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- Reber, Sarah. 2010. “Desegregation and Educational Attainment for Blacks.” *Journal of Human Resources* 45 (4): 893–914.
- Rockoff, Jonah. 2004. “The Impact of Individual Teachers on Student Achievement: Evidence from Panel Data.” *American Economic Review* 94 (2): 247–52.
- Roza, Marguerite. 2010. *Educational Economics: Where Do School Funds Go?* Washington, DC: Urban Institute Press.
- Roza, Marguerite, Kacey Guin, and Tricia Davis. 2008. “What Is the Sum of the Parts? How Federal, State, and District Funding Streams Confound Efforts to Address Different Student Types.” Center on Reinventing Public Education, University of Washington.
- Ruggles, Steven, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. 2010. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota.
- Swanson, Christopher B. 2004. “High School Graduation, Completion, and Drop-out (GCD) Indicators A Primer and Catalog.” Washington, DC: Urban Institute.
- Vigdor, Jacob L., and Jens O. Ludwig. 2008. “Segregation and the Black-White Test Score Gap.” In *Steady Gains and Stalled Progress: Inequality and the Black-White Test Score Gap*, edited by K. Magnuson and J. Waldfogel. New York: Russell Sage Foundation Press.
- Watson, Tara. 2009. “Inequality and the Measurement of Residential Segregation by Income.” *Review of Income and Wealth* 55:820–44.

## Comment Sarah J. Reber

Goldin and Katz (2008) document impressive increases in the accumulation of human capital in the form of a dramatic rise in high school graduation rates during the first half of the twentieth century. They tie these changes to an important policy development; namely, the American high school movement. The chapter by Nora Gordon documents how trends in high school completion have changed since then and then discusses what might explain those trends. Gordon focuses on high school completion, but it is worth noting that this story is not specific to that outcome. More than just documenting trends in high school graduation, she is asking why progress stalled after the high school movement ran its course.

Consistent with other related work, Gordon shows that high school graduation rates peaked in the late 1960s and declined since then. There has been an uptick recently, but in any case the trend since 1970 is at best flat. The lack of improvement in high school graduation rates occurred despite well-documented increases in the return to education as well as a num-

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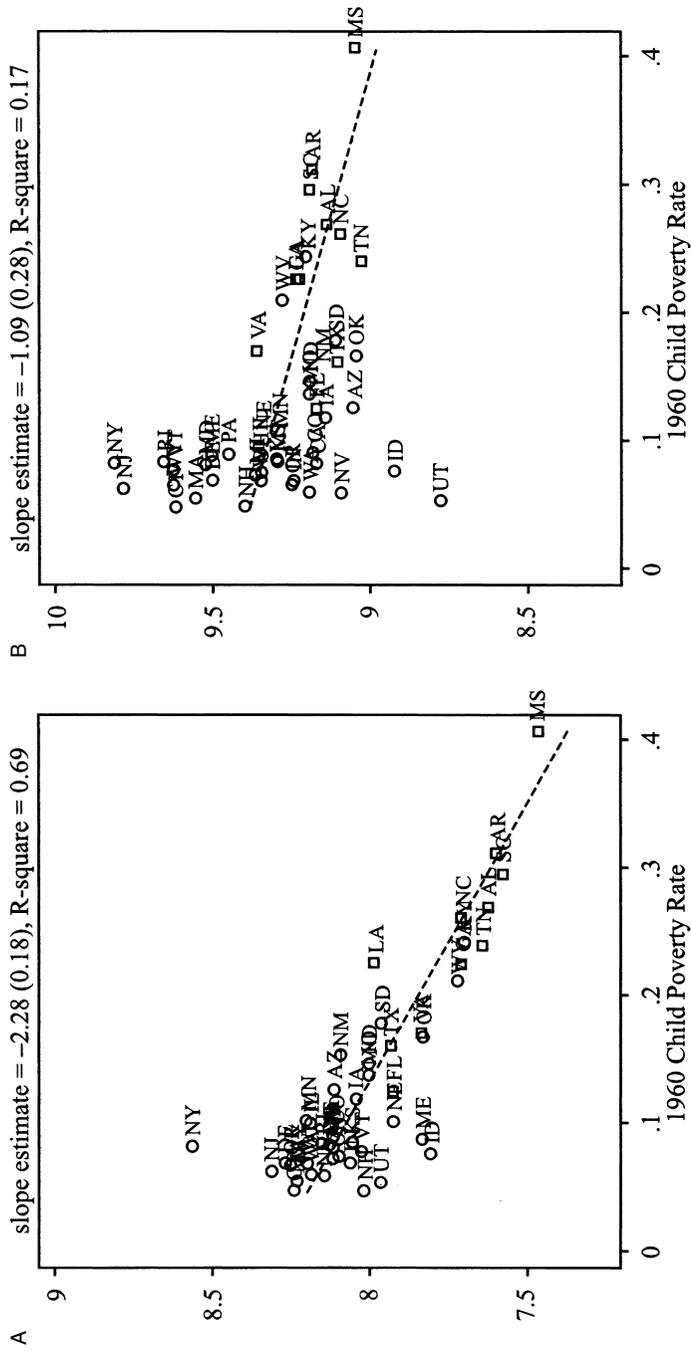
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ber of policy developments intended to improve educational outcomes in general and high school graduation in particular. This raises the question of what happened—and the chapter does a nice job of outlining the potential explanations and the evidence on each. In the end, however, none of those explanations go terribly far, and it is not really clear what the explanation is. This is, of course, not the fault of the author—it reflects the state of the literature. That raises the question of what academics and policymakers can do: what kind of research should we do and what policies should we pursue. I will focus my comments in this regard on school finance, though I note that the chapter covers much more territory.

I begin with the key empirical results presented by Gordon, which examine the relationship between inequality and school spending at the state level. Goldin and Katz show that income inequality was an impediment to the establishment of high schools, presumably because more heterogeneous communities had difficulty coming together to support public goods provision. In the same vein, one might worry that the recent rise in income inequality would undermine financial support for schools. Some recent papers suggest that this has not been the case at the level of the school district; if anything, increases in inequality are associated with small increases in school spending or simply a shift from state to local sources of revenue (Boustan et al. 2013; Corcoran and Evans 2010).

The existing literature focuses on revenue and spending at the level of local school districts. Gordon makes an important contribution to this discussion by looking at these relationships at the state level and examining the relationship between inequality and high school completion. This is an important contribution because state governments also make decisions that affect the level of school spending—and those decisions could be affected by inequality at the state level. Figure 2C.1 (adapted from Cascio and Reber [2013]) illustrates the substantial variation in average spending across states and how it relates to poverty over time. Panel A plots the relationship between the natural log of current expenditure per pupil in the 1963/64 school year against the 1960 child poverty rate at the state level; panel B shows the same relationship for the 2006/7 school year.<sup>1</sup> The variation in spending across states (the y-axis variation) is substantial and similar over time. In 1963, state-level poverty is highly negatively predictive of state-level school spending, with an *R*-squared of 0.69. The slope in panel A is  $-2.28$ , implying that a 10 percentage point increase in the state poverty rate was associated with a 23 log point reduction in average per-pupil spending. By 2006, the

1. Both panels use the 1960 child poverty rate calculated based on the number of students eligible for Title I on the horizontal axis. The key findings are quite similar if instead we use the contemporaneous poverty rate for panel B. That is, the declining explanatory power of the poverty rate over time is *not* due primarily to measurement error associated with using the 1960 child poverty rate in later years; this is because state-level poverty rates are highly correlated over time. See Cascio and Reber (2013) for details on the data used to make this figure.



**Fig. 2C.1** School spending and poverty: *A*, 1963–1964 school year; *B*, 2006–2007 school year  
*Source:* Cascio and Reber (2013).

$R$ -squared was only 0.17, and the relationship between poverty and spending was less than half as steep—the slope in panel B is  $-1.09$ . The high-poverty states remain clustered closely around the regression line, but it is interesting to note that significant variation in spending among low-poverty states emerged. Cascio and Reber show that in later years, average income in the state is more predictive of school spending than poverty, but both income and poverty have become less predictive over time. States appear to be taking different approaches to school finance in a way that is less related to poverty and income than in the past.

Average school spending has increased dramatically and become less related to poverty over the last half century. At the same time, state governments have contributed a large share of the average dollar. Although it is important to consider the source of the *marginal* dollar—which does not follow directly from the state share of spending and may vary over time depending on the details of the state school finance regime and other factors—all of this suggests that states are an important player in school funding. We cannot necessarily extrapolate from the results of district-level analyses to predict how inequality might affect state governments' decisions since the tax bases, voting patterns, and political economy of school finance likely differ at different levels of government.

The new empirical findings presented in this chapter, together with the existing literature, suggest that inequality has probably not reduced education spending on average. Maintaining a similar level of spending may be insufficient if inequality increases social problems, in which case more money may be required to provide the same quality of education. But the lack of a decline in school funding suggests that the rise in inequality has not undermined support for school finance. The chapter also makes the very important point that, because of data constraints, virtually all of the research examines spending at the school district level. But there is significant heterogeneity of student characteristics across schools within districts (not to mention across classrooms within schools). We know little about how resources are distributed within districts and by extension how the rise in inequality and the policy changes outlined in the chapter have affected the resources to which students at the bottom of the income distribution have access. This is an important area for future research (and data collection).

So, in the last forty years or so, real per-pupil spending has nearly tripled, variation in spending across states was substantial and stable, but less related to poverty and income over time. Although we have little to no data on how resources are allocated within districts, the school finance equalization literature suggests that funding has become more equal and progressive across districts within states (Murray, Evans, and Schwab 1998; Hoxby 2001; Card and Payne 2002). Rising income inequality does not appear to be undermining school funding. Yet trends in educational outcomes—particularly the trends in high school graduation rates documented here—have not been favorable.

What should we make of this? One cannot help but ask if at least some of the new spending on K–12 education has been inefficient. Of course, we do not know what the counterfactual trend in high school graduation rates would have been, and there are offsetting trends: higher prices for skilled teachers as alternative labor market opportunities have opened up for high-ability women, and more children entering school at a disadvantage as the prevalence of single-parent, immigrant, and other socioeconomically disadvantaged families has grown. Schools may also be doing more than they used to, particularly with respect to special education, suggesting we need to consider a broad notion of what we mean by “educational output.” Although test scores and high school graduation do not capture all of the relevant outputs, I believe that most people would consider high school graduates who are ready to attend college or participate meaningfully in the labor market to be one of the key outputs the K–12 system should be producing. And, despite the fact that the research base may not cover all the ground we would like, the evidence reviewed in this chapter, and the sheer magnitude of the increase in funding, suggest that demographic changes and other negative trends are unlikely to account for the apparent lack of output for all the new input.<sup>2</sup>

One possibility is that we have reached the “flat part” of the education production function—that is, spending has increased so much that we do not get much for our marginal dollar. That is certainly a possibility, but the literature discussed in the chapter showing well-identified positive effects of particular inputs—particularly the evidence on the effects of teacher quality in a variety of settings—suggests that money well spent could improve outcomes considerably. Taking this evidence together, it appears that we are not simply at the flat of the curve; we are off the efficient frontier. That is, the United States is not getting as much as we could from our education expenditures. It would be reassuring, particularly in the current fiscal environment, if this implied that cutting funding would not reduce outcomes. This is not the case, however, because there is no guarantee that cuts will be applied only to inefficient spending. In fact, we have pretty good evidence that, at least on average, very senior teachers are not that cost effective, since the return to experience flattens out after the first several years (or at most a decade), but pay does not. Similarly, research (not to mention common sense) suggests that the length of the school day and the length of the school year affect outcomes. Yet in response to recent cutbacks, teachers have been relieved of duty based on seniority rather than quality, and school years have been shortened. By a similar logic, increasing spending might not help, at

2. Although most of the vast literature looking at the relationship between school funding and educational outcomes (the “does money matter” literature) does not find a positive correlation, most of these studies are not well identified. A few better-identified studies have found evidence that money matters, but these have typically been in contexts where the marginal dollar goes to a poor, underfunded district (Guryan 2004; Reber 2010; Cascio, Gordon, and Reber 2013).

least not as much as it could, because there is no guarantee that new spending will be allocated to the most efficient uses.

The chapter and this discussion point to some potentially fruitful directions for policy and research on school finance. First, it suggests the potential value of shifting from a focus on equity of finance *across school districts* toward improving productive efficiency *everywhere*. This is not to say that the goal of reducing educational inequality, and especially increasing quality for those at the bottom, has become less important. To the contrary, it is arguably more important than ever in light of increasing returns to education and rising income inequality. But recent trends in spending are not sustainable, particularly in the current fiscal environment. And although there is still substantial inequality in funding, the system has become much more progressive in the last half century. It is also possible that poorer children could benefit more from policies that focus on how to get the highest return for each dollar spent on education, as their schools and districts are likely the most constrained in how they use funds and bear the brunt of, for example, inefficient human resources policies, such as last-in, first-out layoff rules.

Second, the chapter highlights the role of fiscal accountability and the distribution of resources (especially teachers) *across schools*. The chapter points to the many things we do not know about how resources are allocated, especially at the subdistrict level. It may not always be obvious how to spend money efficiently and fairly, but understanding how money is currently spent and distributed would provide a good starting place for these discussions. Better accounting of inequalities in the allocation of spending across schools will almost certainly reveal that the overrepresentation of young, less-expensive teachers in poor schools means that the poorest children receive the fewest resources within districts. We may not have policies at the ready to remedy this, but better data could do as much to shine a light on the issue as student testing has revealed persistent racial and socioeconomic gaps in achievement.

The chapter also points to important directions for future research. Yes, researchers should continue to try to understand better the education production function by looking for settings where we can identify whether (or under what conditions) money matters and how particular inputs do or do not affect outcomes. But if we are off the efficient frontier, it is probably because of “institutions,” broadly construed—governance, unions, regulations, norms, the dissemination of information. Research on the political economy of the allocation of educational resources and educational institutions is likely to be informative for policy.

The federal government might play an important role in enhancing productive efficiency by improving educational institutions—and one could argue this is already happening. Historically, conditional federal grants have been quite effective at changing entrenched state and local policies in education and other domains. The threat of withdrawal of federal funds prompted

recalcitrant southern districts to take their first steps toward desegregation (Cascio et al. 2010) and southern hospitals to open their doors to African Americans. The carrot of federal funding has convinced states to adopt accountability regimes under No Child Left Behind, reduce their speed limits, and increase their drinking ages. Most recently, many states (and some districts) have changed long-standing policies governing teacher evaluation and tenure as well as data use to compete for Race to the Top funds with no assurance of success at funding. This suggests that when a policy and research consensus forms around a particular idea, but state or local politics make it difficult to implement, tying federal dollars to the implementation of that idea is well worth considering.

To conclude, Gordon's chapter provides an excellent guide to researchers, policymakers, and students of education seeking a better understanding of how policies for primary and secondary education have evolved over the last half century.

## References

- Boustan, Leah, Fernando Ferreira, Hernan Winkler, and Eric Zolt. 2013. "The Effect of Rising Income Inequality on Taxation and Public Expenditures: Evidence from US Municipalities and School Districts, 1970–2000." *Review of Economics and Statistics* 95 (4): 1291–1302.
- Card, David, and A. Abigail Payne. 2002. "School Finance Reform, the Distribution of School Spending, and the Distribution of SAT Scores." *Journal of Public Economics* 83:49–82.
- Cascio, Elizabeth, Nora Gordon, Ethan Lewis, and Sarah Reber. 2010. "Paying for Progress: Conditional Grants and the Desegregation of Southern Public Schools." *Quarterly Journal of Economics* 125:445–82.
- Cascio, Elizabeth, Nora Gordon, and Sarah Reber. 2013. "Local Responses to Federal Grants: Evidence from the Introduction of Title I in the South." *American Economic Journal: Economic Policy* 5 (3): 126–59.
- Cascio, Elizabeth, and Sarah Reber. 2013. "The Poverty Gap in School Spending Following the Introduction of Title I." *American Economic Review* 103:423–7.
- Corcoran, Sean, and William N. Evans. 2010. "Income Inequality, the Median Voter, and the Support for Public Education." NBER Working Paper no. 16097, Cambridge, MA.
- Goldin, Claudia, and Lawrence F. Katz. 2008. *The Race between Education and Technology*. Cambridge, MA: Harvard University Press.
- Guryan, Jonathan. 2004. "Desegregation and Black Dropout Rates." *American Economic Review* 94:919–43.
- Hoxby, Caroline M. 2001. "All School Finance Equalizations Are Not Created Equal." *Quarterly Journal of Economics* 116:1189–231.
- Murray, Sheila E., William N. Evans, and Robert M. Schwab. 1998. "Education-Finance Reform and the Distribution of Education Resources." *American Economic Review* 88:789–812.
- Reber, Sarah. 2010. "Desegregation and Educational Attainment for Blacks." *Journal of Human Resources* 45:893–914.