

This paper was published as:

Julian R. Betts and Y. Emily Tang, (2008), “Charter Schools and Student Achievement: A Review of the Evidence”, in Robin J. Lake, (Ed.), **Hopes, Fears and Reality: A Balanced Look at Charter Schools in 2008**, Bothell, WA: National Charter School Research Project, Center on Reinventing Public Education, pp. 1-8, available at www.ncsrp.org.

Charter Schools and Achievement

Julian R. Betts and Y. Emily Tang

Policy makers, funders, and the general public want to know how U.S. charter schools are performing nationally. It's a perfectly reasonable question. In a detailed paper prepared for the National Charter School Research Project, we assessed the literature on charter schools to examine achievement in charter schools. This essay summarizes our findings.

Many researchers have tried to answer the broad question about charter schools and achievement through a variety of approaches. Studies have generally suggested that charter schools perform about the same as other public schools or that the results are "mixed", with some charter performing better than traditional public schools, and some performing worse. These kinds of findings might leave policy makers wondering why they should expend political capital to pass a charter law for the first time, expand a state cap on charters, or invest more money to support the growth of charters. They might ask themselves, if charter school policies do not contribute to overall better student achievement or at least help close the achievement gap, why bother?

But it is premature for policy makers to believe that charter schools are weak or ineffective. In fact, based on our analysis, there is reason for guarded optimism that, despite great variation in results, charter laws might be effective policy tools, at least in some locales.

Past charter research tells us little

The volume of research on charter schools and achievement has mushroomed in the last half decade. However, most of these studies have used relatively unsophisticated "snapshots" of student achievement at a single point in time. Such methods can be misleading because charter schools do not attract "typical" students, and the demographic background of schools' populations can fluctuate from year to year. A number of studies, both national and statewide, suggest that charter schools disproportionately attract students from less affluent and minority backgrounds. Without taking these differences into account, academic studies may be prone to understating the benefits of attending charter schools. A second common research design is to look at changes in test scores in a given grade over time without accounting for the fact that a school enrolls different students in that grade in different school years. Here too, results could be misleading.

NCSR's Charter School Achievement Consensus Panel (2006) documented these patterns, and argued that these "snapshot" approaches are unlikely to produce unbiased estimates of the causal effect of attending a charter school on a student's achievement. The panel argued that two different approaches promised to provide more accurate results. The first would be to compare those who win and those who lose lotteries to attend a given charter school. Only three papers have used this approach to

date, and the total number of charter schools studied in these three papers numbers just under fifty. The next best approach, argued the Consensus Panel, would be to use one of several variations of value-added models. These models (admittedly imperfect) follow individual students over time and examine improvement in test scores over time. This approach is helpful because it takes into account a student's past academic history. The more rigorous of these methods also avoid comparing apples to oranges in the sense that they do not compare one student to another, instead comparing each student's progress in years he or she attended a charter with progress when he or she attended a traditional public school.

We found ten such studies, for a total of 13 studies that used either of these methods. This compares to a total of over 70 studies on charters and achievement, including those using methods found problematic by the Charter School Achievement Consensus Panel. Some readers may find that disappointing, but there is strong evidence that weaker methods of study produce inaccurate findings by failing to take into account the relatively disadvantaged backgrounds of students who attend charters. (Betts, Tang and Zau (2007)).

When restricting a review of charter school achievement studies to these two approaches, it must be acknowledged that even when rigorous studies are analyzed, it is hard to claim that they represent all charter schools. Most include just a sample of charter schools from a particular city or state — or perhaps across a few states. Because different states have vastly different charter school laws and methods of implementation and oversight, findings from one city or state do not necessarily tell us anything meaningful about what is going on elsewhere.

Our approach

With that caveat in mind, we explored both approaches – randomization based on lotteries, or taking into account a student's past achievement through value-added modeling or modeling gains in achievement from one year to the next.

We used a variety of methods to assess whether charter schools do or do not outperform their traditional public school counterparts. For a complete description of the methods used and results, see the complete paper, *Value Added and Experimental Studies of the Effect of Charter Schools on Student Achievement: A Literature Review*. (www.crpe.org).

Asking the question “What does the typical study show?” in some cases produces quite different answers than if the question is: “How does a typical charter school fare?” We think the latter question holds far more relevance for policymakers. Our analysis therefore, was designed mainly to produce estimates of how typical charter schools perform in various studies rather than to report on whether the average study produces positive or negative results.

Findings

The review indicates that it is wrong to say that charter school performance is simply “mixed” or on par with traditional public schools. When we look only at the studies using methods powerful enough to give valid results and try to reconcile differences in approach (years of data and the like) we learn that:

- Despite considerable variation among charter schools, the overall evidence suggests that charter schools more typically outperform than underperform their traditional public school counterparts.
- There is ample evidence that charter schools in some geographic areas outperform traditional public schools. There is also considerable evidence (somewhat less prevalent) that charter schools in other areas underperform. The variation is closely associated with school location, grade level served, and subject matter.
- Charter schools often outperform traditional public schools on reading tests in elementary schools and on math tests in middle schools. In no study in this sample do charter schools seem to underperform in those areas in a statistically significant way.
- Elementary and K-8 charters, taken together, typically outpace traditional public schools. Some studies do produce evidence of large negative effects. This is most notable in North Carolina, in both reading and math. However, between one half to two thirds of the studies reviewed (depending on the analytic method used) show positive and statistically significant effects of charter school enrollment on math and reading test scores.
- The magnitude, or effect size, of the results for the elementary and K-8 charter schools is sizable, approximately 8% of a standard deviation for one-year gains in both math and reading. (To put this into perspective, a student with median test scores -- ranking 50th out of 100 students – would be predicted to move up to about the 47th rank out of 100 students after one year at a charter school. This is not a large change but over several years of such gains, it could be quite meaningful.) . For comparison purposes, Clotfelter, Ladd and Vigdor (2007) estimate that in North Carolina reducing class size by 5 students is associated with gains in achievement of 1.0% -1.5% of a standard deviation.
- Weaker or more ‘mixed’ performance exists in elementary math, middle school reading, and in charter high schools overall. For example, when weighted by the number of schools per study, studies of charter high schools produce significantly positive or negative results (12% positive and 85% negative). Overall the size of the estimated effects at the middle and high school level are far smaller, with effect sizes of less than 1% of a

standard deviation at the middle school levels. And at the high school level, the median effect sizes are negative and fairly large (roughly -0.15 to -0.2 for the average charter high school).

- The only evidence of consistent underperformance is in charter high school reading and math scores. These negative math effects are puzzling because the math effects in middle school charters are significant and rarely negative. The high school findings are hard to explain and, obviously, a source of concern.

These results, then, show great variety in charter school performance, but some positive outcomes in elementary and K-8 schools and middle schools. Figures 1 and 2 show histograms of the effect sizes found in the literature (in which we give greater weight to a study based on 200 charter schools than to a study based on 10 charter schools). The first figure shows the positive effects in elementary reading, while the second shows the negative effects in high school math.

On the other hand, some approaches are clearly working and they are worth exploring. Over one-third of the studies reviewed show significant and positive effects across all grade levels. The programs providing these results are getting good results and they are worth paying attention to and replicating. Such promising efforts are important for another reason as well: they point to areas where states or authorizers can ask charter schools to improve and where they can make strategic investments to help.

While these results are intriguing and carry with them potentially important implications, the literature needs to be treated with some caution. Researchers have conducted rigorous value-added or lottery-based studies of charter schools in only a very few states and major cities to date. Even among the relatively rigorous studies examined here, the quality of the data and analysis vary. The findings reported here should be considered preliminary and suggestive, a launching point for further investigation rather than a confirmation or nullification of the value of charter school policies.

Implications:

The mission of charter schools is to use their autonomy to develop distinct strategies for improving curricula and teaching methods. The finding of considerable heterogeneity among charter schools probably reflects this spirit of experimentation. In the long run, the variation we see in charter school achievement may shrink or grow.

Over time, it is possible that the number of weaker charter schools will diminish or close due to market forces, while the number of stronger charters expands. Hanushek, Kain, Rivkin and Branch (2007) provide evidence from Texas that parents are more likely to pull their children out of ineffective than effective charter schools, i.e., out of charter schools that boost students' test scores by less than average. This is just one state, but the finding suggests that in the long run, heterogeneity in quality could lead to uniformly higher school quality in the charter sector.

Of course, it is probably not enough for parents to be more likely to remove transfer their children out of low-performing than high-performing charter schools. We would also hope that charter schools that fail to boost student achievement eventually lose their charters, while charter schools that outperform not only have their charters renewed but are allowed to extend to new campuses. There is very limited evidence that closure rates have increased over the last few years and some evidence that some authorizers are becoming more selective in choosing qualified applicants (see, for example, Andrew Rotherham, “Smart Charter School Caps,” in *Hopes, Fears and Reality*, 2007).). If these to trends hold, they too would lead to more consistent charter school quality.

Armed with more information that shows where their own charter schools are strong or weak academically (and which states are producing successful outcomes), policy makers could go one step further. They could decide to improve state laws and support structures to attract higher quality charter operators and place pressure on authorizers to close low-performing charter schools. Philanthropic and government agencies should support more widespread and high-quality studies to make that possible.

While we wait for that day to come, it is extraordinarily important for charter school authorizers to base their chartering decisions not on superficial and often misleading comparisons of test score levels between charters and traditional schools, but instead on sound analysis that compares individual student gains in achievement.

Figure 1 Distribution of Effect Sizes for Elementary Reading Studies, Weighting Each Estimate by the Number of Charter Schools

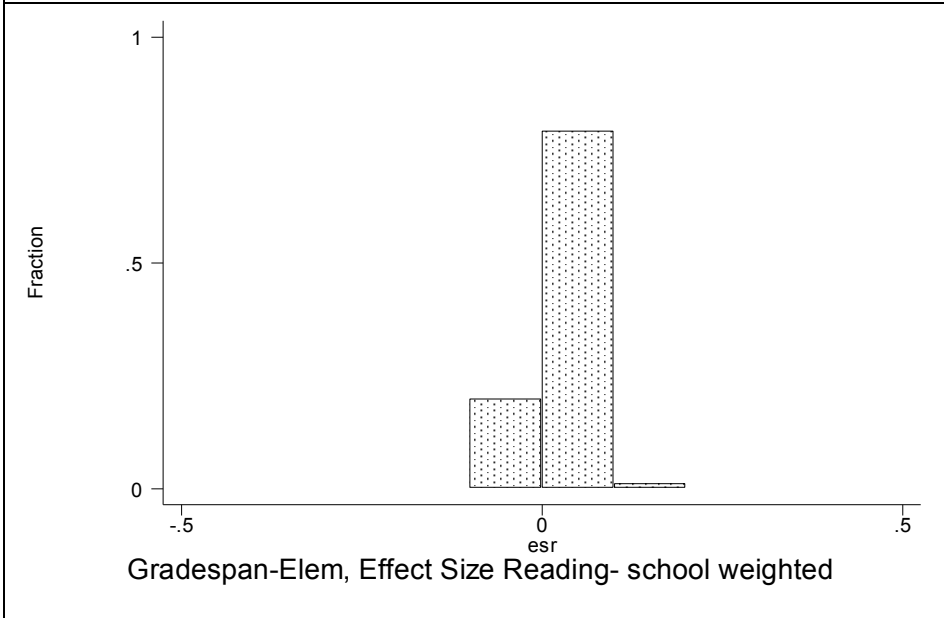
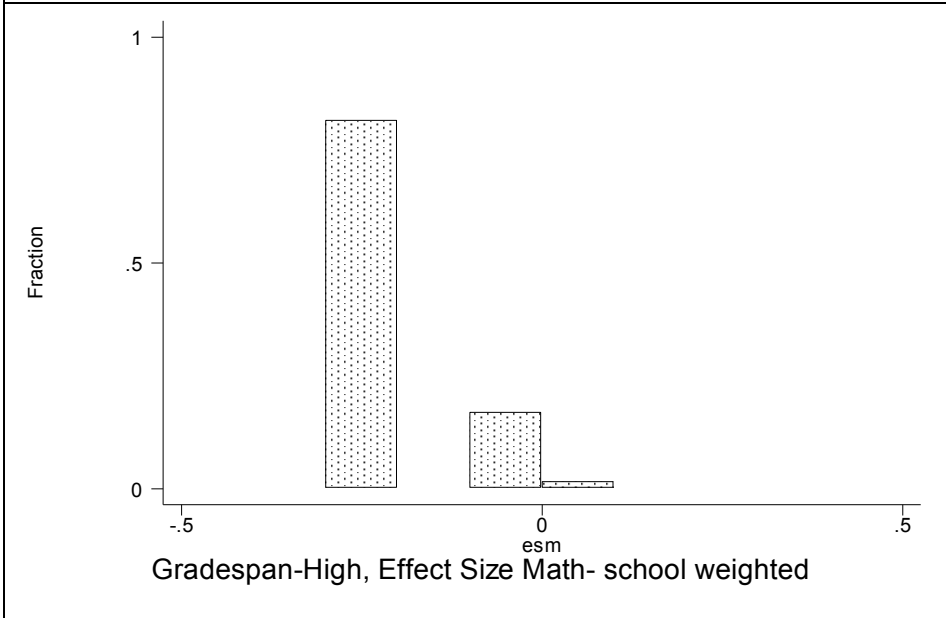


Figure 2 Distribution of Effect Sizes for All High School Math Studies, Weighting Each Estimate by the Number of Charter Schools



References

Betts, Julian R., Y. Emily Tang, and Andrew C. Zau. 2007. "Madness in the Method? A Critical Analysis of Popular Methods of Estimating the Effect of Charter Schools on Student Achievement." University of California, San Diego.

Charter School Achievement Consensus Panel. 2006. **Key Issues in Studying Charter Schools and Achievement: A Review and Suggestions for National Guidelines**, National Charter School Research Project White Paper Series, No. 2 (Seattle: Center on Reinventing Public Education).

Clotfelter, Charles T., Helen F. Ladd and Jacob L. Vigdor. 2007. "How and Why Do Teacher Credentials Matter for Student Achievement?" National Bureau of Economic Research Working Paper 12828, <http://www.nber.org/papers/w12828>.

Hanushek, Eric A., John F. Kain, Steven G. Rivkin, and Gregory F. Branch. 2007. "Charter School Quality and Parental Decision Making with School Choice." *Journal of Public Economics*, Vol. 91, 823-848.

Rotherham, Andrew. 2007. "Smart Charter School Caps: A Third Way on Charter School Growth." in Robin Lake (Ed.) *Hopes, Fears and Reality, A Balanced Look at Charter Schools in 2007*, Seattle, WA: National Charter School Research Project, University of Washington.