Noise or News?
Learning About the Content of Test-Based School Achievement Measures

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Abstract

Growing evidence suggests that test-based school achievement measures play an important role in the education market, particularly in shaping education policy and affecting school choice decisions. Friesen, Javdani and Woodcock (2008) find that public releases of school-level test results had a substantial effect on the interschool mobility of Grade 4 students attending public schools in B.C’s Lower Mainland. These decisions are costly and they can have real consequences for educational outcomes. However, we don’t know much about the content of these measures and the extent to which they are meaningful in signaling long-term differences between schools. If most of the year-to-year variation in school-average achievement is due to transitory factors, then basing school choice decisions on this information could come at a net cost to parents.

There are two sources of transitory variation in school-average test scores. The first is sampling variation: the variation in a school’s test score arising from random year-to-year variation in the composition of the student body. The second is transitory factors that generate non-persistent differences in schools’ mean test scores; for example: a school-wide illness at the time of the exam, special chemistry between a teacher and a cohort of students, inclement weather, etc.
This paper measures these two sources of variation to better understand the nature of year-to-year variation in school-average test scores. This sheds light on the information content of test-based school achievement measures and how they can be appropriately and meaningfully used. The data are from a 1999-2006 panel of public and private schools in British Columbia, Canada and include grade 4 and Grade 7 individual-level Foundations Skills Assessment test scores. The results suggest that sampling variation and one-time mean reverting shocks play a significant role in cross-sectional variation in schools’ mean test scores. These results warn educational authorities against implementing naïve policies or interventions that attach monetary/nonmonetary rewards or sanctions to schools based on school-average test scores, and highlight the importance of designing meaningful measures of long-term school performance.