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John W. Reifel
Grand Valley State University, REIFELJ@GVSU.EDU

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How School Quality Impacts Housing Values: Some Regional Evidence

John Reifel, Ph.D., Associate Dean, Department of Economics, Seidman College of Business
Paul Thorsnes, Ph.D. Department of Economics, University of Otago, New Zealand

Introduction
Most consumer goods have to stand the test of the market; firms that price too high or produce goods of a quality that is too low generally fare poorly. One might think that the goods and services supplied by local governments avoid the market test because governments can force us to pay for them through our taxes. But Charles Tiebout, in an influential article published in 1956, showed how local public goods and services, such as public schools, police, and local environmental quality, also have to withstand the rigors of the market.

The idea is simple. Like private businesses, local governments decide the quantity and quality of the goods and services they supply to their customers; i.e., their constituents, and pay for these goods and services at least in part with revenues from local income, sales, and property taxes (they also receive payments from higher levels of government). If a householder doesn't like the combination of public services and taxes chosen by his elected representatives, he can either lobby for change or pick up and move to another service district. If enough people move out of a district, house prices fall, tax revenues decline, and local officials find themselves in much the same position as a private business that has made some mistakes: revenues are below expectation and shareholders are upset.

Tiebout hypothesized that if households are mobile enough to be able to shop around for service districts in which to live, then market pressure will be brought to bear on the local agencies that supply the services. Those who want more safety, cleaner streets, and higher quality public schools and are able and willing to pay the higher local taxes required will locate in cities that provide that mix. The market thereby enforces discipline on local government agencies much as it does on private businesses.

Of interest is the extent to which Tiebout's hypothesis holds water. Tests of household sorting by preferences for public services can be either direct or indirect. The direct approach involves surveys to see if householders’ preferences about the quality and level of public services and taxes are relatively similar within service districts and different across service districts. The indirect approach takes advantage of the house-price differentials that Tiebout sorting generates. Households bid up house prices in districts that provide desirable combinations of public services and taxes. So differences across cities in the selling prices of otherwise similar houses indirectly indicates Tiebout sorting.

The GR/EGR Housing Price Differential
We test for Tiebout sorting using both the indirect and direct approaches by collecting both house price and survey data from an unusual subdivision. The subdivision, called Ottawa Hills, was platted in the early 1920s, occupies a nearly square area of 160 acres, and contains 448 houses. The property was a golf course prior to development, and its uniquely curved streets were influenced by the original fairways. The original lots in the subdivision were marketed to relatively well-heeled households, and the deeds included requirements for minimum amounts to be spent on construction of the house. The high quality of the houses and neighborhood distinguish the subdivision from its somewhat older neighbors.

But it isn't the subdivision's high quality that attracted us, it's that the subdivision is neatly divided in half by municipal and public school district boundaries. The subdivision is bounded on its north and south sides by Franklin and Hall and on its west and east sides by Giddings and Plymouth. The boundary between the cities and school districts of Grand Rapids (GR) and East Grand Rapids (EGR) evenly divide the subdivision into two rectangular 80-acre parcels. Thus, we have the opportunity to observe what has happened over a long and interesting period of time to sets of very similar houses in what are, at this point, very different public service districts. To put it more technically, the subdivision allows an unusually high level of control over the many house and neighborhood characteristics that influence house prices.

We started by collecting data on house characteristics. Information about the characteristics of the 448 houses in the neighborhood was obtained from the Assessors’ Offices in GR and EGR. Examination of that data led us to select a sample of 100 similar houses on which we could concentrate our study, 50 in GR and 50 in EGR. All of the sample houses were built between 1923 and 1935, have two stories, at least three bedrooms, brick veneer, and significant amounts of ornamental trim. None of the houses are on the relatively busy boundary streets and all are located north of Alexander Road, since those built south of Alexander on the EGR side are often newer and consist of more diverse architectural styles. For the 100 houses in the sample, detailed information was obtained on year built, lot size, floor space, number of bathrooms, and garage size. Assessor records were also used to update floor space due to renovations over time.

We then collected sale prices on the sample of houses. Price data can be obtained from public records kept on file in the County building, but is difficult to access. Fortunately, TransNation Title Insurance Company has the data in a
more user-friendly format and agreed to let us peruse their records and, as important, provided expert advice into how to interpret the information on the records. We were able to go back as far as 1949. Two of the houses did not sell over the 53-year period, so they were dropped from the sample. We found 339 arms-length (buyer and seller having different surnames) sales for the 98 houses over the 1949–2002 period, an average of 3.6 sales per house and almost 7 sales per year. It surprised us that the rate of sales per year changed very little over the 53-year time period.

The 1949 to 2002 time period is almost ideal for our purposes. Grand Rapids expanded to provide urban services to most unincorporated developing areas until the early 1960s. Ironically, suburban service districts were less important when Tiebout published his paper than they are now. This changed in the 1960s, when many households took advantage of highway improvements to move to suburban areas, thereby making room for an influx of relatively poor households into the generally older central-city houses and neighborhoods. Economists refer to this process as “filtering;” houses tend to filter to relatively poorer households as they age (the same thing happens with cars). Because those moving to suburban areas preferred to form their own services districts, the migration pattern created fiscal distress for central cities that resulted in a relative decline in the quality of the services they could provide. Thus, the public services supplied to each side of the subdivision were probably of similar quality prior to the 1960s, and have probably differed since. Of interest is the corresponding response in house prices.

Using statistical regression analysis, we constructed price indices for a house with a standard set of characteristics on each side of the subdivision. The price indices reveal that this standard house sold for about the same amount on both sides of the boundary up through the mid-1960s, consistent with our hypothesis that the packages of city services and taxes were about the same in GR and EGR at that time. Toward the end of the 1960s, houses on the EGR side started rising in price. In the mid-1970s house prices on the GR side began to rise parallel to those in EGR. Since house prices on the EGR side had begun rising earlier, they were selling at a premium. That premium has varied around 40% of the price of a typical house on the GR side, and the premium has persisted through 2002. The average selling prices for a typical house in the early 2000s was about $259,000 on the GR side and about $358,000 on the EGR side. The premium to live in EGR, just a short walk away across an invisible line, is close to $100,000!

What does this premium signify? If the houses and neighborhoods on each side of the boundary are indeed of similar quality, then the premium appears to represent the market value of the differences in public services and taxes across the boundary. It turns out that tax rates are lower on the GR side, even though city residents pay a city income tax in addition to property taxes. So, for the households in this market, the value of the difference in the quality of city and school district services apparently exceeds $100,000!

**Household Preferences**

The price differential, taken by itself, provides indirect evidence of Tiebout sorting. Householders who value, especially highly, the public goods and services offered in East Grand Rapids compete for houses in EGR by bidding up their prices. Conversely, households who have less interest in the characteristics of EGR public goods and services can get a significant price break on the similarly nice houses in the GR side of the Ottawa Hills subdivision.

We wanted to look more directly at the characteristics of the households on each side of the subdivision. We started by looking at the demographic characteristics reported in the 2000 census block data. We expected to see significant differences; for example, young and childless households and retired couples might find the general location and house quality desirable, but balk at the higher taxes and house prices in EGR. Census demographics are almost identical on both sides of the subdivision. The only difference is slightly more racial diversity on the GR side. This is puzzling and a bit troubling because researchers often use census demographics as indicative of preferences to test Tiebout hypotheses.

We thought we might solve the puzzle by asking households about their preferences. We sent a mail survey to 200 households, 100 on each side of the city boundary asking about their preferences for key public services and why they chose to live where they do. The 200 households consist of the 100 whose houses were in the housing price analysis, and another 100 households (50 on each side) selected randomly from the north half of the subdivision. Response rates were unusually high—72% in GR and 68% in EGR.

Almost all of the EGR respondents reported that they were attracted by the combination of high quality houses, neighborhoods, and city services. Over 80% of the respondents reported that they had selected their houses in part so that they could send their children to the high quality EGR public schools. This behavior is exactly what Tiebout would expect: the city and school district are supplying a set of services that appeal to a segment of the population attracted to the types of houses and neighborhoods in EGR. Taxes are high, but the high house prices indicate that both current and potential residents consider them well spent.

The responses on the GR side reveal some similarities, but also some glaring differences. As in EGR, almost all the respondents were attracted by the high quality houses and attractive neighborhood. Unlike EGR, many commented on the relatively low price for the house and neighborhood package. Some were attracted by the relative diversity in the neighborhood and many like the strong sense of community
in the neighborhood. Of interest, however, is that about 60% of the households with children chose to send them most of the time, to parochial schools (compared to less than 10% in EGR). Most of these households reported that proximity to parochial schools was an important attraction of the neighborhood. About a third of those who sent their children to public schools did so in the 1950s and 1960s, before the decline of public school quality. Those currently with school-age children often send them to GR public magnet schools rather than to a neighborhood public school.

We see these results as rather strong and interesting evidence of Tiebout sorting. The similar houses and neighborhoods on each side of the boundary attract demographically similar households, but the households who choose the GR side tend to have weaker preferences especially for the characteristics of EGR schools. Some of these households are retired or childless. Many value the proximity to parochial or public magnet schools. The market appears to have worked to accommodate these differing preferences.

**The Housing Price Differential Revisited**

But what about the differences in the quality of city services? It turns out that the residents on the GR side have formed an active neighborhood association. The association lobbies the city government for prompt delivery of public services, conducts neighborhood clean-up campaigns, and holds an annual neighborhood party, among other activities. The quality of these services may not quite match those of EGR, but they make up much of the difference.

These conclusions have implications for the interpretation of the $100,000 house-price differential. The quality of the services actually consumed by the households on the GR side appears to roughly match that of the services on the EGR side. Many of the households on the GR side make tuition payments that are avoided by EGR residents. The price differential compensates for these payments—the higher cost of obtaining high-quality services on the GR side capitalizes into house prices. This means, of course, that the market value of the difference in the quality of GR and EGR public services is even bigger than we initially thought: those households willing to send their children to tuition-charging schools were able to outbid those willing to consume GR public services. The price differential would be bigger in the absence of the parochial and magnet schools, though we cannot tell how much bigger.

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