



Does the market value value-added? Evidence from housing prices after a public release of school and teacher value-added[☆]



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ABSTRACT

Value-added data have become an increasingly common evaluation tool for schools and teachers. Many school districts have begun to adopt these methods and have released results publicly. In this paper, we use the unique public release of value-added data in Los Angeles to identify how this measure of school quality is capitalized into housing prices. Via difference-in-differences, we find no evidence of a response to either school or teacher value-added rank, even though school-zone boundary fixed-effects estimates indicate that test score levels are capitalized into home prices. Given ample evidence that this information was new to residents, widely dispersed, and easily available, our results suggest that people did not significantly value it on the margin. This has implications for the effectiveness of providing value-added information as a tool to help parents choose schools.

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1. Introduction

Much prior research has been devoted to estimating the extent to which parents value the quality of their local schools. Typically, the economics literature on school valuation uses the capitalization of school quality measures into home prices to estimate the value local residents place on school quality. The majority of school quality valuation studies use test score levels as their measure of quality. Employing regression discontinuity methods at school attendance zone boundaries, these studies tend to find that a one standard deviation difference in test scores is associated with 2–5%

higher property values (e.g., Bayer et al., 2007; Kane et al., 2006; Black, 1999).¹ Cross-school variation in test score levels is driven by differences in the academic aptitude of the student body as well as the ability of each school to produce student learning outcomes. Hence, it is not possible to separate out parent valuation of high-achieving peers from parental valuation of the school's ability to teach students using these methods.

A few prior studies have attempted to overcome this problem by examining capitalization or revealed preferences of parents based on “value-added” measures that seek to isolate the causal effect of schools on student learning. The majority find no effect (e.g., Hastings et al., 2010; Brasington and Haurin, 2006; Dills, 2004; Downes and Zabel, 2002; Brasington, 1999), while Gibbons et al. (2013) and Yinger (2014) show evidence that test score levels and value-added are similarly valued. A central limitation to these studies is that the value-added data are calculated by the researchers and likely are not known to parents. However, in recent years, the push to expand test-based accountability has led to a marked rise in the use and public release of school value-added estimates. This has been done in large school districts in Los Angeles, Houston, and New York City, amongst others. The fact that these data are increasingly prevalent and that controversy

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¹ See Black and Machin (2011) and Nguyen-Hoang and Yinger (2011) for comprehensive reviews of this literature.

typically surrounds their release underscores the importance of understanding how and whether parents value this information when it is provided to them in a simplified manner.

In this paper, we provide what is to our knowledge the first evidence on how housing markets respond to the public release of school and teacher value-added information. To do this, we exploit a highly publicized, salient, and accessible data release in Los Angeles in 2010. The information experiment that forms the basis for our study began in August 2010, when the *Los Angeles Times* newspaper (LAT) published average value-added estimates for each elementary school (470 in total) as well as individual value-added estimates for 6000 third through fifth grade teachers in the Los Angeles Unified School District (LAUSD). We show that this value-added information was not predictable from existing information, nor was it previously capitalized into home prices, suggesting that this was indeed new information for local residents. The main focus of our analysis is on the short-run effect of this information on property values, because in April 2011 LAUSD released its own value-added information and in May 2011 the LA Times updated their value-added data to include more teachers. Prior work has shown that home price responses to school quality information shocks occur quickly (Figlio and Lucas, 2004; Fiva and Kirkebøen, 2011). This supports our focus on the seven-month time period following the first value-added release that was free from influence from other value-added information. Nonetheless, we also examine longer-run impacts (up to 13 months) after the initial release, taking into account value-added rankings from all three releases to ensure that our results are not simply due to the short time horizon.

Using home sales data we obtained from the Los Angeles County Assessor's Office (LCAO) from April 2009 through September 2011, we first show that test score levels are capitalized at a rate similar to that found in the prior literature using school-zone boundary discontinuity methods. We then estimate difference-in-differences models that identify how home prices change after the release of value-added data as a function of the value-added scores. Despite the strong valuation of test score levels and the fact that value-added rank largely was not predictable from observable school characteristics prior to the release, we find no evidence that school or teacher value-added information affects property values. Our estimates are precise enough to rule out that learning one's school is 10 percentiles higher in the value-added distribution increases property values by more than 0.2%. This estimate indicates that a one standard deviation increase in value-added (corresponding to about 35 percentiles in rank at the median) would increase home prices by at most 0.7%, which is well below the capitalization estimates of test scores levels in prior studies (Black and Machin, 2011).² We also show that the size of the information shock relative to existing information did not affect property values.

Our empirical approach closely follows that of Figlio and Lucas (2004), who study the release of "school report card" information in Florida as well that of Fiva and Kirkebøen (2011), who examine the release of school ranking information in Oslo, Norway. Both of these papers find that the new information on school quality had a large effect on property values but that the capitalization effect dissipated within a year. Relative to this prior research, we make several contributions to the literature. First, our study examines the effect of value-added measures of school quality that can more credibly isolate the contribution of each school to student learning. The school report cards studied by Figlio and Lucas (2004) are based on test score levels and pass rates, which can differ sub-

stantially from value-added as they are much more strongly correlated with school and neighborhood composition than with value-added. The information examined by Fiva and Kirkebøen (2011) was based on student grade point averages (GPAs) that were adjusted for student background characteristics. These estimates are closer to value-added measures than are the school report cards in Figlio and Lucas (2004), but the lack of lagged GPA controls makes it likely this information remains correlated with underlying student quality differences across schools.³

Second, the estimates in Fiva and Kirkebøen (2011) are difficult to generalize to the US context because of underlying differences in housing markets between Oslo and Los Angeles as well as the fact that the 48 schools they study are, on average, high performing relative to the rest of the country. The Los Angeles schools serve a much more diverse set of students and include many low-performing schools in terms of test score levels. As we show below, many of these low-test-score schools are actually calculated to be high value-added schools, which allows us to disentangle parental valuation of test score levels from value-added in a setting with a wide variance across schools in both measures.

Third, this paper is the first in the literature to examine how parents value direct measures of teacher quality. Prior work has focused solely on school quality valuation, but the importance of teachers has been overlooked. Because the LA Times released teacher value-added measures as well as school measures, we can estimate how home prices respond to teacher quality, *per se*. The LA Times teacher value-added model used in our context has been shown to exhibit little bias (Guarino et al., 2015; Chetty et al., 2014a; Kane et al., 2013; Kane and Staiger, 2008) and appears to be a good measure of a teacher's contribution to long-run student outcomes, such as earnings and college-going (Chetty et al., 2014b). That this value-added information is a strong measure of school and teacher quality does not mean parents valued it as such, however; this study is the first to be able to examine this question directly.⁴

Overall, our results indicate that releasing straightforward value-added rankings to the public does not affect property values, which suggests that homeowners do not value the information as currently constructed on the margin. The lack of responsiveness to this information either could be driven by parents placing little value on the ability of schools and teachers to increase test scores or by parents and homeowners ignoring value-added information because its release was highly contentious and the measures are derived from a complicated statistical model that is opaque to non-experts. Ultimately, we are unable to disentangle these two hypotheses. We argue the preponderance of the evidence is consistent with the former mechanism, however, because the information was presented in a simple-to-understand manner by a highly-respected and impartial newspaper, the release was highly publicized and salient, and there was no response to the release of a separate value-added measure by LAUSD which parents may have trusted more because it came directly from the schools. Indeed, this finding is consistent with the fact that boundary-discontinuity estimates of school quality are reduced significantly once neighborhood characteristics are controlled for (Bayer et al., 2007; Kane et al., 2006) as well as the fact that most prior research has not found an effect of researcher-calculated value-added on property values. Rothstein (2006) also provides

² Our results also are consistent with evidence from Chile that signals of school quality beyond test scores do not affect enrollment patterns (Mizala and Urquiola, 2013).

³ We also highlight that our approach differs from those who have used researcher-calculated value-added (e.g., Downes and Zabel, 2002) due to the fact that in our setup parents actually observe value-added.

⁴ Jacob and Lefgren (2007) show that *within* schools, parents have a revealed preference for teachers that are better at raising student test scores. But, parent information on teacher quality in that study does not come from value-added measures.

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