1. Introduction

Empirical efforts to measure the capitalization of local property taxes are greatly complicated by the challenges of controlling for public benefit levels. The early approach to this problem was to include tax rates and various measures of service levels in a hedonic analysis of housing prices.\(^1\) But achieving adequate controls for public services in such hedonic equations has proven to be extremely difficult. The extent, quality, and location of all potentially relevant public services are not easily measured. Chief among these hard to quantify characteristics are the dimensions of public school quality. Recent attempts to estimate willingness to pay for public school characteristics (Black, 1999; Bayer et al., 2007; Gibbons et al., 2009) have generated a wide range of results that relied on a various proxies for school quality. For those concerned with measuring school quality these difficulties must be addressed directly. But for those attempting to measure the capitalization of property taxes, the best strategy is to identify quasi-experiments that hold local public service levels (and quality) constant, while allowing tax rates to vary.

Palmon and Smith (1998a,b) construct an interesting quasi-experiment of this type by limiting observed variation in home values and taxes to those that occur across a select number of municipal utility districts (MUDs) operating within the unincorporated sections of Harris County, TX (northwest of Houston). With the exception of schooling, many public services are evenly supplied to all households in their sample by either the county or by the MUDs themselves.\(^2\) However, due to historical accidents, the effective rate of property taxation is not equal across MUDs. Thus, while holding most public services constant, there are observed variations in property taxes. Taking advantage of this unique circumstance, Palmon & Smith estimate rates of property tax capitalization near 100%, suggesting that effective property tax differentials may be a major determinant of home price differentials.

The use of MUDs to measure inter-jurisdictional tax differentials represents a major improvement over earlier identification...
strategies that were unable to explicitly hold many public services constant across jurisdictions. However, in light of recent methodological developments, it is worthwhile to reexamine property tax capitalization within the context of an identification strategy that provides even further controls for potentially endogenous fiscal variables. For example, beginning with Cushing (1984) and Black (1999), it is now a standard practice within the home price capitalization literature to control for the “neighborhood” within which homes on either side of a jurisdiction fall. This is because homes in close proximity to one another are more likely to benefit from the same level of unobservable and spatially localized public services (e.g., public parks). Failure to control for public services of this kind will bias any estimates of tax capitalization if the services in question are correlated with tax rates. For example, a MUD’s tax rate is a direct function of its subdivisions’ levels of completion. This is because less-complete subdivisions (i.e., fewer homes than initially intended) will need relatively high residential property tax rates to finance debt payments. However, because less-complete subdivisions are also more likely to have fewer developed parks, failure to control for neighborhood fixed effects may bias property tax capitalization estimates.

Palmon & Smith’s estimates are also potentially complicated by their failure to control for public school characteristics which, although perhaps similar in some respects, as they note, may vary along many difficult-to-measure dimensions (e.g., value added, accountability, pupil-to-teacher ratios, etc.) that are thought to be valued by the housing market. To the extent that these factors are correlated with inter-jurisdictional tax differentials, estimates of property tax capitalization will be biased. This issue has plagued much of the housing price capitalization literature for years, primarily due to the difficulty and debate surrounding appropriate measures of perceived school quality.4

We make no attempt at improving upon these measures of perceived school quality. Rather, in recognition of the many difficulties inherent in measuring school quality, we look to sidestep this complication altogether by focusing on a segment of the housing market that pays public school property taxes but presumably places little-to-no value on the level of public school services provided: small homes. For example, the 2000 Census reports that, within suburbs of metropolitan Chicago, only 13% of U.S. owner-occupied households residing in small homes (defined as homes with two bedrooms or less) had children enrolled in public schools. This is to be compared to 34% for households residing in homes with three or more bedrooms (hereafter referred to as “large homes”).5 This disparity suggests that much, if not all, of the problem associated with controlling for public school quality stems from the market for larger homes. Buyers of large homes, because they are more likely to have children, drive up the prices of homes in good school districts, thus complicating any estimates of property tax capitalization that cannot fully control for school quality. Conversely, smaller homes will not likely reflect school quality differentials, thus neutralizing the problem of school quality capitalization.

For small homes, observing inter-jurisdictional variation in school district property taxes, while controlling for other taxes and public services, will offer unique insights into the nature and degree of property tax capitalization. For this stratum of the housing market, educational property taxes are essentially direct transfers to households with children in the public schools. These transfers represent a tax without a corresponding direct benefit. The fact that households buying these small homes are statutorily required to contribute to this redistribution program provides the motivation for our identification strategy. A hedonic equation for these small homes should be free of complications generated by the problems inherent in measuring education quality. The vast majority of small-home buyers do not directly benefit from the local schools because they do not have children enrolled in those schools.

As indicated above, the inter-jurisdictional distribution of non-education public services will impact small home values. To the extent that these services are unobserved and correlated with school district taxes, estimates of property tax capitalization will be biased. To minimize this potential problem, the present study incorporates a border discontinuity design similar to that used by Black (1999) and Bayer et al., (2007, hereafter BFM). Here, household observations are limited to those falling within a quarter-mile of a public school district border that itself intersects a single municipality. Spatially localized unobservable characteristics are then controlled for by identifying a given home’s localized neighborhood that, while falling completely within a municipality, straddles a public school district border (quarter mile on either side of the border and a half mile in length). Thus, the key comparisons made in the empirical equations presented below are between small houses subject to differing education property tax rates, but similar neighborhoods, non-education services, and non-education municipal taxes. Our empirical findings suggest that, for small homes, education property taxes are capitalized almost fully into home values, thus supporting the earlier findings of Palmon & Smith and others.

In the discussion that follows, Section 2 outlines our empirical design and describes the data used while Section 3 discusses our results. Section 4 concludes and provides directions for future research.

2. Empirical design and data

2.1. Identification strategy

This paper estimates a hedonic housing price equation in order to assess the degree to which property taxes are capitalized into home values. Under ideal circumstances, estimation would involve taking advantage of complete information on relevant structural characteristics of an individual home as well as fiscal, amenity, and socio-demographic characteristics of the home’s immediate neighborhood. Following convention, this data could then be used to return unbiased parameter estimates for the following hedonic equation:

$$\ln(V_{imj}) = \alpha + X_{imj} \beta + Z_{imj} \lambda + \gamma_{c} (T_{m} + T_{s}) + \gamma_{Q} Q_{s} + \epsilon_{imj}$$

where $\ln(V_{imj})$ is the natural log of home $i$’s value (in municipality $m$, school district $s$, and neighborhood $j$), $X_{imj}$ is a vector of $i$’s structural characteristics, $Z_{imj}$ is a vector of characteristics of neighborhood $j$ within municipality $m$ (including public services), $T_{m}$ is the non-education property tax rate (consisting of municipal taxes) and $T_{s}$ and $Q_{s}$ measure effective school district tax rates and quality, respectively, for district $s$. For the purposes of this study, the parameter of particular interest is $\gamma_{Q}$, which, in equilibrium, measures the level of education public services...
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