

Rethinking school funding, resources, incentives, and outcomes

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How does money matter to schooling? Rethinking school funding, resources, and outcomes

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The relationship between money and schooling is puzzling. On the one hand, everyone wants more money, particularly when they set out to reform schools. On the other hand, the relationship between spending and outcomes is weak, both in general and in specific cases where governments have increased spending for school improvement but failed to get much. We need a new approach in place of the fixation on revenues and expenditures in conventional school finance.

My approach starts with the obvious point that money does not educate children. Teachers with particular instructional approaches, principals capable of instructional leadership, schools with supportive climates, and many other resources may, if they are effective, educate them in various ways. The first question is which of the many conceivable resources influence outcomes—learning and test scores, progress

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through school, aspirations and ambitions. Then, the central problem of educators is to determine how these effective resources can be developed. Some can be bought—particularly those I identify as simple resources like smaller class sizes or more counselors. But others, especially those resources I call complex and abstract—like the quality of instruction and a school’s climate—cannot be bought but must be constructed by principals working with teachers around a common vision. Once we perceive the differences among resources and between those that require more spending and those that do not, we can understand why the relationship between money and outcomes is so weak.

When money does matter

In several direct and indirect ways, money obviously matters to outcomes. Schools require money for teachers, administrators, materials, and facilities. Such spending provides only *access* to schooling, not necessarily enhanced *outcomes*.

A few resources needed for improving learning or progress through school do require additional spending. Based on my analysis of a US data set called NELS 88 (from the National Education Longitudinal Study of 1988), teacher salaries improve outcomes since they allow districts to attract a larger applicant pool from which they can choose the best. The adult/pupil ratio—a measure of personalization rather than class size—affects progress through high school. Teacher experience in secondary education enhances a number of outcomes, and higher salaries affect teacher persistence. When a simple resource is effective *and* requires money in obvious ways, then money makes a difference to outcomes.

My results also suggest that personalizing high schools enhances progress and completion. Having more adults and counselors with closer contacts, internships and service learning, and better working relationships with teachers makes schools more welcoming places—and costs money.

Finally, some negative consequences of low spending affect other dimensions that are hard to measure. Budget cuts impose more duties on teachers and administrators. Many schools cannot improve since their teachers and leaders have no more time and energy, and teachers have become weary of “reforming again, again, and again” (Cuban 1990). This consequence cannot be readily detected in statistical analysis. But schools cannot remake themselves as “lighthouses” or effective schools if there is no time or energy for reform.

What undermines the effects of money

While money affects outcomes in several ways, increased spending may leave outcomes unchanged or lead to *worse* outcomes.

Money is wasted

Money can be embezzled or spent to hire friends and relations. More often it is spent on ineffective resources—incompetent teachers, or weak after-school programs, or teacher aides without clear roles. Money may be spent without changing practices

such as when ineffective professional development is used for complex changes like improving instruction. Money is often spent piecemeal buying whatever categorical grants dictate without an overall plan. All too often, principals and other school leaders know little about the funds they control and about using resources effectively. Perhaps worst of all, money may be spent on potential long-run benefits like improving school climate or changing instruction; then a new principal or a superintendent with different priorities reverses course, and those resources go to waste.

Some ineffective programs cost more money

Some expensive practices actually *reduce* test scores or progress through high school. In my NELS 88 results, this is most obvious for traditional vocational education (which costs more than academic programs) and “lower” streams dominated by drill and practice on basic skills. Special education represents another program with high spending but with minimal effects on conventional outcomes. Urban districts spend a great deal on second-chance efforts such as remediation for low-performing students and alternative education, but these are often ineffective because, by definition, they operate under difficult circumstances. And some spending looks ineffective because its goals are not measured by conventional outcomes; for example, spending on security, which is especially high in urban districts, is intended to keep students safe but has no effect on test scores or graduation rates.

Many reforms fail to understand that compound rather than simple resources are necessary

Class size reduction provides a clear example: The billions spent in California were ineffective because districts hired lower-quality teachers, supported inadequate professional development, and provided insufficient space. New curricula or assessments require professional development before they can be effective. When districts or states provide money for simple resources, the money is often wasted unless it can be combined with complementary resources—another case where money is necessary but not sufficient.

Many effective resources cannot be bought

There is no store selling improved instruction. In my results, the complex and abstract resources that affect test scores or progress through high school include:

- Teachers’ use of time;
- Departmental encouragement of innovation;
- Teachers’ control over their own classrooms;
- Constructivist or balanced pedagogy, especially in math;
- A positive school climate;
- Negative events like drug-dealing and fighting; and

- Low, school-wide rates of attendance which measure overall student commitment.

Others have documented the effectiveness of curricular coherence and trust, two other abstract resources (Bryk and Schneider 2002; Newmann et al. 2001). Higher spending per student does not increase these resources. Instead, teachers and leaders working together must *construct* them by developing school-wide approaches. Money may be necessary for ancillary purposes—release time for teachers, occasional outside experts, literacy or math coaches. But money is less important than vision, principal leadership, and the cooperation rather than the resistance of teachers.

Closing the achievement gap can't be done with money alone

Current demands for reform in the US often focus on the achievement gap, almost always stated as the differences among White, Black, and Latino test scores or dropout rates. However, most recommendations ignore the glaring fact that these “gaps” are related to race and ethnicity.

The profound differences among racial and ethnic groups cannot be explained away even by many variables describing family background, unequal school resources, or students' commitment to schooling. An irreducible knot of racial and ethnic inequality remains after controlling for everything conceivable in the richest data set I know.

Anyone who is serious about eliminating achievement gaps has first to explain these differences and then come up with solutions. My own hypothesis is that many students are mistreated, often based on race and ethnicity. Substantial testimony from many different sources attests to the extent of mistreatment. To combat mistreatment head on, advocates have developed an enormous range of strategies: finding more teachers of color; new curriculum materials, new subjects, and new pedagogies with more critical perspectives; systematic observation so that teachers can learn if they are unconsciously mistreating students of color; different approaches to discipline; and non-teaching support from same-race counselors and mentors. These are complex and abstract resources which again must be constructed by teachers and leaders working together within specific schools. Sometimes money is necessary, but other abstract resources are more important including clear diagnosis, vision, cooperation, persistence, and above all trust.

Building the capacity to make resources matter

Creating a system with the capacity to allocate and construct resources wisely requires at least four reforms:

- (1) Carrying out routine “waste audits,” especially at the school and district levels, to see where funds are being misspent. Similarly, a “resource audit” (in place of a fiscal audit) can clarify which effective resources have been developed within a school and which are missing (see chapter 3 in Grubb and Tredway 2010).

- (2) Decentralizing decision making about resources to the school level and adopting school-based budgeting so that principals and school-site councils have the fiscal resources and the opportunities to develop resources that are effective at *their* schools with *their* students and *their* teachers.
- (3) Professional development to make school leaders and teachers more sophisticated about *effective* resources. Many existing school-based budgeting systems provide inadequate professional development to enable schools to make better decisions, and this deficiency must be remedied (Grubb and Tredway 2010).
- (4) An organization that provides user-friendly information about effective (and ineffective) resources to schools and districts. All schools and districts need such information for reform, but a school-based system of resource allocation makes such information all the more urgent. Moving knowledge into practice always involves persuasion, decision making, and implementation, so this requires something like an educational extension service, modeled on the agricultural extension service, with “extension agents” who can bridge the worlds of research and practice and help schools interpret research for their local practices (Gawande 2009; Grubb 2010).

These reforms would enhance the fiscal and abstract resources for improving resource allocation, improve the incentives to do so, and provide the expertise necessary for thinking in different ways about money, resources, and effective practices. Without such changes, schools will continue to bumble along wasting resources without understanding precisely when money matters and when it doesn't.

How do incentives matter for resource use in schools?

Rebecca Allen²

It is hard to disagree with Norton Grubb's observation that the relationship between school financial resources and pupil test scores is weaker than we would expect or even hope. This statistically significant, yet notably small association, has been found in many developed countries across the world, so it does not appear to be an artifact of the institutional structure of schooling in the US. It is a problem as allocation of larger government budgets is the usual means by which governments attempt to improve the public services they value most. For example, the first decade of the Labour government in the UK produced a 56% real increase in school budgets with very large rises for the most deprived schools; yet, the empirical evidence suggests that this admirable attempt to improve schools and to close the social class gap in attainment may not reach its policy goals. Indeed, the increased expenditure has not seen outputs rise at the same rate, and so school productivity has fallen (Wild et al. 2009).

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Schools do not appear to spend money on the resources that are the most efficient route to improving test scores. Grubb suggests that lack of knowledge on the part of school leaders is the most important cause, so programs to educate managers and share best practice should succeed. I suggest that two other factors—restrictions and incentives—may be more critical than knowledge dissemination to reforming practice at schools, so Grubb’s policy responses may not be effective.

My first suggestion as to why schools do not make efficient spending decisions is that governments place high constraints on how money can be spent. Money is often tied to specific government initiatives in a piecemeal fashion with no opportunity for long-term planning on the part of schools. In England, the initiative to install interactive whiteboards in classrooms had no associated funding for training teachers to use them. The Excellence in Cities program earmarked money specifically for learning mentors, learning support units, and programs for “gifted and talented” pupils. Implicit in the introduction of these schemes is that schools are not to be trusted in making choices about spending, and policymakers know better than school leaders how the school’s budget is best spent.

These restrictions to school spending are marginal, however, compared to the very large restrictions that the trade unions and government impose on the teacher labor market in most countries across the world. In England, national pay bargaining and precisely mandated working conditions and hours make it impossible for school leaders to use their human resources efficiently. Teacher pay generally accounts for over 60% of school expenditure (and staff costs up to 80%). If schools are unable to make efficient spending decisions with this part of their budget, it is not surprising that the overall relationship between spending and test scores appears to be weak.

Human resources such as teachers’ use of time, departmental encouragement of innovation, and teachers’ control over classrooms are necessarily intangible and complex, but I would argue that they can be bought through the use of variable pay to recruit and retain talented teachers and incentivize them to invest in improving their own teaching. Teachers, like all workers, are attracted to higher wage opportunities, with studies confirming that salaries and working conditions affect the probability of applying for a job and leaving a school (e.g., Dolton and Van der Klaauw 1999). Evidence on the large variation in teacher quality makes it clear that almost every school resourcing decision is marginal compared to large potential gains from improving teacher quality (Aaronson et al. 2007; Rivkin et al. 2005). It does not matter that pupil achievement gains are only weakly related to observable teacher characteristics, provided we believe that principals can identify, and so attract and retain high quality teachers.

Schools do not have the right incentives to spend resources efficiently

Even free of constraints on spending decisions, we should not expect schools to make resource decisions efficiently if doing so has little impact on the utility of the school community. Teachers, school leaders, and governors all have their own goals of which the overall test scores of pupils may be only one, and we should have no

reason to assume that these agents will all sign up to the same utility function. Education chiefs rightly want to set the goals of schools, but they need to build a system that aligns the interests of teachers and other workers with these goals.

Without effective incentives, education systems can be dysfunctional and individual teachers may pursue their own interests. For example, in the UK, a large proportion of the increased school's budget has been spent on a three-fold increase in the numbers of teaching assistants to support teachers in the classroom. They are generally popular with teachers, not least because they reduce their administrative workload, but evidence suggests this increase in resources has had no impact on test scores and may have damaged learning experiences in many cases (Blatchford et al. 2010).

Teaching schools how to become more efficient

Grubb writes that knowledge on efficient resource usage is important, and I agree. But in a world dominated by government-sponsored webpages full of user-friendly advice for teachers and schools, the problem is not lack of information (the UK's own "waste audit" can be seen in Audit Commission 2009) but why it is not utilized. The correct incentives should encourage schools to find out how to use resources efficiently and implement this newly found knowledge in the interests of their pupils.

One reason this approach is so appealing is precisely because, as Grubb points out, resources such as the quality of instruction and a school's climate are complex and abstract. Whereas centralized systems are good at imparting simple spending rules, I question whether bureaucrat designed rules are effective in dealing with complex resource use. Government agencies do have a role in facilitating analysis of aggregated schools' data and implementing careful studies, both of which should influence understanding on best practice. However, I believe that they are less good at understanding that complex resource development is necessarily sensitive to specific contexts, so the learnt experiences of schools will always be critical. "Bottom-up" development of knowledge in this way also holds the potential of substantial long-run productivity growth through radical innovation at schools. Furthermore, teachers may respond more positively to a system that empowers them to make choices rather than imposes restrictions.

Permitting schools to innovate will generate mistakes, and constraints on supply behavior are safeguards against this. However, I would argue that these risks are outweighed by the benefits of a decentralized approach. Introducing incentives to make wise resourcing decisions is challenging in the public sector where schools are not able to receive efficiency gains in the form of profits or additional pay awards. School league tables of academic performance combined with market-based parental choice reforms might help but will be inadequate to the extent that many schools have some monopoly power in a particular geographical area, and parents are imperfect judges of school outputs. So, the strength of my proposed approach entirely hangs on the possibility of developing an effective system of school governance and accountability.

Response to Rebecca Allen, “How do incentives matter for resource use in schools?”

W. Norton Grubb

Rebecca Allen’s comment on resource use in schools is, in many ways, quite congruent with my own thinking. I agree that “bureaucrat-designed rules are ineffective in dealing with complex resources,” and that “complex resource development is necessarily sensitive to specific contexts.” So, the top-down decisions typical in the US (evidently predominant in England as well)—with districts allocating resources to schools, and states and the federal government pursuing policy goals through categorical grants—are almost sure to fail. Most of our exemplary schools develop when visionary leaders and dedicated teachers collaborate in creating instructional and climate conditions that foster both learning and progress—the “bottom-up” approach she recommends.

So, too, there is little question that constraints on school spending are responsible for a great deal of ineffectiveness. Categorical grants are one example—the case of funding interactive whiteboards is an absolutely laughable example of a centralized decision with no possible way of enhancing instruction. Unions are also constraints, though in the US, there is discussion about transforming industrial-style unions concerned only with wages and working conditions into professional unions concerned more with the quality of teaching; there is little evidence that districts can work with unions to help them become more professional (Marshall 2010).

I disagree with Allen’s contention that schools lack incentives to spend resources effectively. In the US, federal legislation requires extensive testing. Schools failing to meet performance standards for specific groups of students—low-income, African American, Latino, and so on—are designated Program Improvement (PI) schools. Public information about them constitutes the same kind of “naming and shaming” as occurs in England with league tables. Threats of “reconstitution,” including replacing principals and teachers, provide incentive enough to get out of PI status. The problem isn’t lack of incentives but lack of capacity to respond to those incentives which requires money and the ability to use money well and other complex and abstract resources including strong teachers, visionary leadership, stable conditions, supportive parents, and trust and coherence.

I dislike the language of efficiency, economic incentives, and “managers” that is common in England and in Allen’s comment. Efficiency and cost-benefit analysis lose their usefulness when so many “costs,” or resources, are abstract and complex and when the benefits of schooling include so many intangible outcomes such as civic competence and racial and class understanding. And the effects of resources are differentiated: Learning outcomes respond to instructional improvements while progress through schooling is enhanced by personalization, so the “efficiency” of many resources depends on what outcomes are involved, another reason to move beyond test scores as measures of educational outcomes. In the US, there has been a tendency to think of the roles of school leaders as political, managerial, or instructional (Cuban 1988) with a current emphasis on instructional leadership to

counter the tendency for school heads to emphasize administrative and managerial tasks to exclusion of all else.

So, reducing constraints on schools, emphasizing “bottom-up” reform, and giving schools the ability to develop their own resources (as can happen particularly with site-based budgeting) would be good things. But they will lead to greater effectiveness only if school communities can understand which resources are effective and how to create those resources that cannot be readily bought. This requires educating all of the many individuals making resource decisions—teachers, school-level leaders, and policymakers at all levels—in thinking more deeply about what resources in addition to money make schools work well.

Response to W. Norton Grubb

Rebecca Allen

There is much that Norton Grubb and I agree on: Changing the process by which schools are financed and are able to spend their resources has the potential to improve education systems on both sides of the Atlantic. We agree that headteachers are constrained in the deployment of resources through teacher labor market restrictions and categorical grants. More importantly though, headteachers do not currently appear to have the knowledge that allows them to spend their resources to improve academic standards or meet wider educational objectives.

Our main point of disagreement would seem to be on why schools do not possess this financial knowledge. Norton Grubb believes that incentives in schools are very sharp, and so a more *laissez-faire* approach to school expenditure would be incapable of encouraging headteachers to equip themselves with better financial management skills. I suspect he may be right, but I wonder whether incentives are quite as sharp as he suggests. For most schools, especially those in more affluent circumstances, survival is perfectly possible without highly efficient resource deployment. It takes substantial deterioration in academic standards in England, for example, before there is any serious threat of school closure or headteacher replacement.

One problem in England is that headteachers often do not believe they should be taking responsibility for school resource planning, thus devolving this task to part-time school bursars who simply produce budgets based on rolling-forward historical expenditure. The Department for Education provides schools with fantastic online tools to compare their expenditure patterns to other schools in similar social circumstances, yet many schools choose not to access this support (Dodd 2006). Without using this tool, how is it that most headteachers are able to claim that their school is “efficient” in surveys?

I do not believe there are easy answers to how we best provide incentives to headteachers to educate themselves and take responsibility for budget setting. As academic researchers, we must consider how we can best play a role in this process. For example, in England there is increasing agreement in the academic community that the large-scale deployment of teaching assistants was not the best use of the

education budget. But how should this broad generalization now be translated into advice that is tailored to the specific practices of individual schools? And given that a school's staffing structure is the most critical aspect of resource effectiveness, we should perhaps admit that we know less about effective staffing than we would like. In England, the first national school workforce census took place this year producing across-school comparisons of salaries and types of teaching and non-teaching staff for the first time. The way that researchers and headteachers share this new data will be critical to ensuring that the very large budget cuts that many English schools now face do not result in a significant deterioration in the educational experience of our children.

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