THE MACHINERY THAT DRIVES EDUCATION-SPENDING DECISIONS INHIBITS BETTER USES OF RESOURCES

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Abstract: While school boards are ultimately responsible for approving decisions about resource use in public education, the truth is that school boards operate amidst a confluence of multilayered forces that are imposed from above (with federal and state layers), as well as from within the system (via labor, parent, and community groups) that actively shape the allocation of resources. This chapter dives into the current machinery of resource allocation decisions, highlighting the effects of the multidimensional manner of how resource decisions are actually made, and the resulting consequences for:

a. The alignment of resources with stated goals

b. Public education pricing

c. System sustainability

d. The capacity of the system to adapt and innovate.

As each section illustrates, the existing structure for resource decisions has serious flaws that render it effectively dysfunctional against a set of expectations for an operation this size.

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By any terms, public K-12 education is a sizable operation. The $584 billion US public elementary and secondary system takes in more money than even the largest US corporations--more than Exxon Mobil, Fannie Mae, AIG, or Hewlett Packard. Its six million-member workforce is four times the size of total active military personnel. Funds for public education come in from different sources with the largest share generated by states (48 percent) and then by local revenues (44 percent), and the smallest (8 percent) from federal allocations. Unlike any of the companies or federally controlled operations (like the military), public education is a vastly decentralized operation without a single leader at the helm who can serve as a spokesman for its resource decisions.

So who decides how to spend all this money? On the face of it, school boards do. Each district's school board has the responsibility for adopting and approving a budget that includes all funds (even those generated at different governmental levels), and that when taken as a whole, sets the plan for accomplishing the financial goals of the local school district. School-district budgets are no trivial matter, in large part because a school district's use of resources is an expression of the implicit strategy at hand, whether the school-board members recognize it or not.

First, it is worth taking a look at the sheer mechanics of this decision-making group: There are nearly 14,000 school boards in the country, each with some five to nine board members totaling approximately 90,000 board members. District budgets vary dramatically in size, but to illustrate their scale, the average school board decides how to spend roughly $50 million in public-education funds with the median student served in a district where the board controls just over $100 million.[1] In the largest districts, the budgets top out in the billions, with a $4.8 billion school district budget in Chicago and a $9 billion budget for the school district in Los Angeles.

For most board members, the post is their first elected position, and experience managing an eight-figure budget is generally not a mandatory prerequisite. And whether the district is a larger or smaller district, the responsibility for the investment in each student is substantial: Consider that each school board decides how to apply $10,500 per student per year for each of their thirteen years of schooling. That total is a $136,500 investment *for each student* who attends an average public school from Kindergarten through twelfth grade. The board decides what services are offered, how they are offered, and at what prices.

The financial responsibility of district boards, and their appointed superintendents, is not lost on the host of other stakeholders in the public-education apparatus. At this point, those familiar with

[1] While there are many more districts with smaller budgets, these smaller districts collectively educate a smaller share of the students as well. Ranking all districts (ignoring enrollment) we find the median district budget is $10 million.

public-education finance may cry foul to a characterization of school-board members as being center stage in resource-allocation decisions, pointing out that state and federal policymakers too play heavy roles in the allocation of funds. And indeed, they do. With more than half the funds generated at the state and federal levels, it is no surprise that the policymakers at those levels are prone to attaching various carrots and sticks, as well as mandates or prescriptions that affect the manner in which funds are applied at the local level. Some state leaders might point out that the courts too are also exerting their influence on resource-allocation decisions. Given too that public education sits squarely in the political sphere, one might argue that other influencers such as parent groups, labor unions, and community groups also play a heavy role in driving resource decisions. And again, this is all true.

So while school boards (and their hired district leaders) own the decisions, the role of other key players in the system has evolved in such a way as to influence those decisions. The result is more that school boards operate amidst a confluence of multilayered forces that are imposed from above (with federal and state layers), as well as from within the system (via labor, parent, and community groups) that actively shape the allocation of resources. And thus, assigning school boards with the ownership over resource decisions doesn't do much to clarify the multidimensional manner of how resource decisions are actually made, and more importantly, how well the current system works to deploy resources. This chapter starts by diving into the current machinery of resource-allocation decisions and then highlights the resulting consequences for:

a. The alignment of resources with with stated goals
b. Public-education pricing
c. System sustainability
d. The capacity of the system to adapt and innovate.

As each section illustrates, the existing structure for resource decisions has serious flaws that render it effectively dysfunctional against the above set of expectations for an operation this size.

A Tangled Web of Forces Work to Shape Districts' Spending Decisions

State and federal formulas are well-established vehicles to dictate use of resources. Up through the 1960s, responsibility for funding public education rested primarily on local governments with local taxes amounting to more than half all education revenues. Districts had considerable flexibility in how resources were allocated as the state and federal governments were minor (and oft-silent) funders. With its 1965 landmark Elementary and Secondary Education Act (ESEA) the federal government redefined its role in funding education in an attempt to leverage the school system to address the ill affects of childhood poverty. Federal funds came with requirements for how districts were to use these monies to ensure that poor students would benefit.

Then in the 1970s, increased responsibility for funding began shifting to states. The subsequent decades witnessed a set of legal challenges that established increased state responsibility for funding public education and for funding it at an "adequate" and "equitable" level. In many states, the legal challenges asked courts to spell out how much states should be spending and how those funds should be distributed across districts. The New Jersey Supreme Court's *Abbott* rulings go further than many rulings in that they specify the types of investments that must be made (e.g. improved Head Start programs) and in which districts. While the effect of such legal challenges varied across states, on average states steadily increased their financial support to districts such that state share of public-education funding jumped from 39 percent in 1970 to 50 percent in 2000.

Since the mid 1960s, as both the federal and state levels increased their financial support for education, so too have they sought ways to ensure that their funds were put to good use. At the state level, the players include the legislatures, governors' offices, and state-education agencies (SEAs), each adding a layer of influence over the spending decisions that undeniably rest with school boards. The result of a flurry of state and federal activity has been an increased level of influence over district-spending decisions.

At the federal level, the influence comes primarily through requirements associated with restricted funds, known as categorical grants and earmarks. These revenue streams come with rules about how the grants are to be administered, which students can benefit, what can be purchased, how resources can be distributed, and how the funds then can be accounted for.[2] While many in the system bemoan the federal constraints, as Junge and Krvaric have shown (2011), most federal allocations require state "administration" of those funds, and in practice, SEAs layer on additional restrictions as part of their administering the funds. As their analysis demonstrates, since states would be required to repay federal funds if not used appropriately, the SEAs play a risk-averse role in that they impose additional restraints to avoid triggering any complications with federal compliance. By the time the federal funds reach districts, then, the funds have brought with them both federal constraints and SEA constraints on how they are to be used.

State funds too can include categorical allocations, but state-level actors also rely on other forms of state leverage on district-allocation decisions. While nearly all states (usually through legislation) use some basic formula that drives out funds by student enrollment and local revenue capacity, many of these formulas contain additional fine print that effectively shapes how a district can apply state funds.[3] For example, formula allocations may take the form of per student allocations, flat grants, competitive grants, staff allocations, funds for specific services, reimbursements of costs, cost-sharing, targeted allocations, etc. A key difference is whether the

[2] Cross and Roza, *How the Federal Government Shapes and Distorts the Financing of K-12 Schools* (Seattle, WA: School Finance Redesign Project, Center for Reinventing Public Education, 2007). Accessed from: http://www.crpe.org/cs/crpe/view/csr_pubs/142.
[3] Griffith, 2008.

state allocation works primarily to increase spending in the district, to restrict the use of funds so they only benefit a certain student type, or to specify exactly what program or service is provided with the funds.

Most state legislatures have also added "grandfathering" or "hold harmless" provisions which tend to trump other formulas such that a change in district qualifications won't result in fewer dollars for the district, even when student population decreases (as students move to charters, or with demographic shifts).

Sometimes the legislature allocates a pot of funds for some purpose (take school improvement, science education, or professional development) and then tasks the SEA with expending the funds. The SEA in some cases then chooses what get purchased (principal coaches, science PD, etc.) and then offers these options to districts, who's leaders may or may not accept (or incorporate) them into their programs.

Governor's offices are sometimes an active player in pushing an agenda that ultimately shapes district expenditures. Class-size-reduction policies, or raising starting pay for teachers are the kinds of mandates that often originate at the gubernatorial level and have the effect of influencing district level spending choices.

And of course, state influence over district-spending decisions extends beyond the details contained in finance formulas and deep into state regulations that define the parameters of schooling (minimum number of days, hours, subjects) and various terms of employment (minimum qualifications, pay for qualifications, pension terms, etc.).

State and federal revenues are combined with locally raised funds, some of which create similar restrictions on use. For instance, when local levies specify that funds will be used for, say, arts, athletics, or crossing guards, similar restrictions apply.

The confluence of different funding formulas and their corresponding restrictions create a challenge for district leaders tasked with developing the budget. The sum total for districts is a complicated financial matrix, where revenues from different sources must be combined and then doled out in ways that work to provide approved services, while being accounted for separately into dozens and dozens of fund accounts.[4] For instance, the staff paid for by the federal Title I program for poverty must clock their "time and effort" to ensure federal funds were properly deployed on poor students. The separate pots of money work as funding "silos" where savings in one silo can't be applied to services paid for by another. Funds spent on transportation or special education can't be co-mingled with other funds for different purposes. In an effort to avoid the co-mingling, larger districts create departments that align with the various silos for things like special education, Indian education, technology, reading coaches—each with separate staff that focus only on their funded initiative.

[4] Marguerite Roza, *Educational Economics* (Urban Institute Press, 2010).

There is no doubt that this multi-layered revenue structure creates challenges for district leaders tasked with creating a thoughtful comprehensive spending plan. But the challenges don't stop there as additional spending pressures are applied at the local level. In addition to the prescriptions that come with the revenues, districts adopt additional restraints on their own spending decisions with long-term promises to employee labor groups via employment contracts and pension arrangements. Multi-year contracts might run five years into the future, and include terms of compensation, but also include directives for how services are to be delivered. Teacher contracts, for instance, often specify the school-day schedule, class-size limits, substitute-staffing arrangements, use of aides, teacher-training policies, duties involving supervision of lunch, teacher evaluation, teacher placement, and the list goes on.

In one sense, these contract terms are effectively self-imposed—since each contract takes effect only once it receives a district signature. At the same time, many of the contract terms are "industry-standard" (like step and column teacher-pay scales) and making bolder changes to the basic contract can be politically challenging. While longer-term contracts work to create continuity for employees amidst what in some cases is a revolving door of district leadership, the longer-term contracts also work to limit decisions of future district leaders, who might find themselves in charge during year two of a five-year contract. And as some districts manage ten or more contracts (including those for teachers, principals, aides, custodians, bus drivers, food service personnel, building maintenance staff, to name a few), differing expiration dates makes it nearly impossible to make change in one contract if there are implications for other contracts (such as the school schedule).

Labor groups are not the only force at work at the local level. Parents, community members, and district staff influence spending in both organized and unorganized ways. Parents band to block school closures and prevent budget cuts to cherished programs. Opportunistic principals and other staff who know how to work the current system can be a consistent driver of unintended variations in spending across schools. Some work their magic to skate through budget cuts, or to get the most from the social-services department working in the central office. There are parent-teacher clubs that make sure that the grant-funded specialist stays on the district budget when the grant ends.

Perhaps most powerful are the district practices, policies, and habits that create inertia for doing approximately the same thing year after year. Much has been written about how schools today still resemble the schools of 1980, before the dramatic advancements in technology. In elementary schools, a group of some twenty-five nine-year olds are assigned to a teacher who takes them together through a curriculum over 180 six-hour days. High schools are still divided into seven or eight fifty-minute periods and each class (be it trigonometry or photography) meets for exactly the same duration all year long. Teachers for every subject carry roughly the same student load and are all paid on a uniform compensation system that rewards only longevity and graduate-course work. Each school has a counselor, a librarian, a physical-education teacher, and so on.

These habits are buried in the district policies that allocate resources out to schools. Perhaps in part because of some of the forces named above, school-district leaders see their resource-allocation role as one that decides how many staff to hire and for what positions. During budgeting season, the process involves a staff-based formula to allocate full-time staff to schools based on increments of student enrollment, such as a teacher for every twenty-five students and a vice principal when enrollment exceeds 400.[5] Additional staff can be allocated case by case, and might include a music teacher for a specific magnet school or a technology specialist at an innovative high school. Many districts then add staff to cover special programs for needier students and assign the costs to categorical funds. On a year to year basis, the terms of staff compensation aren't changed in any meaningful way, except to add across the board cost of living adjustments (COLAs), cover the rising costs of health benefits, or add and subtract a day of training now and again. Job categories stay fixed from year to year and once hired, staff members with the same job title are treated as completely interchangeable with seniority as the deciding factor in placement.[6] Technology purchases can't be swapped for staffing and vice versa as those funds often draw from different funds.

While some of these practices may indeed be the best way to serve students, it isn't clear that the system regularly re-evaluates those decisions in light of other potential alternatives in service delivery.[7] For instance, the use full-time librarian is one approach to making sure reading and research materials are available to students. Other approaches might involve distributing these duties among teachers, or in partnerships with public libraries, or even via expanding access to digital materials. By dictating the use of the resource, the allocation asserts central authority and creates some level of uniformity across schools thereby perpetuating the existing resource decisions.[8]

Another downside of making resource allocation decisions primarily in staffing terms is that these decisions become profoundly disconnected from the actual dollar value of the different services provided in the school district. District leaders don't recognize whether the dollar allocations are distributed fairly. And they don't contemplate how much they spend on one service or another, if those expenditures are appropriate for the service, or if there is a lower cost alternative for a comparable service. For instance, districts don't explore whether the costs of math instruction are rising or falling, and how those compare to the current investment in music or foreign language instruction. They don't explore how much it costs to have students participate in basketball versus physical-education class.

[5] Karen Hawley Miles, Kathleen Ware, and Marguerite Roza, *Leveling the Playing Field: Creating Funding Equity Through Student-Based Budgeting* (2009); *Phi Delta Kappan*, 2003.
[6] See, *The Widget Effect* (The New Teacher Project, 2009).
[7] Jon Fullerton, *Mounting Debt* (*Education Next*, 2004).
[8] Marguerite Roza, *Allocation Anatomy: How District Policies That Deploy Resources Can Support (or Undermine) District Reform Strategies* (Seattle, WA: Center on Reinventing Public Education, 2008).

One additional byproduct of the many constraints imposed by the multiple layers is a lack of budget transparency. Witness, for example, the recent debates over how much is spent per pupil in Newark with different estimates varying by the thousands of dollars, depending on what funding streams were counted.[9] Even comparing benefits rates or total staffing in districts or states requires months of researcher hours.[10]

As the next sections will show, the result is a spending picture that lacks coherence and efficiency, and that is unsustainable and yet unable to adapt to a rapidly changing context.

Resource-Allocations Patterns Often Conflict with District Goals

Ask a district superintendent, board member, or principal how much the high school spends per student on math, and you'll likely get a long explanation on how expenditures aren't coded by subject matter. Nor can the district compute the current investment in foreign language instruction or the basketball team. And in most districts, the leadership couldn't tell you whether it spends more per pupil at Riverside Elementary as compared to Meadowleaf School. In truth, existing school-district-financial systems make it extremely difficult to extract the per student costs of basic district services. And since districts allocate staff, not dollars, they're often in the dark when it comes to the actual dollar cost of what's delivered.

Without this information, district leaders can't know how their investments compare across key priorities. What's worse, in many of the districts where research has explored actual dollar costs, district leaders' instincts about how their investments compare across priorities were dead wrong.

Take for instance, the relationship between districts' allocations and districts' goals for disadvantaged students. Most large urban district leaders claim an emphasis on improving schooling for poor and minority students. Yet in district after district, the strategy implicit in the distribution of dollars would suggest the opposite. As is now well-documented, teachers in predominantly white and wealthier schools tend to be more senior and thus are paid more than those in high minority and high poverty schools *in the same district*.[11] When the actual salaries of the staff assigned to different schools are divided among their pupils, the per-pupil spending on classroom teachers in wealthier low-minority schools comes out ahead.[12]

[9] See, for example: http://www.njspotlight.com/stories/10/1005/2133/.
[10] Roza, Lozier, and Sepe, *K–12 Job Trends Amidst Stimulus Funds: Early Findings* (Seattle, WA: Center on Reinventing Public Education, 2010).
[11] Some might argue that targeted categorical allocations more than make up for the differences in actual salaries, although it should be noted that categorical allocations aren't intended to make up for inequities created in unrestricted funds. Rather, categoricals like Title I call for equitable distributions of unrestricted funds before layering on additional targeted resources. See: Marguerite Roza, *What if we closed the comparability loophole?* (Washington, D.C.: Center for American Progress, 2008) for a discussion of the loophole that enables the salary inequities.
[12] See EdTrust West, *California's Hidden Teacher Salary Gap* (EdTrust West, 2005).

It is at this point in presenting this uncomfortable data that an audience member will undoubtedly raise his hand and point out that salaries aren't indicative of teacher quality, so the spending differences ought to be considered irrelevant.[13] Whether teacher quality varies substantially across school types, the truth is that the current compensation and teacher assignment policies persistently drive a larger share of public funds in a way that explicitly conflicts with district objectives. Teacher-compensation systems are district-policy choices, and thereby they become instruments of the district strategy, whether intentional or not.

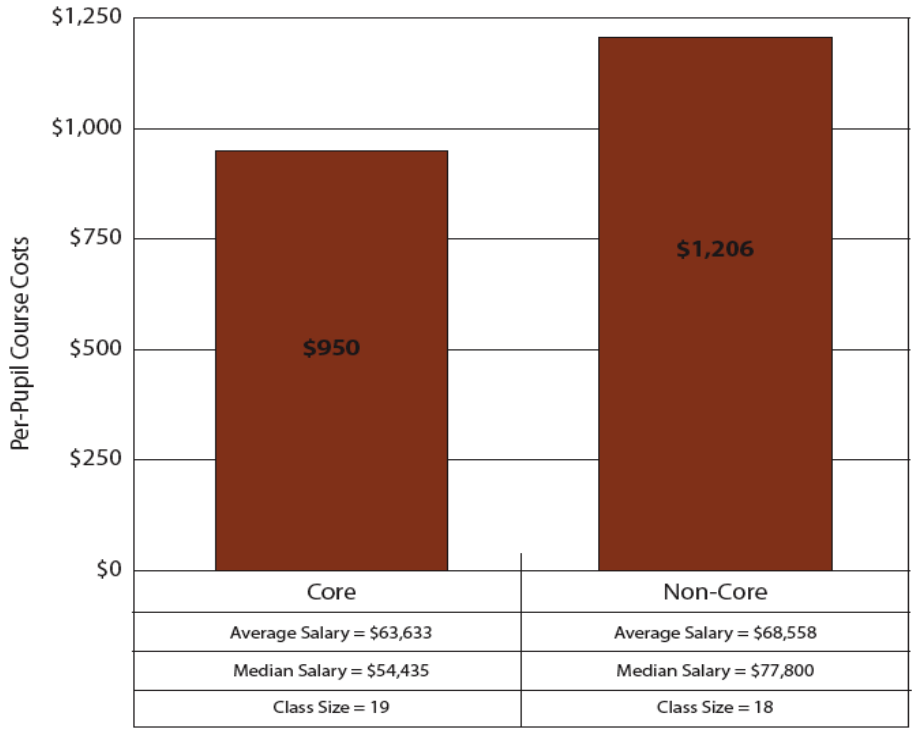
Figure 1: Sometimes actual spending patterns reflect a complete reversal of district objectives

Objectives for student outcomes:	**Reality evident in school spending:**
Narrow the achievement gap between whites and minorities.	On average, districts employ less expensive teachers to teach minority students than whites.
Give poor students a leg up.	Districts spend a greater share of unrestricted funds on non-poor students than on poor.
Get students up to speed in core subjects.	Schools spend more per pupil per elective courses than per core subject.
Divert resources to help lower performers	Schools spend more per pupil on AP/honors courses than on remedial/regular courses.
Prepare students for a changing economy	Schools spend more per pupil for participation in ceramics and basketball than in math or science.

As it turns out, this example isn't the only inconsistency inherent in the current allocation system. Figure 1 lays out typical conflicts between district resource allocations and stated goals for students. The uneven spending patterns are also evident *within* schools where differences in course costs might suggest a district strategy focused most heavily on emphasizing electives. As Figure 2 illustrates, in one district studied, higher salaries and lower class sizes in non-core subjects yielded higher price tags for non-core courses ($1,206 per student per course) than for core subjects ($950 per student per course).

[13] See Roza (2008) *What if we closed the comparability loophole?*, Center for American Progress., for a discussion of the consequences for high poverty schools of a system that continually sends them more junior teachers and fuels higher turnover rates among staff.

Figure 2: Higher salaries and lower class sizes drive up the costs of non-core courses[14]

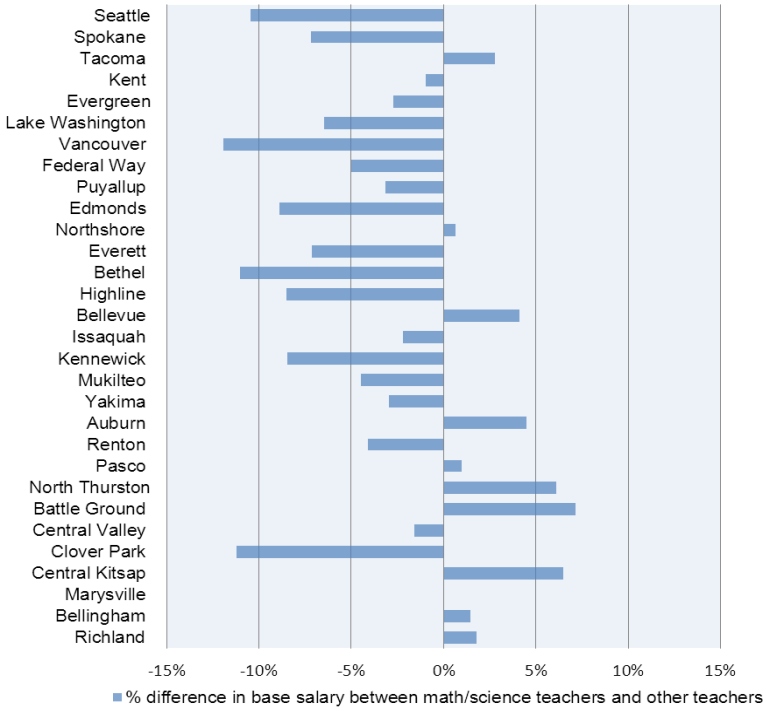


In other research, the team at the Center on Reinventing Public Education (CRPE) has found similar patterns that work against a district's goal of addressing gaps between high and low performers. In one district, spending across course types indicates more than double the per-student spending on an honors or advanced placement course in comparison with regular or remedial course.[15] Here again, lower spending happens when the lowest salaried teachers land in the overcrowded remedial and regular classrooms; the opposite being the norm in the advanced courses. Given that a typical accelerated student might take three or four honors courses, whereas a struggling student might be in multiple regular or remedial courses, the uneven course costs get compounded in a way that directs much larger sums to educate the most advanced students than is spent on the lower achievers. Some might attribute it to a human-capital problem, but it is a human-capital problem manifested from resource decisions (many no even recognized as resource decisions), imposed by layers of influencers, such that the effect is to concentrate resources in ways that make spending patterns wholly disconnected from district objectives for students.

[14] Core subjects in this analysis include math, English, social studies, and science courses. Non-core subjects include art, music, physical education, and foreign-language courses.
[15] Marguerite Roza, "Now is a Great Time to Compute the Per Unit Cost of Everything in Education" in Frederick M. Hess and Eric Osberg, eds., *Stretching the School Dollar* (Cambridge, MA: Harvard Education Press, 2010).

In another example, the recent push for improvements in math and science has not been accompanied by a comparable investment in teacher compensation for these subjects. A study of teacher pay in the state of Washington shows that most districts in the state pay math and science teachers less than they pay teachers to teach other subjects.[16] Notice that this is a deliberate wording choice intended to highlight oft-dismissed uneven effects of a uniform pay scale. Sure enough, despite its "uniform" nature, the schedule does create some predictable pay differences across different teacher types who are anything but uniform. For instance, even casual observers might agree that teachers with math and science degrees operate in a different labor market than do French teachers, or photography teachers, and indeed math and science teachers appear less likely to stay in teaching for lengthy terms (perhaps being lured by non-teaching career opportunities). The result: Because the system compensates largely on the basis of longevity, and disregards labor market differences across different teacher types, math and science classes tend to be taught by lower paid teachers. In an illustration of the trend, Figure 3 shows the salary differential between math and science teachers in Washington's thirty largest districts.[17]

Figure 3: WA state districts pay teachers less to teach math and science than other subjects.[18]



[16] Simpkins, Roza, and Sepe, *Washington State High Schools Pay Teachers Less for Math and Science than for Other Subjects* (Seattle, WA: Center on Reinventing Public Education, 2010).
[17] Ibid.
[18] Figure shows the thirty largest districts in Washington ranked by enrollment. Source: Simpkins, Roza, and Sepe, *Washington State High Schools Pay Teachers Less for Math and Science than for Other Subjects* (Seattle, WA: Center on Reinventing Public Education, 2010).

One might assume these patterns are unintended oddities that pop up now and again, and not related to the various governance structures that influence finance. And yet, the issue of math- and science-teacher pay has been battled about in the Washington state house before. In fact, in 2007, the Washington Education Association, the states' union affiliate, pushed hard to block what would have been a $5,000 bonus for National Board Certified teachers who teach math and science at struggling schools and then later worked to oppose a 2008 bill to study subject-based pay scales in other states.[19]

The stark contrast between spending patterns and typical district objectives makes it clear that current resource-allocation systems are not effective in directing funds in ways that support district goals. While it is easy to write off the spending patterns as being artifacts of other unrelated policies that have no negative consequences for the strategy at hand, doing so means giving up on the premise that resources matter and in accepting that notion, the system has surrendered its ability to use resources strategically, effectively, and productively.

The Effect of Spending Practices Distorts the Price of Services

Popular among state lawmakers redesigning state-finance formulas is this question: How much does a high-quality education cost? In asking it, most are assuming first that there is a singular process for schooling and second that we need only to add up the price the ingredients involved in that process in order to arrive that the total cost. Both assumptions are flawed.

Regarding the first assumption, students can learn (albeit to different degrees) in many different kinds of schooling processes. While most do involve a teacher and a student cohort, the rest of the processes are matters of policy. Different choices about the processes determine the basic ingredients required. For instance, the teacher might be paid a lot or a little, or a different amount depending on subject matter. The teacher might be supported by a counselor and vice principal and other staff who have non-teaching roles. Or the vice principal might double as a music teacher. Class sizes might average twenty-five (or more, or less) or might vary depending on the subject. Since we don't yet have replicable examples of districts where all students are achieving at acceptable levels, and there are many processes we haven't tried, there is no singularly desirable and accepted schooling process.

And yet, various dimensions of policies that drive decisions around resources do indeed assume a singular model of schooling. Take for instance, the silo effects created by the multi-layered funding structure. Funds for learning disabilities, for instance, must be used to address students once they qualify for the program. Imagine a new approach to teaching reading that is so successful that it dramatically reduces the rate at which elementary students are referred to

[19] Peter Callaghan, "Salaries Don't Reflect State's Commitment to Math, Science,: *The Tacoma Tribune*, 2010. Accessed from: http://www.thenewstribune.com/2010/08/17/v-lite/1303981/salaries-dont-reflect-states-commitment.html#ixzz1eK1csaQz.

learning-disability programs. Despite the benefit for students and the potential savings for the learning-disability program, most districts would argue that funding restrictions wouldn't permit using learning disability funds for the new reading program. In the end, the costs of teaching students to read are higher with the funding silos than if the alternate approach was used.

Also pertinent is the trend in states to fund a uniform set of services across all districts. Take, for example, the Georgia policy to put "graduation coaches" in high schools to boost graduation rates, despite having schools with differing base level graduation rates, and differing contexts behind student dropout problems. Funding formulas that dictate one-size fits all staffing ratios or standardized service delivery ignore the many differences in students and context across dissimilar schools and communities, driving up spending without a corresponding return.

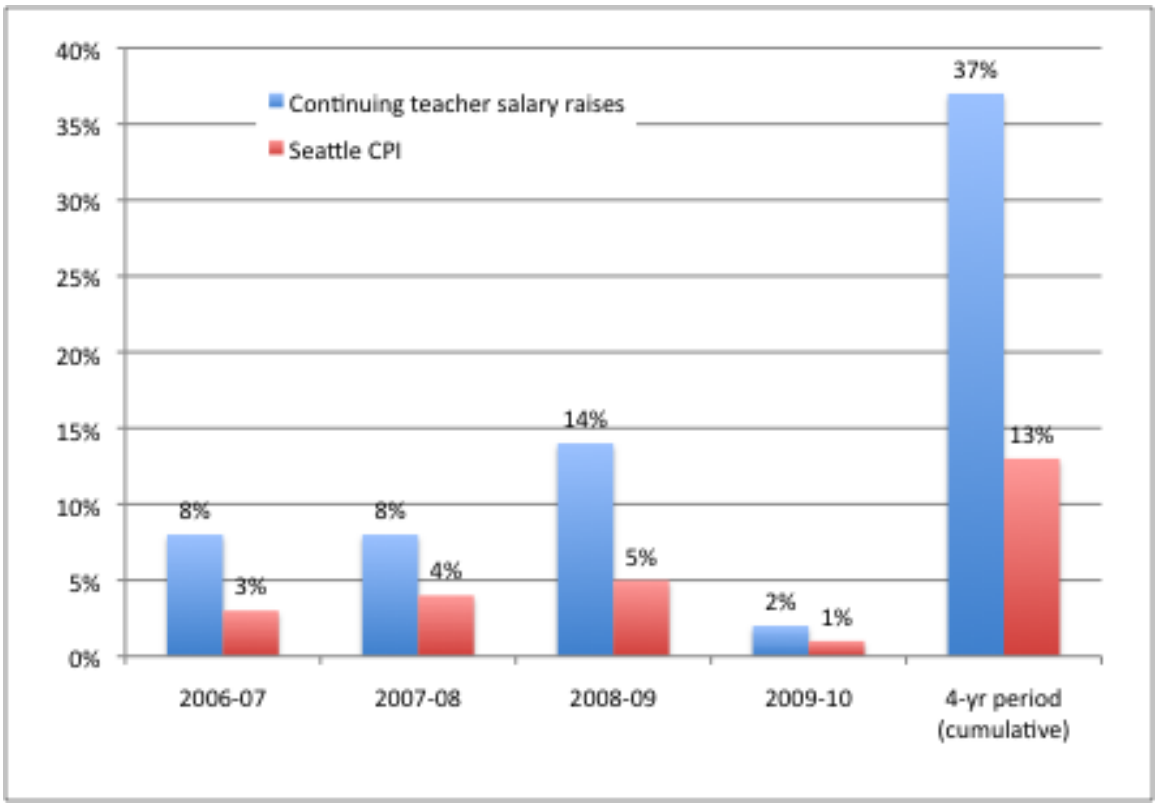
Also flawed is the notion that the current schooling inputs are paid for at a market price. In basic economic terms, "price" refers to the value agreed upon by the sellers and buyers in a functioning market. Since public education works more like a monopoly, there is no useful market. Rather the decision about how much to spend on an input is more an instrument of available resources and policy than of market value.

Teacher salaries being the largest input serve as a prime example. Every few years the school board makes decisions on incremental cost of living adjustments (COLAs) via its labor negotiations, and while market forces may be a factor, labor unions also consider a district's available resources and the tolerance for granting raises into a multi-year contract. But COLAs tell only part of the compensation story. Also relevant to teacher-wage levels are factors like who stays in the system, how many new masters degrees are awarded, and whether the state continues to funds incentives such as the bonuses for national board certification.

Take for example Jim Simpkins's analysis of Seattle's teacher pay since the inception of the recession.[20] As Figure 4 indicates, over the four-year period, continuing teachers earned 37 percent raises which far outpaced the 13 percent growth in the local consumer price index for the same time period. The price of labor appears particularly disconnected from context during 2008-09 when teachers earned a 14 percent increase just after the onset of the economic downturn.

[20] See Simpkins, Jim (2011). *Seattle Teacher Pay Over the Last Five Years*. Center on Reinventing Public Education.

Figure 4: Continuing teachers in Seattle see a pay hike that indicates a disconnect with economic conditions



So how did the district justify the ballooning salaries in 2008-09 that appear so indicative of a misalignment between wages and market conditions? In casual conversation at a local reception, I asked the school-board president what he thought of the 14 percent raise. He looked puzzled and then admitted that he hadn't realized teachers had earned such a pay increase. And indeed, he likely hadn't since the rising wages weren't captured in any one budget document, but were instead an artifact of numerous forces playing out at multiple levels. Pay had drifted up with low attrition amidst step and column raises that drive up wages with longevity and degrees, and then had been augmented by larger COLAs that had been approve five years earlier and two superintendents And lastly, many teachers took advantage of a state program to pay $5,000 and $10,000 bonuses for national board certification. All told, continuing teachers brought their pay from an average of $63,736 to $74,789 in a year when some private-sector industries were doling out pay cuts.

Notice that finance policies can work to damp prices as well, particularly amidst expanding economies when public wages changes might lag those in other sectors. And, as was previously described, policies can distort pricing for with math and science teachers. Here the teacher

compensation system had the effect of inhibiting salaries in the high demand math and science areas.

The fine print of state and federal allocations can also drive district "prices." In their efforts to ensure that districts adhere to the intent of state and federal allocations, many include terms that shape what gets purchased and at what price. For federal grants, for instance, schools can designate which staff members are charged to the grant line, and which are funded by district unrestricted funds. As often happens, districts charge their least expensive staff to the grant, where any remaining funds are still applied at the school. In contrast, more expensive staff are assigned to district fund accounts which don't return savings associated with lower cost staff. The result is that clever accounting practices intended to take advantage of differences in formulas work to yield lower staffing prices on federally funded programs, and corresponding higher prices on non-federal programs. It certainly seems harmless enough (even a bit entrepreneurial) but the downside is that such practices communicate different pricing depending on the revenue source.

Another example of distortion involves a state's transportation fund, which reimburses districts a set dollar amount for each bus rider where the number of bus riders is determined by a one-week count. In order to maximize its state reimbursement, one district's transportation director hustles parents to encourage attendance with a notice that reads:

> If you do not normally ride the bus, or do not ride the bus on a regular basis, it is very important that all APP students ride during "ridership" [week]… If your student does not normally ride, it is like writing a check to the district for $3500 to support your classrooms just for riding this week.[21]

The result: States imagine that their transportation-funding policies work to reimburse busing services for a particular student group, when in fact, those same policies work to distort state's understanding of transportation usage and pricing.

And thus the questions policymakers pose to inform their finance formulas become circular. Finance policies manipulate the cost of inputs and yet policymakers try to factor the cost of inputs into their formulas. For policymakers wondering how much public education costs, at least a partial answer is that it depends on what policymakers choose to spend.

Current Spending Structures have Become Unsustainable

Much was made in the introductory paragraphs of the fact that school boards are essentially the ultimate deciders when it comes to education-spending decisions. Perhaps because of the vast and unstable nature of this group, other influencers have sought to impose policies and practices that have the effect of institutionalizing various spending decisions such that district resource-allocation decisions remain steadfast even when school-board members come and go, hire and

[21] Seattle Public Schools Transportation Update for the school year 2010-2011.

fire superintendents, or make changes to priorities or strategies. The point of these efforts in not only to manipulate this year's spending patterns, but also those for next year and the subsequent years after that.

One result is that school budgets are filled with entitlement-like allocations that force spending escalation. School districts are labor-intensive operations, and changes to wages and benefits are the biggest driver in year over year spending changes. As has been described above, most teacher compensation schedules include steps for automatic yearly pay increases, as well as column pay increases associated with degree attainment. Assuming continuation of the salary schedule, these pay increments are guaranteed, and in practical terms, work like an entitlement for teachers. Certainly, this is not to say that teachers shouldn't be fairly and appropriately compensated but rather that by establishing a pay scale that doesn't involve much room for district modifications, the pay increments become essentially automatic.

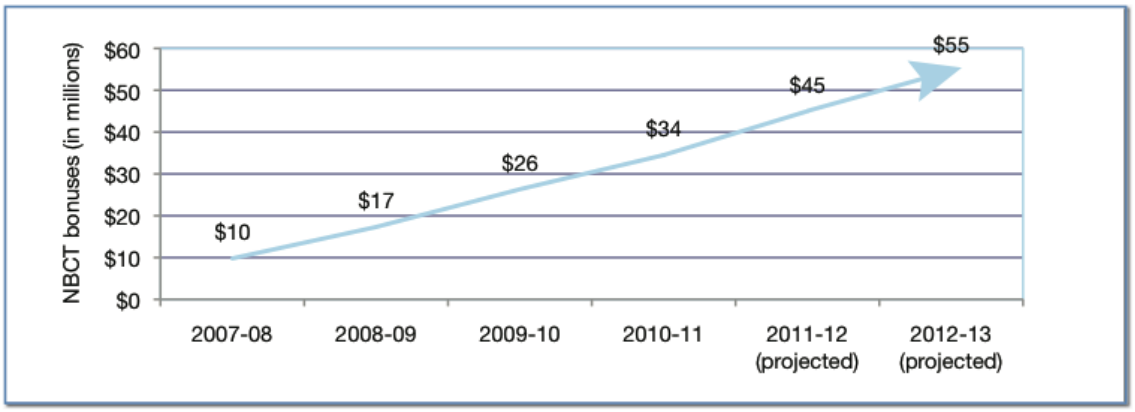
While such allocations do indeed create more predictability for staff, the flip side is that they continue to escalate even when revenues don't.

Take, for instance the master's bump—a yearly pay increment of some $2,000 to $10,000 awarded for any teacher who earns a master's degree. The workforce has indeed responded to this promise and is increasingly seeking degrees such that 51.8 percent of teachers in 2008 had a master's, up from 48.9 percent in 2004.[22] The result: Teacher pay for the master's bump is growing not because districts are doling out pay hikes, but because teachers have been awarded more degrees.

Similarly, some states and cities (like Seattle, mentioned above) promise teacher bonuses for earning national board certification, and again, teachers have responded by seeking certification at rates that tripled in the first three years of the program. As Figure 5 illustrates, the costs for keeping good on the promise are skyrocketing, creating pressures on an already constrained revenue structure.

[22] NCES Table 20. Accessed from: http://nces.ed.gov/surveys/sass/tables/sass_2004_20.asp

Figure 5: Keeping pace with promises of national board certification bonuses drives up spending by $10 million per year in Washington state[23]



Pensions, too, create promises that can strain ongoing revenues. In many states, pension promises made during more robust economic climates are necessitating substantially greater investments now that the pension funds' investment returns have stalled. The inter-dependencies between pensions and terminal salaries mean that any raise given to teachers near retirement creates an added drag on pension funds that promise a retirement pay pegged to wages at retirement. In other words, where the master's bump or national board bonuses drive up teacher pay before retirement, so do they drive up long-term pension obligations.

Teacher health benefits can be another source of cost escalation when promises are made in terms of benefit levels (instead of dollar contributions) and those benefit levels correspond to increasing outlays from year to year.

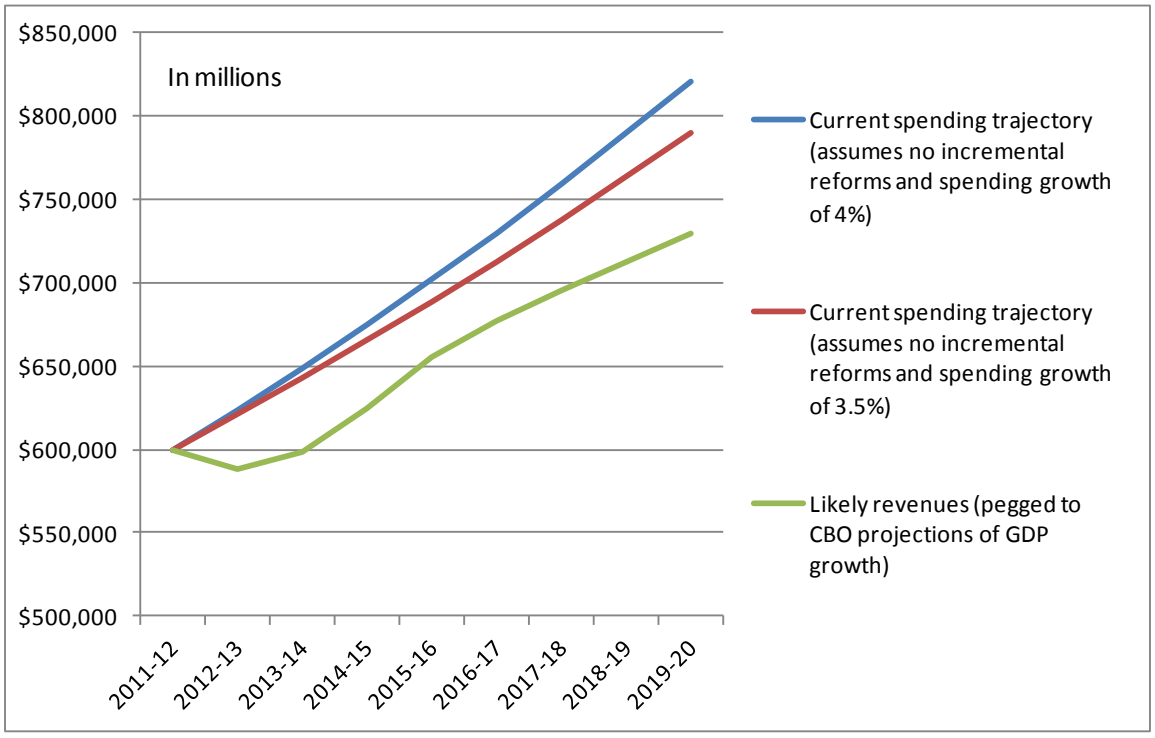
Just as projections of slower economic growth are pushing out further into the future, the cost escalators are on the rise, so much so that cost escalation now exceeds likely revenue growth. Here's how it works: With a slower economy, teacher attrition drops as teachers hold on to their jobs in response to fewer opportunities elsewhere in the labor market. Since steady attrition helps stabilize spending on salaries (as junior teachers replace more senior teachers), a dip in attrition has the effect of causing a corresponding acceleration in teacher pay. And as the average age of the workforce climbs, so can the cost of health care benefits. And lastly, increasing teacher retention means a larger share of the workforce will tap the full pension benefits, creating a double whammy for pension funds already down from low investment returns. For pension funds, the two factors require increased contributions on the front end.

All told the costs of doing exactly the same thing can force an increase in spending of an estimated 3-4.5 percent per year.[24] How does that growth compare to likely changes in revenues?

[23] Jim Simpkins, *What Does Washington State Get for its Investments for Bonuses for Board Certified Teachers* (Seattle, WA: Center on Reinventing Public Education, 2011).
[24] Author's estimates.

Assuming revenues follow projected growth in the gross domestic product (GDP), Figure 6 maps total public education revenues (beginning in 2011-12 at $600 billion) and what would happen to expenditures (absent any cuts).[25] As the figure shows, expenditures (modeled at both 3.5 and 4 percent per year) drift up faster than projected revenues creating budget gaps that must be addressed year after year.

Figure 6: Built-in cost escalators mean that the projected spending trajectory outpaces likely revenues



If the projections hold, district leaders will be forced to address the gap with some solution of enhanced revenue or spending cuts. Funding new reforms will compete with demands to maintain compensation and pension promises. In any case, the effect of finance policies that spell out spending increases into future years is a system that is clearly unsustainable.

Finance-Governance Structures Inhibit the Capacity of the System to Adapt and Innovate

Today's finance system is a product of a complicate web of governance that has produced many intertwined, but unrelated, policies and practices that, in combination, burden to the very system they were designed to serve. In the many ways detailed above, the model doesn't work to optimize student learning, but rather to perpetuate the system at hand.

Part of the challenge is a by-product of multilayered revenues. Each governmental layer that has added funds, has also slowly and gradually layered on restrictions. Couple that with the desire

[25] Forecast of GDP growth follows CBO figures. Accessed from: http://www.cbo.gov/doc.cfm?index=12316.

for stakeholder groups to add predictability to school-district allocations through entitlement-like compensation structures and a host of practices that dictate the duties of staff inside schools, and the result is a finance system that can't free up money to try new things.

This reality is blatantly clear in a course sequence that this author and other professors teach to school leaders on entrepreneurship in education at Rice University. As part of the sequence, students and professors routinely toss up ideas for how schooling might work, and nearly always there is someone in the room who reminds us: "We can't do that because…" In other words, district leaders see barriers within the system to just about everything they might try.

But the story of why school districts can't adapt and innovate is just as much one of what states won't do as of what they do too much. Given that education is the largest single investment states make, it is no surprise that state lawmakers want some guarantees that their money is put to good use. Practically speaking, states have two options: 1) dictate how districts use the funds, or 2) be clear about desired outcomes and then withdraw funds (and apply them elsewhere) when districts use them poorly yielding low returns for state funds. Given the unwillingness to do the latter, states stick with the former.

The pursuit of adaptation and innovation, however, assumes the latter—that funds in a system are moved to more productive uses as those more productive uses emerge. It anticipates that money and employees can be shifted in support of the adaptation. And it assumes that potential innovators in a system can use funds flexibly to develop new approaches. And it assumes that as district circumstances change, as they often do, that practices are adapted to meet the new conditions. If the district sees significant changes in enrollment types (e.g. growth of English language learners with rapid immigration), that practices change to better meet the changing context.

The willingness to move money to more productive uses of funds sets the stage for continuous improvement. No arrangement for delivering services is ever assumed to be sufficient, but rather, each arrangement, even one that looks good at the present time, is subject to challenge and replacement when improved options come along or when the context changes.

Perhaps it is because of the school boards' perceived ownership over a set of students in a geographic area, but despite all their authority, the one thing states rarely do is withdraw funds from districts. In most locales, funds are not designed for portability across providers. And so, unproductive uses of funds are perpetuated, in most cases calcified in policies and practices throughout the system, ensuring that despite the deficiencies in current spending patterns, the system will continue to spend the public education dollars in almost exactly the same way next year.

Rather than continuous improvement, the current spending system prefers binary spending choices over relevant tradeoffs. Take for instance, a recent radio spot on the devastating cuts to one district's revenues, in which the journalist explored the consequences of cutting a critical

after-school program for needy primary students. Coverage of the story included interviews with school staff who agreed that the program was vital, and that the most disadvantaged students would be much worse off now that the program had been scrapped. What the story didn't cover was any information about those tradeoffs that were considered before eliminating the program and why this choice was made over some other option. A quick glance at the district's web site, however, surfaced a photo of the district's golf team gearing up for another banner competition season. Was the after-school program for vulnerable elementary students scrapped in order to keep the golf team? Were the two ever considered side by side?

The truth is that district leaders don't regularly consider meaningful tradeoffs in the context of their budget decisions, in large part because the current governance structure has imposed such a complex layering of constraints on various expenditures. Rather, since each expenditure comes with a different set of constraints, funding silos, and accounting rules, different spending decisions can't be considered side by side. Decisions about investments are more likely to be binary: e.g. "Should we invest in this new program or not?" or "Should we cut summer school or not?" Binary decisions like these don't enable policymakers to make fair comparisons between alternating uses of funds.

Most of us are familiar with the concept of trade-offs in decision-making from personal financial choices. For instance, one might travel on vacation in a summer, or buy a jet ski and spend summer leisure time at a local lake. Doing both would exceed the family budget. Yet, for districts, the budgets are so large and managed by so many different governmental layers, that managing the hundreds or thousands of parts cannot be done intuitively and instead making informed tradeoffs hinges on solid reliable accounting systems that inform resource allocation decisions. Because of the diffuse governance system, no one policymaker owns all the decisions and thus such decisions invite everyone to lobby for their favorite thing with no discussion of the opportunity costs.

And yet, as Karen Hawley Miles has presented, district leaders should be considering highly relevant tradeoffs that create important options for what schools can offer even as this is written.[26] For example, Figure 7 highlights three standard tradeoffs that involve choices about adding pre-K, raising teacher pay, and lengthening the school day—all priorities on many districts' reform agendas. First on her list for consideration is a cost-equivalent swap that would raise class sizes in the older grades in exchange for substantial ($10,000) bonuses for the top 15 percent of teachers. Such an exchange, if made, would enable a district to shift funds in a way that emphasizes teacher quality over numbers of staff.

[26] Karen Hawley Miles, "Can You Spare Some Change" Presenatation at the 2011 Annual PIE-Net Conference, Seattle, WA.

Figure 7: For the same cost, a typical district can:[27]

Reduce class sizes in grades four through twelve by two students	or	Pay the top contributing 15 percent of teachers $10,000 more
Allow benefits spending to increase by 10 percent	or	Add sixty minutes to the school day in the lowest-performing 25 percent of schools
Give all teachers annual step increases	or	Provide half-day pre-K for 50 percent of all students

In examining the above tradeoffs, there will be some district officials who will rightly point out that restrictions of some sort prevent district policymakers from making those tradeoffs. A state's class size limits, for instance, might inhibit the first tradeoff. State or labor contract rules that prevent measurement of teacher effectiveness might make identification of the top 15% of teachers untenable. And thus it is clear that more important than top notch financial accounting systems is the flexibility needed to even consider the trade.

For those who believe that technology and information system will ultimately redefine schooling, such trades are critical. A school system will indeed need both the financial accounting data to clarify how much a schools spends on key services like math instruction, and then it will need the flexibility to change the manner in which those services are delivered. For technology applications especially, making trades between investments in staff and other inputs may prove essential.

The Finance System in Place is Education's Own Worst Enemy

The endemic failings of the existing governance of resource allocation for American schools, renders it essentially ineffective against even the most basic expectations for an operation of this magnitude. The resource allocation system channels funds in ways that directly conflict with stated objectives for students. The structure of resources is focused on maintaining programs, ensuring mostly uniform spending choices, compensating staff, and regulating process, not on searching for the most productive way to educate students. While we know we haven't yet landed on the best way to educate students (and indeed there may be multiple best ways), the system acts as though we have, and funds only that process to the exclusion of all others. We know that the system needs to experiment with technologies and information-driven processes that might change the nature of staffing, and yet the resource allocation system forces spending all on a fixed set of processes, programs, and staffing arrangements. The system isn't transparent, or coherent, and funds aren't portable across schooling options. The allocations escalate in a way that makes the system un-sustainable, and yet that same system pushes back against adjustments

[27] Ibid.

that would work to contain costs. All told, the education finance structure inhibits the nation's ability to apply resources coherently effectively, and productively. And frustratingly, with so much built-in resilience, one should anticipate that the same system will be in place next year and the year after that.