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Research-Based Options for Education Policymaking

Effective School Expenditures

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Any discussion of effective school expenditures should start with two well-established premises. First, funding and other resources are necessary but not sufficient for providing high-quality educational opportunities.[1] As stated by Judge Howard Manning in deciding a school funding case, "Only a fool would find that money does not matter in education."[2] Second, simply spending money does not necessarily provide better learning opportunities. An expensive but ill-considered policy can prove wasteful or even counter-productive.

In considering beneficial expenditures, standardized test scores are the most commonly used measure of effectiveness. However, the relationship between high-quality education, test scores, and the amount spent is a highly attenuated one. Test scores alone are not a valid indicator of the broad range of public education goals. For example, while paying for a special education aide may be necessary for safety and equality reasons, there is no reason to expect appreciable school or district test score improvements as a result. The same can be said for many other recent areas of increased spending, such as security guards, girls' sports (Title IX), guidance counselors, athletics, nurses, breakfast and lunch programs, alternative education programs, special education, and increases in employee health care premiums. These programs have value in their own right, but there is no

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logical reason for most of them to have much more than an indirect effect on test scores.[3] Other programs, such as dropout prevention, are—if successful—likely to have a *negative* effect on test scores, but they are still worthwhile.

On the expenditure side, money has different effects at different levels. As the international PISA test scores show, the amount of money allocated must pass an adequacy threshold. If the school is below this threshold, the lack of funding can have enormously harmful effects.[4] If it is well above the threshold, adding additional resources may not make much difference. For example, a new school bell tower is unlikely to improve math scores. For all of the above reasons, simple comparisons of spending with test scores will systematically underestimate the effects of proper school funding.

What Educational Investments Have the Best Payoff?

The public debate has shifted from *does* money matter to *where* money matters.[5] The past two decades have seen more than 70 studies exploring how much money is needed.[6] These adequacy studies are based on implicit or explicit definitions of how money is most effectively spent.[7] Clean, adequate facilities and learning supplies are unquestionably required. Likewise, qualified staff and a well-organized climate are necessary, although not as easy to measure.[8] Below are eight additional areas where increased funding will likely lead to improved outcomes.

Community and Social Factors: It might seem strange to list outside-of-school factors as the first and most effective expenditure. Yet socio-economic factors are the strongest correlates of achievement test scores. While some advocates contend that schools can overcome the effects of poverty single-handedly, the research evidence does not support this contention.[9] In fact, such claims "have the potential for doing serious harm."[10] In Montgomery County, Maryland, low-income students who attended schools with more affluent students cut the math achievement gap in half. Public housing students attending schools with more affluent students registered a sizeable 0.4 standard deviation advantage over similarly situated students attending schools with a less affluent population.[11] Nations that provide greater equalities of learning opportunities score higher on PISA exams than nations with greater inequality.[12] Given the enormous influence of economic and social conditions, ameliorating the negative effects of concentrated poverty may do more to improve our schools than most or all school reforms.[13]

Early Education: Arguably the strongest single within-school factor is the provision of high-quality early education programs. For every dollar invested in early education, as much as $17 is saved in later education and social costs. While the magnitude of returns varies by study, there is near-universal agreement on the high returns on this investment.[14]

Community Schools: When schools engage families continuously and provide related family, social and medical services, academic achievement and attendance tend to increase, and risky behaviors tend to decrease.[15]

Extended Day and Year: Less affluent students lose as much as one-tenth of a standard deviation on math scores over the summer.[16] Considering the cumulative effects, addressing this summer learning loss—along with similar learning losses associated with after-school time—may prove one of the most effective ways of closing the achievement gap. Yet, extra time must be more than just supervision and child care.[17] The added time must offer the sort of engaged learning activities that are routinely available to more affluent students. The quality of summer and extended-day programs is critical for academic maintenance or gains. Yet, like early education, the greatest gains may be in non-academic areas. Some of these benefits can be derived through collaborations with existing community members and organizations. Odden and Picus calculate that one full-time teacher is needed for every 30 at-risk students. They also recommend a full-day summer program running for eight to nine weeks.[18]

Full-day Kindergarten: Consistent with the research on early education and extending the school day and year, full-day kindergarten provides academic, socialization, attendance and readiness benefits that minimize later problems. However, as with early education and extended learning time, additional programs will accomplish little unless they are of high quality.[19]

Class size: The evidence on class size is most clear for grades k-3, with studies recommending between 12 and 15 for traditional classes. Middle school findings suggest between 16 and 25. And high school classes between 16 and 25.[20] However, for high-needs students, the drop-out literature tells us that much smaller caseloads with greater intensity are needed if interventions are to be successful.[21]

Teacher Quality: There is near-universal agreement on the importance of high-quality teachers. There is evidence that teacher experience, credentials and test scores have a positive effect on student achievement.[22] In recent policy initiatives, the use of standardized test score gains has been advanced by the federal government as a means of evaluating teachers, but this approach is problematic. Teachers showing high student growth on one test often show very low growth on other tests or in other classes or school years (and vice versa). The weakness of such measures and the resulting high error rates indicate that the use of such procedures in high-stakes applications is not warranted.[23]

High-Needs Children and Categorical Aid: Economically disadvantaged children need approximately 40%-100% more funding per child. English language learners need 76% to 118% more.[24] Yet for the nation as a whole, we spend $1,307 less per pupil on the education of disadvantaged students.[25] Adequate or equitable funding is a legal requirement in most states but, more importantly, it is the foundation for any policy hoping to achieve equitable outcomes.

Conclusions

This list of eight policy areas where increased funding is likely to lead to improved outcomes is not meant to be exhaustive. A different author could validly add relevant items (with a different emphasis) to this list. Nevertheless, there is considerable consensus

regarding these areas, and they are therefore offered as a useful starting point for addressing effective school spending.[26]

Notes and References

1 Hedges, L.V., Laine, R.D., & Greenwald, R. (1994). Does money matter? A meta-analysis of studies of the effects of differential school inputs on student outcomes. *Educational Researcher, 23,* 5-14. (Finding that for every additional $1,000 spent per student, test scores increased one-third of a standard deviation.)

See also:
Laine, R.D., Greenwald, R., & Hedges, L.V. (1996). Money does matter: A research synthesis of a new universe of education production function studies. In L. Picus & J. Wattenbarger (Eds.), *Where Does the Money Go?* Thousand Oaks, CA: Corwin Press Incorporated, 44-70.

2 Hoke Co Board of Ed v. State of North Carolina I, 95 CVS 1158 (N. C. Gen. ct of Justice, Sup. Ct. Div, 2000) at 74

3 Rothstein, R. (1995). Summary of *Where's the Money Gone: Changes in the Level and Composition of Education Spending (1967-1991)*. Washington, DC: National Center for Education Statistics. Retrieved January 7, 2013, from http://nces.ed.gov/pubs/web/96344rot.asp.

4 OECD (2010). PISA 2009 Results: Executive Summary. Paris: Author. Retrieved February 5, 2013, from http://www.oecd.org/pisa/pisaproducts/46619703.pdf.

5 Erik Hanushek, arguably the most prominent of the "money doesn't matter" theorists, said that "money spent wisely, logically, and with accountability would be very useful indeed."

See:
Montoy v. State,99-C-1738, 2003 WL 22902963, at *49 (Kan. Dist. Ct. Dec. 2.2003), affd,112 P.3d 923 (Kan.2005).

6 Mathis, W. J. (2005). The Cost of Implementing the Federal No Child Left Behind Act: Different Assumptions, Different Answers. *Peabody Journal of Education, 80*(2), 90–119.

7 For examples of templates, see
Odden,A. R., Goetz, M.E. & Picus, L.O. (Summer 2008). Using available evidence to estimate the cost of an educational adequacy. *Education Finance and Policy, 3*(3), 374-397.

R. C. Wood, in Rolle, A. (2008). *Strengthening the link between effective school expenditures and state funding mechanisms*, 16. Retrieved January 3, 2013 from http://nepc.colorado.edu/publication/strengthening-the-link.

8 Rolle, 2008 (see note 7).

9 Rothstein, R (November/December 2012). Race and public housing: Revisiting the federal role. *Poverty & Race, 21*(6).Washington, DC: Poverty & Race Research Action Council.

Making Money Matter: Financing America's Schools (1999). Washington, DC: National Academies Press. Retrieved January 7, 2013, from http://www.nap.edu/openbook.php?record_id=9606&page=276.

Berliner, D. (2009). *Poverty and Potential: Out-of-School Factors and School Success*. Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit. Retrieved December 28, 2012 from http://nepc.colorado.edu/publication/poverty-and-potential.

10 Ladd, H, (2011, November 4). *Education and poverty: Confronting the evidence* (Working paper Series SAN11-01). Durham, NC: Sanford School of Public Policy, Duke University.

11 Kahlenberg, R. D. (2010, October 20). Lifting student performance: Housing policy is school policy. *Education Week, 36*(8), 24, 21

Schwartz, H. (2010). *Housing policy is school policy; Economically integrative housing promotes academic success in Montgomery County, Maryland*. Washington, DC: The Century Foundation

12 OECD, 2010, 16 (see note 4).

13 Berliner, D. (2012).Effects of Inequality and Poverty vs. Teachers and Schooling on America's youth. *Teacher's College Record*.

Ladd, 2011 (see note 10).

14 Barnett, W.S. (2008). *Preschool Education and its lasting effects: Research and policy implications*. Boulder, CO: National Education Policy Center, 3. Retrieved October 3, 2012, from http://nepc.colorado.edu/publication/preschool-education;

OECD, 2010 (see note 4).

15 Dryfoos, J. G. (2000). *Evaluation of Community Schools: findings to date* (Carnegie Corporation commissioned study). Retrieved January 5, 2013 from http://www.communityschools.org/assets/1/assetmanager/evaluation%20of%20community%20schools_joy_dryfoos.pdf.

16 Cooper, H., Nye, B., Charlton, K., Lindsay, J., & Greathouse, S. (1996). The effects of summer vacation on achievement test scores: A narrative and meta-analytic review. *Review of Educational Research, 66* (3), 227-268.

17 Evans, W. & Bechtel, D. (1997). Extended School Day/Year Programs: A Research Synthesis (LSS-Ser-212). Philadelphia, PA: Mid-Atlantic Laboratory for Student Success,. Retrieved January 5, 2013, from http://www.eric.ed.gov/PDFS/ED461695.pdf.

18 Odden, A. R., Goetz, M.E. & Picus, L.O. (Summer 2008). Using available evidence to estimate the cost of an educational adequacy. *Education Finance and Policy, 3* (3), 374-397.

19 Villegas, M. (2005). *Full-day kindergarten: Expanding learning opportunities* (policy brief). San Francisco: WestEd. Retrieved January 3, 2013, from http://www.wested.org/online_pubs/po-05-01.pdf;

Odden,A. R., Goetz, M.E. & Picus, L.O. (2008, Summer). Using available evidence to estimate the cost of an educational adequacy. *Education Finance and Policy, 3* (3), 374-397.

20 Finn, J. D. & Achilles, C. (1990, September). Answers and Questions About Class Size: A Statewide Experiment. *American Education Research Journal, 27* (3), 557-577.

Recommended class sizes from the Odden et al are smaller than Wood (in Rolle, p.16). See Odden, Goetz, & Picus, 2008 (see note 7).

See also

R.C. Wood & Associates (n.d.). Improving "adequacy" concepts in education finance: A heueristc examination of the professional judgment research protocol. Retrieved February 5, 2013, from http://woodrolleandassociates.com/pdf/adequacy.pdf.

21 What Works Clearinghouse (2008, August). *Dropout Prevention*. Washington, DC: Institute of Education Sciences, U.S. Department of Education. Retrieved December 1, 2012, from http://ies.ed.gov/ncee/wwc/PracticeGuide.aspx?sid=9.

22 Clotfelter, C.T., Ladd, H. F. & Vigdor, J. L. (2007, December). Teacher credentials and student achievement: Longitudinal analysis with student fixed effects. *Economics of Education Review*. *16* (6), 673-682.

Rice, J. K. (2003). *Teacher Quality: Understanding the Effectiveness of Teacher Attributes*. Washington, DC: Economic Policy Institute.

23 See, for example:

Briggs, D. & Domingue, B. (2011). *Due Diligence and the Evaluation of Teachers: A review of the value-added analysis underlying the effectiveness rankings of Los Angeles Unified School District teachers by the* Los Angeles Times. Boulder, CO: National Education Policy Center. Retrieved January 3, 2013, from http://nepc.colorado.edu/publication/due-diligence;

Corcoran, S. P. (2010). Can teachers be evaluated by their test scores? Should they be? The Use of Value-Added Measures of Teacher effectiveness in policy and practice. Providence, RI: Annenburg Institute for School Reform, Brown University. Retrieved January 3, 2013, from http://annenberginstitute.org/pdf/valueaddedreport.pdf.

The most prominent of the research efforts using test scores to evaluate teachers is the MET project. Their reports can be found at http://www.metproject.org/reports.php.

Reviews of the MET reports can be found at:

Rothstein, J. (2011). *Review of "Learning About Teaching: Initial Findings from the Measures of Effective Teaching Project."* Boulder, CO: National Education Policy Center. Retrieved January 3, 2013, from http://nepc.colorado.edu/thinktank/review-learning-about-teaching;

Guarino, S. & Stacy, B. (2012). *Review of Gathering Feedback for Teaching: Combining High-Quality Observation with Student Surveys and Achievement Gains*. Boulder, CO: National Education Policy Center. Retrieved January 3, 2013, from http://nepc.colorado.edu/thinktank/review-gathering-feedback;

Rothstein, J. & Mathis, W. (2013). Review of "Have We Identified Effective Teachers? Validating Measures of Effective Teaching Using Random Assignment," and "A Composite Estimator of Effective Teaching." Boulder, CO: National Education Policy Center. Retrieved February 5, 2013, from http://nepc.colorado.edu/thinktank/review-MET-final-2013.

24 Mathis, W. J. (2009). After five years: Revisiting the costs of the No Child Left Behind Act. In J.K. Rice and C. Roellke (eds.), *High Stakes Accountability: Implications for Resources and Capacity*. Charlotte, NC: Information Age Publishing.

25 Winer, R. & Pristoop, E. (2006). *How states shortchange the districts that need the most help funding gaps.* Washington, DC: Education Trust. Retrieved January 5, 2013, from http://www.edtrust.org/sites/edtrust.org/files/publications/files/FundingGap2006.pdf.

26 See also Rolle, 2008 (see note 7).

Just as importantly, many popular policies and reforms cannot be on such lists, because research has shown them to be ineffective or harmful. These include mandatory grade retention, test-based accountability reforms, ability grouping, and increased school choice.

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