible public figures than the leaders of education governance boards at the state level. Thus, the nature of takeover may be very different in a district serving millions of students, relative to one serving hundreds of students.

Finally, the impact of takeover on finance may vary depending on the demographic makeup of the local community. The extent to which local communities' interests are well-represented at the state level may depend on factors such as the racial, partisan, and economic makeup of the community in question relative to the rest of the state and state leadership. In particular, scholars have found that the impact of takeover on outcomes beyond finance varies depending on the racial and ethnic composition of the targeted district. When undertaken in majority-Latino communities, takeovers have increased descriptive representation and student achievement, on average. However, the reverse has been true when takeovers have targeted majority-Black communities, where they have decreased descriptive representation and student academic achievement, on average (Morel 2018; Schueler & Bleiberg, 2021).

State Takeover of Local School Districts

As noted above, state takeover of school districts is one form of political centralization that represents a shift in decision-making power from a locally elected school board to the state. What happens next varies from state to state. Takeover laws give states the authority to implement a variety of interventions ranging from directly administering the district, transferring authority to another official such as the mayor, abolishing the school board, appointing all or some of a new school board, to appointing a new superintendent, receiver, or emergency manager to operate the system. Regardless of what a given state does with its authority, takeover always involves a shift in political power from the local board to the state.

States often invoke multiple justifications for takeover. Fiscal challenges have historically been the most common justification (Oluwole and Green 2009), and takeover of local governments occurs most often after recessions when fiscal stress is acute (Kogan 2015). As shown in Table 1, for three out of four takeovers, the state highlighted a fiscal reason; for 50% an academic reason; and 37% another reason. These categories are not mutually exclusive. Of fiscal takeovers, 37% also involve an academic reason, and four of ten involve other reasons including mismanagement, safety, and non-compliance with state policies. The prevalence of fiscal takeovers has decreased over time, as academic ones have increased (see Appendix Figure A1).

Every state has laws that allow for fiscal interventions—a related but distinct category of intervention; however, the scope and responsible government agencies vary widely (Bowman and Zuschlag 2022). A large majority of states have laws that specifically authorize the takeover of school districts (Jochim 2016), and 24 states have taken over at least one district (see Appendix Table A1). In cases where state leaders wanted to take over a particular district, but a takeover law was not yet on the books, states have sometimes passed laws allowing for takeover (e.g., Compton Unified in California, Bridgeport in Connecticut). A common trigger for takeover is fiscal distress, but most states do not have defined indicators to measure it. The lack of such indicators provides flexibility to take over schools due to a wide variety of fiscal conditions (Kloha, Weissert, and Kleine 2005). As shown in Table 1, the fiscal conditions in districts taken over for fiscal reasons are not meaningfully different, on average, from districts taken over for academic reasons. Districts with fiscal takeovers do, however, tend to be smaller and have fewer students eligible for free lunch, relative to other takeover districts. This suggests that the reasons states publicly provide for takeover may not represent the full set of motivating factors.

Data and Sample

We analyze district-by-year data on state takeover, school spending, and fiscal condition for the years 1990 to 2019 using an original dataset of takeovers covering this 29-year panel.[2] All outcome measures are from the district F-33 survey data downloaded from the Common Core of Data (CCD) and the U.S. Census (2019 only). The data includes 11,034 traditional local public school districts serving children in kindergarten through 12th grade. Table 2 displays baseline averages of characteristics of districts that have and have not experienced takeovers.

We impose a few sample restrictions to reduce noise in the F-33 finance data and create an appropriate set of comparison districts; we describe these in detail in Appendix B. In short, we exclude Hawaii because it has only a single school district already under state control. We drop districts with fewer than 50 students and districts in which more than half the students have special needs. We drop observations if a district reported spending zero dollars per pupil in a given year. Finally, following Brunner, Hyman, and Ju (2020) and Lafortune, Rothstein, and Schanzenbach (2018), we drop observations with finance outcomes that were at least five times greater or smaller than the state-by-year mean and those with enrollment more than double the district's average enrollment over the entire period. In Appendix B, we also show our results are not sensitive to sample missingness or sample inclusion with a series of falsification tests.

Tracking State Takeovers

To track state takeovers we follow the procedure outlined in detail by Schueler and Bleiberg (2021). In short, we began by compiling pre-existing lists of takeovers that had been collected by other scholars for subsets of the period we cover. We then used Google News Advanced Search and Education Week Archives to verify this tracking and supplement years without coverage in other researchers' work. We tracked the district, state, and first and last year

[2] We restrict our analyses to the years 1998 to 2019 for five outcomes that are only observable in the post-1997 years (cash on hand, debt service coverage ratios, salary expenditures, benefit expenditures, and debt retirement).

of takeover for each individual takeover event. Some districts enter, exit, and then re-enter takeover. Because of the potentially confounding relationship between subsequent changes to takeover status (i.e., exiting, re-entering), once a district is taken over for the first time, we consider it to be taken over in every post-treatment year. In auxiliary analyses we show our results are robust to alternative definitions of takeover and to controlling for the number of years since exit from takeover and beginning subsequent takeovers (see Appendix Tables C1-C4).

We observe 104 first-time takeovers in the panel from 1990 to 2019 and 100 takeovers from 1998 to 2019 (the period for which a subset of school spending information is available). Appendix Table A2 describes the number of takeover districts by years relative to takeover. Five years after treatment we observe outcomes for 80 treated districts, and 10 years after treatment, we observe outcomes for 58 treated districts.

We compare the baseline sociodemographic characteristics of takeover districts to non-takeover districts in Table 2. Takeover districts tended to be much larger than non-takeover districts, at baseline. Consistent with prior work, takeover districts also, on average, had a much lower share of White students (38% versus 83%) and a larger share of Black students (50% versus 7%) relative to non-takeover districts. Takeover districts also had 3 percentage points more students eligible for free lunch, on average. However, at baseline, takeover and non-takeover districts had similar proportions of students with special educational needs.

Measures of School Spending and Fiscal Condition

In this study, we consider four key ratios as our primary measures of district spending and fiscal condition: per-pupil expenditures, cash held per capita, the operating ratio, and the debt service coverage ratio (DSCR). Our first fiscal outcome is a straightforward district-by-year-level measure of per pupil educational expenditures in real 2019 dollars, operationalized

with average annual public-school spending divided by total enrollment. As shown in Table 2, at baseline, takeover districts spent similar amounts to districts that were never taken over.

Capturing organizational fiscal condition is challenging because it demands a complex and multidimensional approach (Finkler, Calabrese, and Smith 2022; Gorina, Maher, and Joffe 2018; Wang, Dennis, and Tu 2007), particularly when examining public school districts (Kim and Sorensen 2019; Ladd 1996). Building on public finance literature (Wang, Dennis, and Tu 2007; Kim and Sorensen 2019; Ladd 1996), we recognize that because there is no agreed upon measure of fiscal health of school districts, the process of financial condition ratio creation and analysis "is more of an art than a science" (Finkler, Calabrese, and Smith 2022, 787). We use contextual knowledge about school districts to focus on a series of ratios that are most consequential, relevant to the public education, and informative. Specifically, we propose a three-pronged approach to studying school district financial condition that measures cash solvency, budgetary solvency, and long-run solvency. In the following paragraphs, we detail how each ratio is calculated, as well as the information each ratio does and does not imply about fiscal health. Appendix Table A3 contains a summary of measures and sources on which each is based.

First, we conceptualize cash solvency as a measure of liquidity and effective cash management. To operationalize this, we use a measure of cash held per capita at the end of a given fiscal year. Specifically, the F-33 surveys ask districts to report "the total amount of cash on hand and on deposit and investments in federal government, federal agency, state and local government and nongovernment securities."[3] We divide this measure by district enrollment each year. Higher values correspond with more cash on hand, which may not necessarily translate to

[3] This is further defined as "cash, deposits, and government and private securities (bonds, notes, stocks, mortgages, etc.), except holdings of agency and private trust funds." They report investments at market value. Cash on hand does not include accounts receivable, value of real property, or non-security assets.

improved financial condition. Though more cash on hand increases liquidity, too much cash on hand could indicate a lack of long-term investments. To adjust the positive skew of the distribution of cash per capita, we use an inverse-hyperbolic-sine (IHS) transformation. This measure can be interpreted similarly to a natural log transformed measure (i.e., roughly as percent change). Unlike a natural log transformation, the IHS-transformation does not require us to drop any district-years in which zero cash was reported. As shown in Table 2, baseline average cash solvency was nearly identical for takeover and non-takeover districts (12.9 to 13.4).

Next, we conceptualize budgetary solvency as the capacity for a district to generate sufficient revenues to run its operations. To measure this, we estimate an operating ratio of revenues to expenditures in real 2019 dollars, as recommended by Wang and colleagues (2007). Higher values on this measure generally correspond with improved fiscal condition. As shown in Table 2, in 1990 takeover districts had revenues of $1.11 for every dollar of expenditures whereas never takeover districts had $1.14, on average.

Finally, we conceptualize long-run solvency as a government's ability to pay for existing liabilities (Wang, Dennis, and Tu 2007). This construct is particularly difficult to measure as school districts are government agencies for which revenues come primarily from taxes across multiple sources. We rely on the comprehensive debt service coverage ratio to measure the ability of a given district to meet required debt service (Finkler, Calabrese, and Smith 2022). Specifically, we measure the DSCR as net operating income (total revenue – current expenditures) divided by the total debt obligations at the end of the year, including both short-term and long-term debt. Higher values generally correspond with improved fiscal condition. Again, we use an IHS transformation to adjust the positive skew of the distribution.

How Funds Are Spent and Acquired

In addition to these financial condition ratios, we extend our analysis to understand how education funds are spent. We examine major categories of educational spending including salaries and benefits (e.g., employer contributions to health care plans and retirement accounts), as well as debt. To examine how much districts spent on paying off their long-term debt, we use a measure of debt service reported on F-33's as the amount of long-term debt retired (IHS-transformed). Debt service (loan repayments and interest) is considered as an expenditure in district budgets. We also examine pupil-teacher ratios as a proxy for per capita classroom staffing. As shown in Table 2, baseline spending measures were similar in takeover and non-takeover districts, though pupil-teacher ratios were slightly higher in takeover districts.

To understand how funds were acquired, we examine revenue levels per pupil from both state and local sources in real 2019 dollars. Notably, revenues could come from state or local taxes or debt taken out by a state or school district. As shown in Table 2, takeover districts had lower average local revenues and higher state revenues than non-takeover districts in 1990. This is consistent with Schueler and Bleiberg's (2021) finding that greater state contributions to a district's spending are predictive of takeover.

Analytic Approach

We estimate how state takeover affects school finances with an event study approach. We use variation in takeovers from two sources: (1) within-district differences in takeover status over time and (2) cross-district differences in whether and when districts were taken over. We specify the model as follows:

$$Y_{dt} = \sum_{r=-5}^{10} \beta_r \mathrm{I}(t - t_d^* = r) + X_{dt} + \pi_d + \delta_t + \varepsilon_{dt}$$

where, Y is a fiscal outcome for district d in year t, and t_d^* is the year of the first takeover of a

given district. In this specification, β_r represents the effect of takeover *r* years after it began (or before if *r* is less than zero) relative to the year before enactment, *r*=-1, which is excluded (*r*=0 is the first year of takeover). We include district (π_d) and year (δ_t) fixed effects that control for time-invariant district characteristics and any year-specific events. The term, X_{dt}, is a vector of covariates. In the main specifications, this is a measure of a given outcome at baseline interacted with a linear time trend, though our findings are robust to the exclusion of these baseline linear outcome time trends (see Appendix Tables C2-C4). The parameters of interest are β_0 through β_{10}, which estimate the effects of takeover in each of the ten years after enactment. We trim years for treated districts that are more than five years before treatment and 10 years after treatment to fully saturate the model with event times. We show the full set of β estimates in figures, and we present estimated effects at prototypical years in Appendix Tables C2-C4. We also show results of a pooled specification with a single treatment term in Panel A of Table 3.

The key identifying assumption of our approach is that the trends in fiscal outcomes prior to takeover were the same for districts that were taken over as for districts not taken over in that period. β_{-5} through β_{-2} tests this assumption by estimating whether there were any differences in baseline measures of the outcomes between the treated and un-treated districts in any of the pre-takeover years. Visual inspection of these estimates allows us to look for evidence of parallel trends between the treatment and comparison group. We also use an F-test to estimate whether the pre-treatment estimates (i.e., β_{-5} through β_{-2}) are jointly different from zero. The F-test is more conservative than a linear test of pre-trends because it is sensitive to non-linear pre-treatment trends and retains the same level of statistical power. Significant trend differences in outcomes between the treatment and comparison groups prior to state takeover would suggest an unobserved confounding factor other than takeover could explain results. Nonsignificant pre-

treatment estimates from the event study help support that the parallel trends assumption is met.

To further demonstrate the validity of our approach, we undergo an extensive set of robustness checks, which we describe in detail in Appendix C. In short, we show that results are robust to the inclusion of differing sets of covariates to account for potential confounders related to removal from takeover, demographic changes, enrollment changes, concurrent SFRs, and the threat of takeover. We also show that results are unlikely to be affected by missing data. Further, we present analytic and diagnostic results demonstrating that our results are not affected by bias from heterogenous treatment effects with staggered adoption (Goodman-Bacon 2021).

Results

State Takeover Increased Educational Expenditures

We find state takeover caused a large and durable increase in per-pupil expenditures (PPE), on average. Figure 2 shows that the effect of takeover on PPE increased monotonically. After three years, takeover increased expenditures by about $500 per student, and seven to ten years after takeover PPE was over $2,000 higher than expected had the districts not been taken over. The magnitude of increase is about twice the size of the spending change caused by school finance reforms in the post-1990 “adequacy” era of reform (Lafortune, Rothstein, and Schanzenbach 2018). The pre-treatment estimates are jointly nonsignificant ($p>.10$) and quite small in magnitude when compared to the size of the effect several years after treatment. The similarity in pre-takeover PPE trends for takeover districts and comparison districts provides strong evidence that no unobserved policy changes account for the post-takeover increases.

State Takeover Improved Some Aspects of Financial Condition

On average, takeover improved district budgetary solvency and long-run solvency. Figure 3 shows the effect of takeover on three measures of financial condition: cash held per capita

(cash solvency), the operating ratio of revenues to expenditures (budgetary solvency), and the debt service coverage ratio (long-run solvency). The pre-takeover estimates are all individually and jointly nonsignificant, providing evidence in favor of the parallel trends assumption.

Figure 3 Panel A shows that takeover did not have a detectable effect on cash per capita, our measure of district's liquidity and effective cash management. That is not necessarily surprising, given that takeover is a policy of last resort to address fiscal distress. Districts under state management might spend all available assets to pay off debts and improve the financial condition of the district. Many state and federal grants also require that districts return unspent funding at the end of the fiscal year, creating a disincentive for districts—particularly those that are more dependent on state revenues—to retain cash on hand (Odden and Picus 2007).

In Figure 3, Panel B and C we show the effect of takeover on budgetary and long-run solvency respectively. Takeover increased the ratio of revenues to expenditures (budgetary solvency) by about eight cents per dollar. The positive effect on budgetary solvency grows somewhat over time and implies greater capacity to generate sufficient revenues to support district operations. Finally, Figure 3, Panel C shows that takeover slowly improved districts' capacity to pay off debts (i.e., long-run solvency). Though effects in initial post-takeover years are estimated imprecisely, we see a roughly 30 percent increase by ten years after takeover.

Additional Expenditures Funded Legacy Costs

Figure 4 displays the effect of takeover on pupil-to-teacher ratios (class size) and categories of spending (i.e., salary, benefits, debt). We find no effect on class size. Expenditures on teacher salaries increased after takeover, but that trend appears to have begun prior to state intervention. In contrast, we find takeover led to increases in spending on benefits, steadily rising to about $1,500 per pupil higher 10 years after takeover. Estimates suggest that about three

quarters of the increase in school spending went to benefits. We also find takeover led districts to spend more on retiring long-term debt. Our estimates suggest that takeover caused districts to spend over 200 percent more on retiring long-term debt after two years of takeover, though these estimates are somewhat imprecise. Prior to takeover, we observe no differences in benefits spending or debt retired between districts that were taken over and those that were not.

Takeover Increased State Contributions

We find takeover involved a fiscal bailout of school districts on the part of states. In Figure 5 we show the effect of takeover on state and local revenues per pupil. Takeover increased average state revenues spent on education. In the years leading up to state intervention, districts that would be taken over and comparison districts received similar amounts of state revenues per pupil. State revenues began to increase two years after takeover and were about $1,200 higher five years after takeover. Overall, these state revenue increases caused by takeover are consistent with a fiscal bailout. It is noteworthy that local revenues also increased after takeover by about $1,700 per pupil five years after takeover. We do see that local revenues increased slightly three years prior to takeover, but this does not seem to be part of a consistent trend and the magnitude on this increase is smaller than any post-takeover estimates.

Impacts Varied Based on Reason for Takeover, Policy Context, and District Size

We find takeovers increased education spending to a greater extent when they were not fiscally motivated. Given that most takeovers were motivated for fiscal reasons, we focus on the distinctions between fiscal and non-fiscal takeovers (88% of which were for academic reasons). Panel B of Table 3 shows the results of a specification that replaces the single takeover term from Panel A with two separate terms for fiscal and non-fiscal takeovers. We find that the estimated effects from our main models were driven by the non-fiscal takeovers, where we tend

to see much larger results. The effects of fiscal takeovers, in contrast, are smaller and imprecisely estimated, likely due to substantial heterogeneity in the impact of fiscal takeovers. This suggests states may be less willing to spend additional funds in districts they believe were not functioning properly. Indeed, we show in Appendix Table D1 that state revenues overall and state revenues per pupil increased only in non-fiscal takeovers.

We also find evidence that effects depend on the policy context. In Panel C, we test whether the effect of takeover varies when combined with performance accountability, as measured by the passage of No Child Left Behind and the resulting nationwide implementation of federal test-based performance accountability. We find that takeover increased spending by $818 more in the post-NCLB period than it did before its implementation. Takeover also increased cash per capita by roughly 69 percent in the period after NCLB, though this increase was not statistically different from the pre-NCLB effect. The effects of takeover on operating ratios and DSCRs were comparable before and after NCLB.

Relatedly, we test whether takeover impacts vary based on the presence and implementation of school finance reforms (SFR)—a form of fiscal centralization—and provide results in Panel D of Table 3. Data on SFR timing come from Brunner et al. (2020). We find suggestive evidence that takeover led to somewhat larger increases in spending in districts under SFR ($844) than those not under SFR ($629), though the difference is not significant ($p>.10$). Takeovers that occurred alongside SFR led to more cash on hand at the end of the year, a result consistent with the mechanisms of SFR (providing greater resources to less-advantaged districts). The effect on operating ratios did not vary by the presence of SFR. We find suggestive evidence of variation in the effect on long-run solvency, but in the opposite direction from cash solvency. As a result, we cannot draw strong conclusions about how a SFR moderates the takeover impact.

We display variation in the effects of takeover based on district size and baseline debt per pupil in Panels E and F of Table 3. We find that spending, budgetary solvency, and long-run solvency increased more in larger districts and districts with greater initial levels of debt than districts with fewer students and less debt. We take this evidence as suggestive that takeover had a more potent effect in larger districts, given that district size and potentially baseline debt would be endogenous if states were more hesitant to take control of larger districts.

Takeover Effects Were Smaller in Majority-Black Districts

We examine whether takeover effects vary depending on the demographic composition of local communities, specifically the percent of Black and Hispanic students in the district, and report results in Table 4. In short, we find communities that were home to a greater share of Black students were less likely to experience the benefits of takeover on education spending and improved fiscal condition. More specifically, the effect of takeover does not vary depending on the proportion of Hispanic students in the district. However, we find that the predicted takeover-induced increases in per-pupil expenditures and long-run solvency decline as the proportion of Black students increases.[4] The positive effect of takeover on per-pupil expenditures in districts that are predominantly Black (more than 75%) is about $1,700 lower than a district that is predominantly non-Black (less than 25%), and the effect on DSCRs is roughly 40% lower. Figure 6 provides visual intuition for these interactions, demonstrating that, although the effects of takeover are very large in districts with zero percent Black students, takeover has no significant effect on DSCRs and per-pupil expenditures in districts with at least 40% and 50% Black students, respectively. We find no evidence of significant interactions between takeover

[4] We examine this with a linear interaction term given effects follow a linear pattern (see Appendix Table D2).

and the proportion of Black students for other outcomes. These findings are robust to the inclusion of time-varying sociodemographic controls.

To understand why takeover does not benefit majority-Black communities, we explore several hypotheses. First, we consider whether fiscal takeovers are more common in districts with higher proportions of Black students. Recall that we find weaker effects of takeovers undertaken for fiscal reasons, particularly on expenditures. In Panel A of Table 5, we examine the percent of takeovers by reason for takeover across three categories of districts based on the percent of students that are Black: less than 25%, 25-75%, and above 75%. The prevalence of fiscal takeovers is very similar across these districts (72-73%), suggesting that justifications are unlikely to be the primary explanation for the differential effects that we observe above.

We next consider whether districts with higher portions of Black students may have had poorer fiscal condition in the year of takeover, leading states to be reticent to spend in these districts. In Table 5 Panel B, we show districts with higher concentrations of Black students had higher levels of cash held per capita, on average. They had similar but slightly lower operating ratios to other districts. We do see that districts with higher concentrations of Black students had notably lower DSCRs than other takeover districts, suggesting that they had a weaker ability to pay off debts. Taken together, the evidence suggests that weaker effects in majority Black districts are not due to worse fiscal condition broadly, but they may be related to debt.

We pursue the above hypothesis regarding debt further by examining other debt measures. We show in Panel C of Table 5, that takeover districts with higher portions of Black students, on average, are paying off somewhat more debt. They also have slightly higher levels of long-term debt, on average, than districts with fewer than 25% Black students. However, recall that in Table 3, we find that it is precisely the districts with the largest amounts of baseline

debts that are receiving the *highest* levels of per pupil expenditure increases and the largest increases to their DSCRs. These exploratory results are therefore mixed, but it does not seem that debt is definitively driving the lower increases in spending or DCSRs in majority-Black districts.

Another potential hypothesis is that states are spending more, on average, in majority Black districts prior to takeover and are reticent to increase expenditures where they are already spending significant effort. We examine this in Panel D of Table 5. We find districts with the highest shares of Black students tend to have the lowest per pupil local revenues, but also the lowest state revenues. We also consider this in relative terms; states may find it challenging politically to financially support districts where they are already spending a lot relative to other districts in the state. We calculate relative state effort by taking the state revenues per pupil for a given district as a proportion of the state average revenues per pupil.[5] On this measure, we find that diverse districts were experiencing the highest relative state effort levels, while districts with both less than 25% and greater than 75% Black students received lower relative state revenues. We do not view this as compelling evidence that takeover impacts on spending are smaller in majority-Black districts because they were initially getting more from their respective states.

Finally, we consider whether political partisanship may play a role. State leaders may be less responsive to the preferences of residents in localities who they see as unlikely to vote for them. Because Black Americans have tended to vote for members of the Democratic party more consistently and at much higher rates than non-Black citizens, even compared to other voters of color (Wamble et al. 2022), majority-Black communities may be uniquely less well represented at the state level when Republicans are in power. State takeover may, in these cases, either be motivated by a desire to reduce the political power of an opposing political party or could simply

[5] Numbers greater than 1 suggest a district is getting more revenues than other districts in the state on average.

reflect that state leaders are less responsive to communities that are unlikely to support them politically. Consistent with this hypothesis, we show in Panel E of Table 5, that Republicans governed during the takeover of roughly 76% of diverse districts and 67% of districts with greater than 75% Black students but only 42% of takeover districts with less than 25% Black students. In short, the districts that experienced the smallest impact of takeover on spending were districts with likely greater partisan mismatch between state leaders and the local community.

Discussion

Takeover has affected millions of students throughout the U.S. since the first takeover in 1988. We investigate the possibility that state takeovers persist, despite public resistance and inconsistent impacts on student academic achievement, because they achieve their purported goal of dealing with fiscal challenges. Our research suggests that takeovers do provide states a mechanism to improve some aspects of the fiscal condition of local districts, on average, and to address the demands of creditors. This seems to operate through a channel in which centralization facilitates greater financial well-being at the local level through greater state spending on the districts targeted for reform. Takeovers increased school spending by roughly $1,800 per pupil after five years and led to improvements in budgetary and long-run solvency.

These findings contribute to a growing literature on centralization and decentralization in the context of public education (Burns 2010; Henig et al. 2001; Manna 2013; McDermott 1999; Morel 2018; Morel and Nuamah 2020; Peterson 1981). Much of the previous theoretical and empirical work has focused on centralization and redistribution, rather than fiscal performance or condition. Expanding on this line of work, we find that shifts in authority from the local to the state level—political centralization—can increase the resources flowing to the locality *and* improve some aspects of fiscal well-being, on average. Perhaps this is due to state capacity to

pool resources and redistribute them. We certainly do not find evidence in support of the theory that political centralization harms positive forms of competition between localities or harms fiscal condition from significant inefficiencies or destabilization.

However, we also find support for the theory that the effect of political centralization on fiscal outcomes depends on the broader policy and political context. The effects of takeover were stronger in the presence of greater test-based accountability. Additionally, we find that majority-Black districts did not experience the fiscal benefits of takeover. This could be driven by partisan mismatch with majority-Black takeover districts more likely to be in states led by a Republican governor. This is consistent with theories of progressive federalism suggesting that state governments can be less representative of minoritized groups than local ones. The effect of political centralization therefore likely varies depending on how well represented the targeted community is at the higher level of government.

We find that the positive average impacts on fiscal outcomes are driven by non-fiscal takeovers. This may reflect an unwillingness on the part of states to spend money in districts with financial troubles. While it may be tempting to conclude that this finding is because academic takeovers lead to an intentional infusion of funds meant to raise learning outcomes, our evidence does not fully support this idea since the additional funds go to funding legacy costs—staff benefits and debt retirement—neither of which are likely to have direct impacts on student outcomes. Perhaps this pattern of results again points to a political explanation for takeover in which groups with an interest in covering these legacy costs, such as teachers' unions and creditors, are better represented at the state level than, for example, majority-Black communities.

Despite the positive average effects of takeover on budgetary and long-run solvency, our findings also highlight several reasons why states should not rush to take over all districts with

fiscal challenges. First, as mentioned, previous research shows takeovers do not, on average, improve the academic achievement of students in the targeted districts (Schueler and Bleiberg 2021). Our paper provides some insight into how this could be true, despite the average spending increases that accompany takeovers and the substantial literature on the positive effect of increased spending on student achievement (e.g., Jackson, Johnson, and Persico 2015). Recall that new funds go primarily toward legacy costs rather than expenditures more likely to result in academic improvements (e.g., employee salaries or class size reduction).

Our findings on fiscal condition do not necessarily imply that takeover generates improvements in fiscal efficiency or performance. Instead, it is possible that states are leveraging their more robust set of resources to pay for the legacy costs that the localities alone struggled to fund. This may be in response to pressure from powerful creditors or because states themselves lack bailout options for public education. Increases in revenues from the states persist for at least 10 years suggesting that these increases become institutionalized.

Furthermore, takeovers often generate political opposition within the districts that are targeted for reform largely due to concerns over the resulting loss of local economic and political power (Welsh et al., 2019; Morel and Nuamah 2020; Schueler and West 2021; Marsh et al. 2021). In majority-Black communities, takeovers decrease the descriptive representation of local elected officials, thus exacerbating race-based political inequality (Morel 2018).[6] We similarly find that takeover does not generate fiscal benefits for districts serving large concentrations of Black residents. This is concerning, especially considering that districts serving larger shares of Black students are disproportionately targeted for takeover, regardless of their academic

[6] The reverse is true in majority-Hispanic communities where takeover seems to pave the way for greater Latino descriptive representation. The mechanisms for these racial and ethnic differences are not well understood.

performance (Schueler and Bleiberg 2021). Given this growing body of evidence, it is reasonable for leaders and citizens to approach the takeover of majority-Black districts with caution.

In sum, on average, state takeovers of local school districts achieve their purported goal of improving fiscal health. However, such improvements come at a significant cost to both states and localities. On the one hand, states are providing a large share of the funding increases. Fiscal costs are fairly diffuse given that the costs of the increases in state revenues are distributed across the state. On the other hand, takeover comes with more targeted political costs for local communities through the loss of the elected school boards' decision-making power. This paves the way for new structures of decision making, determined at the state level where majority-Black communities have not been well represented. In light of our findings, policymakers should carefully consider the trade-offs, weighing the potential fiscal benefits against the political and educational costs for the communities they serve.

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Tables and Figures

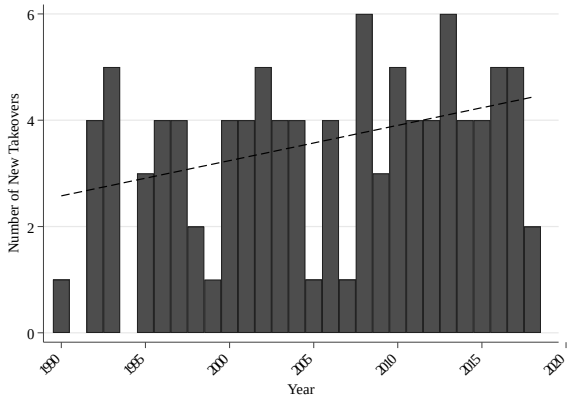

Figure 1. Number of New Takeovers over Time

Notes: During the period of study, we observe state takeovers from 1990 to 2019.

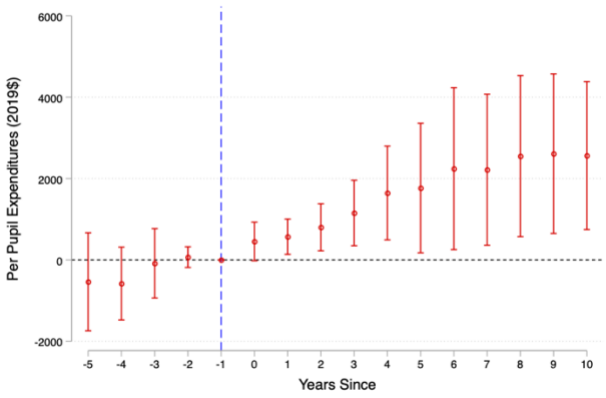

Figure 2. The Effect of State Takeover on Per-Pupil Expenditures, 2019$

Notes: Error bars represent 95% confidence intervals. Robust standard errors are clustered at the district level. A joint significance test of the coefficients in all pre-years suggest that collectively pre-trend estimates are not different from zero (p>.05).

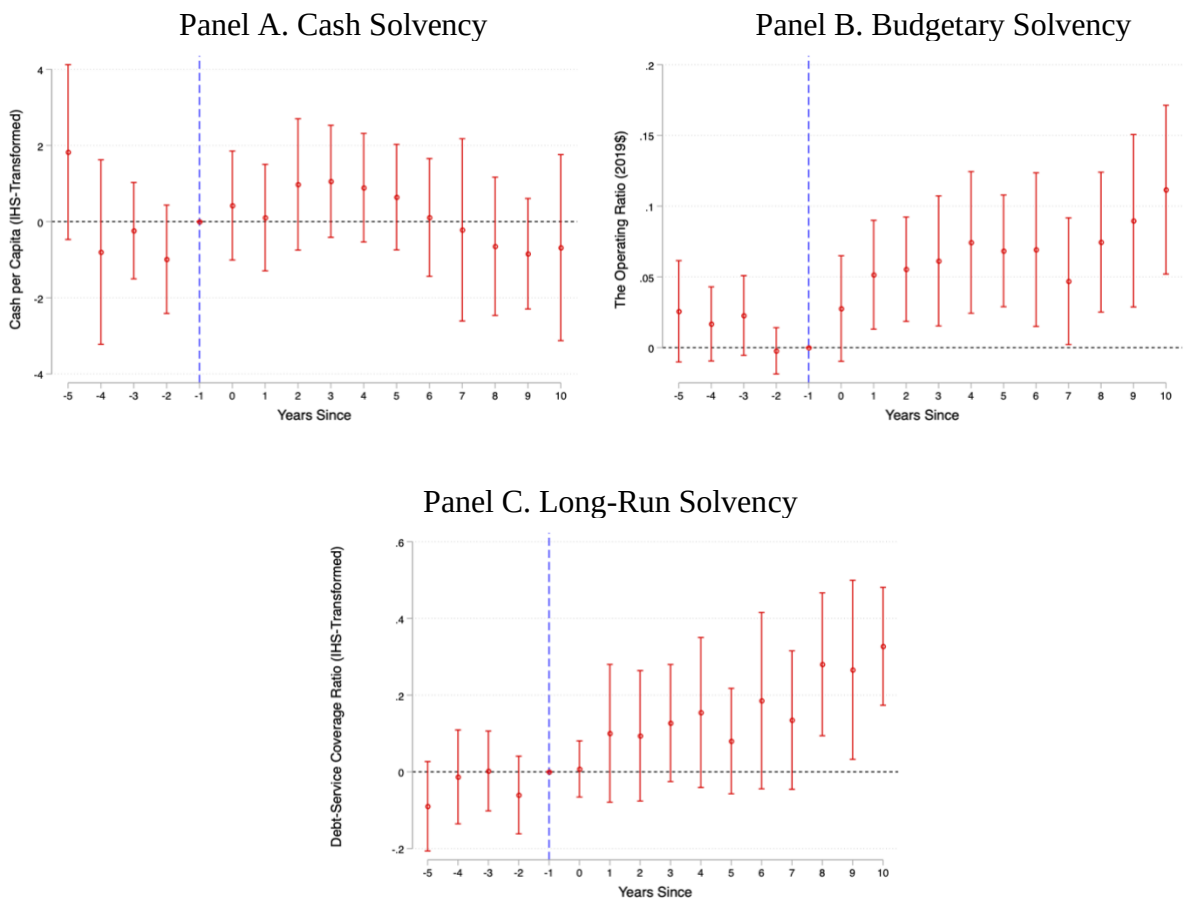

Figure 3. The Effect of State Takeover on Financial Condition

Notes: Error bars represent 95% confidence intervals. Robust standard errors are clustered at the district level. Cash held per capita is a ratio of total cash for debt service, bonds, and other cash over student enrollment and is used to measure cash solvency. The operating ratio is a measure of revenues to expenditures and is used to operationalize budgetary solvency. The debt service coverage ratio is a ratio of net income over long-term liabilities and is used to operationalize long-run solvency. Joint significance tests of the coefficients in all pre-years for each outcome suggest that collectively all pre-trend estimates are not different from zero ($p>.05$).

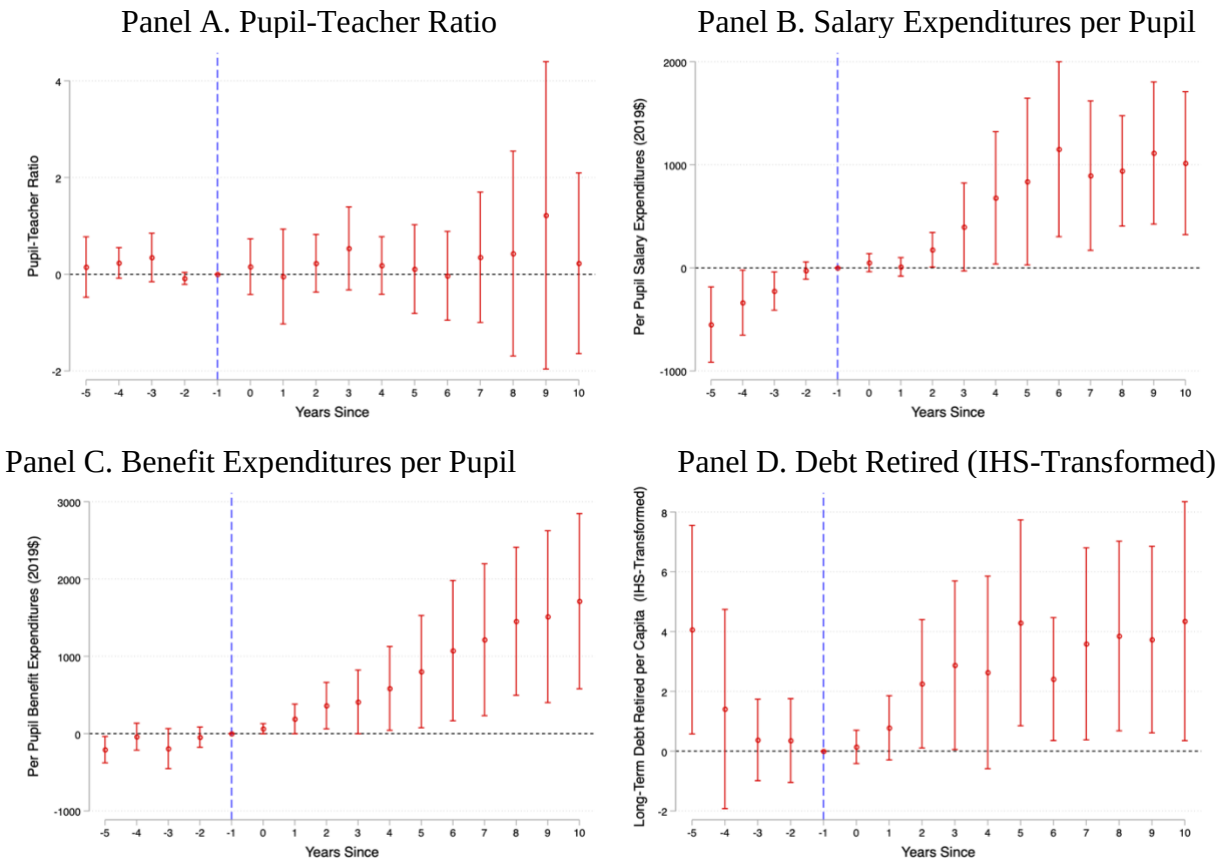

Figure 4. The Effect of State Takeover on Forms of Educational Spending

Notes: Error bars represent 95% confidence intervals. Robust standard errors are clustered at the district level. Joint significance tests of the coefficients in all pre-years for the estimated effects on pupil-teacher ratios, benefit expenditures, and debt retired suggest that collectively all pre-trend estimates are not different from zero ($p>.05$). However, for salary expenditures the joint significance test suggests that the pre-trend is different from zero ($p<.05$).

Panel A. Local Revenues per Pupil, 2019$ Panel B. State Revenues per Pupil, 2019$

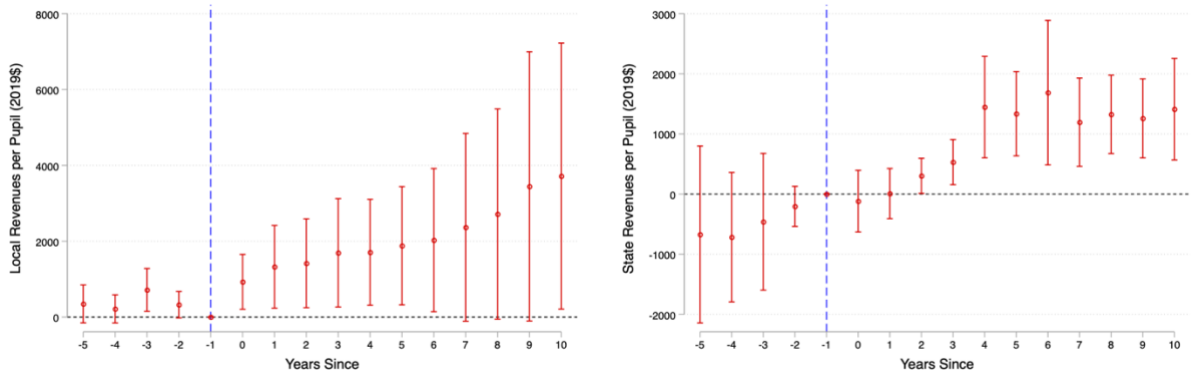

Figure 5. The Effect of State Takeover on Revenues

Notes: Error bars represent 95% confidence intervals. Robust standard errors are clustered at the district level. A joint significance test of the coefficients in all pre-years for the effect on state revenues suggest that collectively the pre-trend estimates are not different from zero (p>.05); however, for local revenues the joint significance test, suggests that the pre-trend is different from zero (p<.05).

Panel A. Per-Pupil Expenditures, 2019$ Panel B. Long-Run Solvency

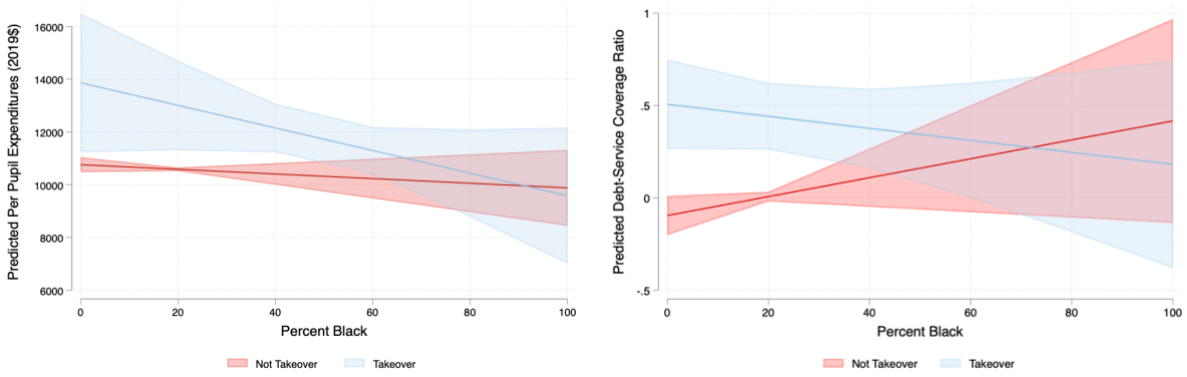

Figure 6. Heterogeneity in the Effect of State Takeover by the Proportion of Black Students

Notes: Error bars represent 95% confidence intervals. Robust standard errors are clustered at the district level. The debt service coverage ratio is a ratio of net income over long-term liabilities and is used to operationalize long-run solvency.

Table 1. Baseline Characteristics of Takeovers for Fiscal, Academic, and Other Reasons

	Fiscal Takeovers *n=75 (75%)* Mean (SD)	Academic Takeovers *n=51 (50%)* Mean (SD)	Other Takeovers *n=37 (37%)* Mean (SD)
Additional Reasons			
Fiscal	-	0.55	0.81
		(0.50)	(0.40)
Academic	0.37	-	0.54
	(0.49)		(0.51)
Other	0.40	0.39	-
	(0.49)	(0.49)	
Student Characteristics			
Enrollment	21,002.89	36,984.61	40,699.22
	(56841.55)	(131798.91)	(152353.98)
Percent White	0.40	0.36	0.46
	(0.35)	(0.32)	(0.39)
Percent Hispanic	0.10	0.15	0.08
	(0.20)	(0.25)	(0.18)
Percent Black	0.49	0.48	0.46
	(0.35)	(0.36)	(0.37)
Percent Special Education	0.11	0.11	0.11
	(0.05)	(0.05)	(0.03)
Percent Free Lunch	0.11	0.14	0.16
	(0.21)	(0.24)	(0.24)
Measures of School Spending and Fiscal Condition			
Per Pupil Expenditures	7968.74	8036.13	7606.48
	(2537.27)	(2469.28)	(2741.60)
Cash Held per Capita	13.65	12.45	13.06
	(4.31)	(5.73)	(5.11)
Operating Ratio	1.11	1.11	1.09
	(0.12)	(0.13)	(0.09)
Debt Service Coverage Ratio	0.35	0.46	0.18
	(1.39)	(1.53)	(0.84)
Salary Expenditures per Pupil	5903.21	6205.90	6086.36
	(1655.36)	(1837.59)	(1951.71)
Benefit Expenditures per Pupil	1562.61	1695.07	1639.33
	(530.96)	(641.88)	(690.38)
Pupil-Teacher Ratio	17.60	16.99	16.56
	(3.32)	(2.53)	(2.51)
Debt Retired	8.33	8.98	8.24
	(4.57)	(3.94)	(4.63)
Local Revenues	2619.26	2669.84	2435.98
	(1765.22)	(1754.13)	(1847.28)
State Revenues	5162.34	5219.85	4862.48
	(1729.86)	(1818.16)	(1849.81)

Notes: Reasons categories are not mutually exclusive. Other reasons include mismanagement, noncompliance, safety, under-enrollment, and facilities. Data are from author complications and F-33 Surveys. They are summarized at the district level. Cash held per capita is a ratio of total cash for debt service, bonds, and other cash over student enrollment and is used to measure cash solvency. The operating ratio is a measure of revenues to expenditures and is used to operationalize budgetary solvency. The debt service coverage ratio is a ratio of net income over long-term liabilities and is used to operationalize long-run solvency. Cash held on hand, debt service coverage ratios, and long-term debt retired per capita are inverse hyperbolic sine (IHS) transformed due to substantial positive skewness. All finance measures are in real 2019$.

Table 2. Baseline Characteristics of Takeover and Never Takeover Districts

	Takeover	Never Takeover	Difference	Baseline Year
Student Characteristics				
Enrollment	27,992.19	2,960.85	25,031.34***	1990
	(101226.56)	(9570.74)		
Percent of White Students	0.38	0.83	-0.45***	1990
	(0.34)	(0.23)		
Percent of Hispanic Students	0.11	0.07	0.04***	1990
	(0.22)	(0.16)		
Percent of Black Students	0.50	0.07	0.43***	1990
	(0.35)	(0.15)		
Percent of Students with IEPs	0.11	0.10	0.01	1990
	(0.05)	(0.05)		
Percent Free Lunch Eligible	0.11	0.08	0.03*	1990
	(0.21)	(0.14)		
Measures of School Spending and Fiscal Condition				
Per Pupil Expenditures (2019$)	8112.28	8409.22	-296.94	1990
	(2609.77)	(2726.02)		
Cash Held per Capita	12.89	13.41	-0.52	1998
	(5.29)	(5.11)		
The Operating Ratio (2019$)	1.11	1.14	-0.03**	1990
	(0.12)	(0.14)		
Debt-Service Coverage Ratio	0.28	0.44	-0.16	1998
	(1.24)	(1.49)		
Per Pupil Salary Expenditures (2019$)	6005.69	6057.07	-51.38	1998
	(1658.12)	(1614.53)		
Per Pupil Benefit Expenditures (2019$)	1612.64	1507.30	105.34	1998
	(580.19)	(583.60)		
Pupil-Teacher Ratio	17.61	16.20	1.41***	1990
	(2.95)	(4.02)		
Long-Term Debt Retired per Capita	8.33	7.46	0.87	1998
	(4.42)	(5.42)		
Local Revenues per Pupil (2019$)	2,782.61	4,319.41	-1,536.8***	1990
	(1954.08)	(2608.25)		
State Revenues per Pupil (2019$)	5135.10	4696.91	438.19*	1990
	(1663.60)	(2091.94)		
Districts	104	11,034		

Notes: *p<.05, **p<.01, ***p<.001. Data are from F-33 Surveys and summarized at the district level. Cash held per capita is a ratio of total cash for debt service, bonds, and other cash over student enrollment and is used to measure cash solvency. The operating ratio is a measure of revenues to expenditures and is used to operationalize budgetary solvency. The debt service coverage ratio is a ratio of net income over long-term liabilities and is used to operationalize long-run solvency. Cash held per capita, debt service coverage ratios, and long-term debt retired per capita are inverse hyperbolic sine (IHS) transformed due to substantial positive skewness.

Table 3. Variation in the Effect of Takeover on School Expenditures and Fiscal Condition

	Per Pupil Expenditures	Cash Held per Capita	Operating Ratio	Debt Service Coverage Ratio
Panel A. Main Model				
Effect of Takeover	3478.5*	0.144	0.0810***	0.358***
	(1478.1)	(0.629)	(0.023)	(0.109)
Panel B. Reason for Takeover				
Takeover Effect, Fiscal	126.5	0.620	0.0436	0.0779
	(160.8)	(0.593)	(0.0321)	(0.0585)
Takeover Effect, Non-Fiscal	3482.2***	-2.043	0.0580***	0.237***
	(458.9)	(1.622)	(0.00866)	(0.0365)
F-Test of Equivalence	*0.000*	*0.124*	*0.667*	*0.017*
Panel C. Federal Performance Accountability				
Takeover Effect Pre-NCLB	-90.14	0.475	0.079***	0.513
	(360.5)	(0.657)	(0.023)	(0.420)
Takeover Effect Post-NCLB	737.6**	0.687**	0.060***	0.199*
	(272.7)	(0.253)	(0.011)	(0.098)
F-Test of Equivalence	*0.004*	*0.714*	*0.384*	*0.440*
Panel D. School Finance Reforms				
Takeover Effect, Under SFR	844.1*	1.495**	0.051***	0.011
	(364.7)	(0.478)	(0.014)	(0.094)
Takeover Effect, No SFR	628.7+	0.144	0.067***	0.353*
	(362.0)	(0.235)	(0.015)	(0.148)
F-Test of Equivalence	*0.662*	*0.010*	*0.423*	*0.041*
Panel E. District Size				
Takeover Effect, Big Districts	4417.2**	-0.453	0.088**	0.446***
	(1453.6)	(0.979)	(0.031)	(0.087)
Takeover Effect, Small Districts	1014.2+	0.650	0.062***	0.122
	(569.2)	(0.452)	(0.0120)	(0.079)
F-Test of Equivalence	*0.026*	*0.273*	*0.406*	*0.010*
Panel F. Baseline Debt				
Takeover Effect, Large Baseline Debt	4295.2**	-0.193	0.113***	0.426***
	(1323.1)	(0.684)	(0.026)	(0.088)
Takeover Effect, Small Baseline Debt	516.4	1.194	0.037**	0.037
	(600.8)	(1.192)	(0.014)	(0.014)
F-Test of Equivalence	*0.011*	*0.314*	*0.013*	*0.010*
District Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
Baseline Outcome Linear Time Trends	X	X	X	X

Notes: + p<0.1, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors clustered at the district level are in parentheses. Per-pupil expenditures are in real 2019 dollars. Cash held per capita is a ratio of total cash on hand at the end of a given year over student enrollment (IHS-transformed) and is used to measure cash solvency. The operating ratio is a measure of revenues to expenditures in real 2019 dollars and is used to operationalize budgetary solvency. The debt service coverage ratio (DSCR) is a ratio of net income over long-term liabilities (IHS-transformed) and is used to operationalize long-run solvency. All heterogeneity analyses include control variables for the type of heterogeneity estimated (e.g., panel E includes a control for district size. The sample size varies across models because for some measures the baseline year is 1998 (see Table 2).

Table 4. Variation in the Effect of Takeover on School Expenditures and Fiscal Condition

	Per Pupil Expenditures		Cash Held per Capita		Operating Ratio		Debt Service Coverage Ratio	
Panel A. Percent Hispanic Students								
Takeover Effect	903.7+	872.9*	0.198	0.498	0.0637+	0.0564	0.0580	0.0788
	(515.4)	(442.6)	(0.864)	(0.641)	(0.0384)	(0.0364)	(0.0517)	(0.0648)
Takeover Effect*Percent Hispanic	734.8	623.9	-0.469	-1.161	-0.0449	-0.0468	0.313	0.264
	(1436.7)	(1116.7)	(1.686)	(1.427)	(0.0627)	(0.0624)	(0.335)	(0.362)
Panel B. Percent Black Students								
Takeover Effect	2291.3**	1932.6**	-1.375	-0.530	0.0647+	0.0548	0.334***	0.317**
	(876.2)	(666.6)	(1.171)	(0.616)	(0.0388)	(0.0392)	(0.0953)	(0.115)
Takeover Effect*Percent Black	-3012.9+	-2432.9+	3.761	2.361	-0.0309	-0.0130	-0.553**	-0.535*
	(1726.5)	(1247.2)	(2.320)	(1.602)	(0.0421)	(0.0482)	(0.183)	(0.220)
Other Sociodemographic Controls		X		X		X		X
District Fixed Effects	X	X	X	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X	X	X	X
Baseline Outcome Linear Time Trends	X	X	X	X	X	X	X	X

Notes: + p<0.1, * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors clustered at the district level are in parentheses. Per-pupil expenditures are in real 2019 dollars. Cash held per capita is a ratio of total cash on hand at the end of a given year over student enrollment (IHS-transformed) and is used to measure cash solvency. The operating ratio is a measure of revenues to expenditures in real 2019 dollars and is used to operationalize budgetary solvency. The debt service coverage ratio (DSCR) is a ratio of net income over long-term liabilities (IHS-transformed) and is used to operationalize long-run solvency. All specifications in Panels A and B include control variables for the percent of Hispanic and Black students in the district, respectively. Other sociodemographic controls include the percent Black or Hispanic, percent White, percent free lunch, and percent of students with disabilities (missing values on these other sociodemographic variables are mean imputed when used as controls but not when used as interaction terms). The sample size varies across models because for some measures the baseline year is 1998 (see Table 2).

Table 5. Exploration of Hypotheses for Differential Effects by Race

	Less than 25% Black Mean (SD)	25-75% Black Mean (SD)	More than 75% Black Mean (SD)
Panel A. Takeover Reasons			
Fiscal Reasons	0.72	0.73	0.73
	(0.46)	(0.46)	(0.45)
Academic Reasons	0.47	0.50	0.57
	(0.51)	(0.51)	(0.50)
Other Reasons	0.38	0.36	0.38
	(0.49)	(0.49)	(0.49)
Panel B. Fiscal Condition			
Cash Held per Capita	12.92	15.66	14.18
	(5.04)	(1.34)	(3.41)
Operating Ratio, 2019$	1.24	1.20	1.14
	(0.22)	(0.19)	(0.12)
Debt Service Coverage Ratio	0.29	-0.17	0.18
	(0.92)	(0.41)	(1.03)
Panel C. Other Debt Measures			
Long-Term Debt Retired per Capita	9.29	11.64	10.54
	(4.98)	(2.18)	(1.68)
Long-Term Liability per Capita	13.29	15.43	15.15
	(6.80)	(5.87)	(2.38)
Panel D. Inter-Governmental Transfers			
Local Revenues, 2019$	4003.96	5801.64	3459.27
	(2428.15)	(3748.21)	(2104.95)
Percent Local Revenues	0.29	0.37	0.26
	(0.14)	(0.18)	(0.12)
State Revenues, 2019$	7633.14	7984.96	7085.05
	(3086.13)	(4361.37)	(2972.07)
Percent State Revenues	0.57	0.51	0.55
	(0.14)	(0.18)	(0.10)
Relative State Effort	1.18	1.27	1.20
	(0.43)	(0.67)	(0.31)
Panel E. Partisanship			
Republican Governor	0.42	0.76	0.67
	(0.50)	(0.44)	(0.48)
Number of Districts	33	35	33

Notes: Means are calculated in districts in the year of takeover. Cash held per capita is a ratio of total cash for debt service, bonds, and other cash over student enrollment and is used to measure cash solvency. The operating ratio is a measure of revenues to expenditures and is used to operationalize budgetary solvency. The debt service coverage ratio is a ratio of net income over long-term liabilities and is used to operationalize long-run solvency. Cash held per capita, debt service coverage ratios, long-term debt retired per capita, and long-term liability per capita are IHS-Transformed. Relative state effort is equal to the state revenues per pupil for a given district/state average revenues per pupil.