

Reading Notes

"Do Better Schools Matter? Parental Valuation of Elementary Education"

Through the history, many groups of people such as economists and policymakers have tried to link the relation between school quality and elements like test scores and earnings. However, such direct attempt did not provide a clear conclusion in the previous literature. Instead, scholars perform studies on school quality and the value of houses which parents are willing to pay. One potential issue for this kind of study is that better schools have a preference locating in better neighborhoods so that the effect of school quality on the price of houses may be overestimated without completely controlling for neighborhood characteristics.

The author in this paper provides a novel idea of using the sample of houses located near the opposite sides of attendance district boundaries, which is used to assign children into different schools within one school district. These attendance district boundaries help the author focus on houses closed to each other geographically but children living in these houses attending different schools. In this way, neighborhood characteristics can be controlled. In addition, the author restricts the sample within Massachusetts so that characteristics which are different in district or city level can be controlled.

As a main result, the author finds that a test score increase about 5 percent can significantly lead parents' willingness to pay 2.1 percent more on houses. This number is about the half comparing to the estimation generated by previously used housing price regression. More importantly, this result shows robustness on varied tests of specification and omitted variable biases.

In the methodology section, the author first provides the standard equation which describes the relation between housing price and school quality, controlling for many characteristics in houses, neighborhoods and school districts. However, this standard approach has a main weakness: some neighborhood characteristics cannot be observed so that there are omitted variables existing. In order to solve this issue, the author revises the standard equation by replacing controlled variables on neighborhood and school district characteristics with a boundary dummy variable which deals with unobserved characteristics in houses located near the attendance district boundaries. Obviously because these houses are located in the same city, this setting solves both omitted variable issues on city and neighborhood level.

Considering the relatively small size of school districts, the author chooses housing price data in Middlesex, Essex, and Norfolk counties in Massachusetts, all suburbs of Boston from 1993 to 1995. Also, the author chooses elementary schools because of their large numbers within-district. After restricting type of residence as "single-family", filtering out intradistrict choice programs, and deleting schools districts with unavailable or unclear attendance district boundaries, the author constructs sample with 22679 single family residences in 39 school districts. This sample includes 181 attendance district boundaries.

For the choices of independent variables, the author selects the fourth grade Massachusetts Educational Assessment Program (MEAP) standing for school quality. In particular, the author focuses on the average scores on the sum of the math and reading parts in year 1988, 1990, and 1992. For neighborhood characteristics, the author chooses distance to Boston, percent Hispanic, percent 65+ years old and etc. In addition, the author includes housing and school characteristics such as number of bedrooms, bathrooms, age of building, pupil/teacher ratio, property taxes and etc. By using these variables, the author starts to run regressions based on previously mentioned equations.

In the regression results section, the author first uses the whole housing data sample and controls several housing, neighborhood and school characteristics to show the similar results as the previous works

show. The primary interest of test scores coefficient implies that an increase of test score about 5 percent is related to a 4.9 percent increase in the price of houses. However, as previously discussed, this result is biased by unobserved neighborhood characteristics. Therefore, the author continues regressing but instead uses houses which are located near the attendance district boundary. Also, the author includes boundary fixed effects. In all three specifications (0.35, 0.20, 0.15 miles from the nearest boundary), the author finds that the estimated test score coefficients decrease about half comparing to the "all houses" sample. Moreover, the author regresses the 0.15 miles sample again without boundary fixed effects in order to test the possible effect of sample size. As a result, The test score coefficient does not vary from the coefficient from the "all houses" sample.

Furthermore, the author calculates the difference in means of houses located on different sides of the attendance district boundary in order to show the similarity of these houses. Table III clearly shows that as houses located nearer to the boundary, their physical and neighborhood characteristics become more similar. In addition, the author measures the magnitude of previous regression results. For the primary interest of test score, the coefficient implies that an increase of test scores about 5 percent is related to 2.1 percent increase in the housing prices, which is equivalent to \$3948 at the mean. This is a much smaller number comparing to a simple hedonic regression on housing prices. Therefore, the author states that the measurement on school quality will be overestimated if one cannot control for neighborhood characteristics sufficiently.

In the last part, the author performs various sensitivity tests. Firstly, the author tests on the "same neighborhood" concern by excluding boundaries which were "railroad tracks, highways, or major streets." The resulted coefficient does not have a large increase/decrease comparing to the previous regression result. Secondly, the author tests on the "better neighborhood" concern by constructing artificial attendance boundaries. She then runs two regressions by including "hi" dummy, which indicates whether the house is located on the side of boundary with higher test scores, and artificial control "hi" dummy separately. The two regression results show that true "hi" dummy has a significantly positive coefficient but artificial "hi" dummy does not. Concerning on the possible effects of neighborhood and housing characteristics, the author considers race, age, square footage, and lot size variables in different specifications. The results show no clear and significant changes on the coefficient. Finally, the author concerns about one/two bedroom houses and three or more bedroom houses. The resulted coefficients on the interaction between test scores and bedroom dummy show positive and significant number for three or more bedroom dummy but no significance for one/two bedroom dummy.

As a conclusion, the author uses a novel selection of houses which are located near the attendance district boundaries to show that parents do care about school quality. As the regression results show, parents would like to pay 2.1 percent more on housing prices in order to assign their children in schools with 5 percent higher test scores on average. More important, This study implies that some policies can be evaluated more effectively such as the Metco program. Also, home owners and politicians should pay more attention on the school quality.

From my perspective, One limitation is about the use of test score to stand for school quality. This issue relates to the definition of "quality." Firstly, if the quality is defined as "students get higher scores." Then this limitation is that the use of math and reading scores may not be precise, because science, social studies, and writing are equally important in my opinion. Secondly, if the quality is defined as "good study environment", "friendly classmates and distinguished teachers", and "various events", then test score will definitely not be a good choice.