

DETERMINANTS OF FRACTIONAL ASSESSMENT PRACTICE IN LOCAL PROPERTY TAXATION: AN EMPIRICAL EXAMINATION

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INTRODUCTION

THE PRACTICE OF FRACTIONAL ASSESSMENT HAS been a tolerated, if not entirely accepted, feature of U.S. state and local property taxation since at least the mid-19th Century. Defined as assessment of property at less than full market value, this seemingly archaic practice nevertheless remains prevalent, even in large urban areas. As of 2010, data gathered for the largest city in each of the 50 states indicated that only 14 of these locations effectively assessed real property at full market value. Despite its widespread use, fractional assessment is also a practice that remains relatively unfamiliar to even the most informed of taxpayers, who may instead focus on more widely publicized nominal rates of taxation, or on the effective taxation rate, as expressed in their own individual property tax liability. Although the concept of fractional assessment is itself fairly straightforward, the reasons for its historic, and continued, use are far less well established. Historically, the literature points to two chief reasons for this practice: political rationales and administrative error, or sloth. However, while these causal factors have become an accepted part of the public finance canon, the historical evidence supporting them is mostly anecdotal in nature.

While some recent empirical studies have investigated the impacts of assessment practice and other administrative factors on overall assessment accuracy, these studies have tended to examine locations within a state, county, or locality, removing the ability to examine the impact wide variations in state-level political contexts, and the administrative framework set in that context, can have on local assessment practices. The impact of political factors, as well as other non-administrative influences, on assessment levels has thus entered into public finance lore – widely accepted, but left largely unverified. Administrative error, resource constraints, and even potential assessor sloth doubtlessly result in at least some departure of assessment levels from full market value. However,

given the advancement of public administration in the last half-century and the resources available to most large urban areas, observation of fractional assessment levels at 10 percent of market value or lower in locations such as Phoenix, Chicago, Denver, and New Orleans, would suggest either a level of assessor incompetence bordering on the comically absurd, or that other, systemic factors may play a significant role in some locations' assessment practice. In addition to administrative rationales for the use of fractional assessment, such as constraints on administrators' ability to accurately value properties, lack of adequate resources, or, at the extreme, sheer assessor incompetence, one might also suspect that other factors may lead to the employment of fractional assessment in practice. State and local-level elected officials may use fractional assessment as a political tool, providing benefits (real or perceived) to their constituents in the form of property tax relief, and use this mechanism due to its relative lack of public visibility and political contention when compared to tax relief affected through changes in the nominal rate. Alternately, state and especially local governments may employ fractional assessment as a strategic fiscal practice if assessment rates can be adjusted more quickly compared to shifting the nominal tax rate, allowing local governments to respond more rapidly to changing fiscal conditions, provide more immediate tax relief, or raise additional revenue in periods of fiscal constraint.

It is such an empirical examination of the various factors, especially systemic or strategic factors lying beyond the control of local assessors and administrators, that this study aims to produce. Pairing annual information on effective property tax assessment levels for a nationwide sample of 50 large U.S. cities from 1997-2010 with information on local and state-level demographic, political, fiscal, and administrative factors, this study addresses the question of which of these three rationales – political, fiscal, or administrative –

underlie modern fractional assessment practice by identifying the factors that impact a location's effective assessment rate.

THEORETICAL BACKGROUND AND PREVIOUS RESEARCH

Perhaps the most complete treatment of the factors underlying fractional assessment is provided by Epley (1974). In addition to detailing several familiar administrative reasons for property assessment at less than full market value, including difficulties defining the actual value of properties and underqualified assessors, Epley also introduces the possibility of a political basis for lack of full property valuation. Here, Epley suggests a desire to satisfy local constituents (and remain in office) on the part of the assessor as an elected official, and undervaluation as a form of interlocal competition for state-apportioned tax revenues, as two such political motivations. Epley also highlights the possibility that other "psychological" factors may play a role in the use of fractional assessment, including using it to reduce disputes over assessment by introducing an extra complication into the assessment process – thereby confusing taxpayers – as well as the possibility that this behavior may increase tax compliance overall. Epley's piece contributes the additional insight that a legal standard of full value assessment does not ensure complete assessment in practice. In the majority of states adopting a legal standard of full assessment, Epley found that, due to political pressure from local property owners and the administrative burden that frequent, full assessment of property represented for local governments, enforcement of full valuation was inconsistent, if not abandoned. In the early 1960s alone, 10 states had even gone so far as to abandon a legal standard of full assessment. However, Epley clearly established the existence and extent of fractional assessment; the explanations provided for the practice were less well established. For the most part, his analysis relied on anecdotal, rather than empirical, evidence, leaving a formal examination of the causes of the practice to subsequent authors.

In a recent study of local assessment quality determinants in New York, Eom (2008) highlighted not only the role local property characteristics themselves play in assessment quality, but also administrative factors such as assessment budget,

frequency, and administrative burden. Giertz and Chicoine's (1990) work similarly points to the impacts that assessors can have on assessment accuracy, although they find also that over 60 percent of assessment variation is attributable to environmental factors beyond assessors' control. Yet outside of this literature's confirmation of the tie between assessor characteristics and assessment accuracy, the link between political factors and their impact on fractional assessment's use have been assumed far more often than they have been explored. Carroll and Goodman (2011) seem to assume assessor sloth as a key factor in fractional assessment, for example, stating that "due to the tediousness of property tax record-keeping, many jurisdictions do not appraise property annually" (p. 80). Wen (2007) is more straightforward about this supposition, noting that "one may ask why fractional assessment is used... the reason is probably cosmetic" (p. 8). Even Eom identifies the assumptive nature of public finance theory surrounding fractional assessment, including the contribution of administrative factors, noting that their hypotheses are "in line with the conventional wisdom that fractional assessment is thought to serve as the 'graveyard' of assessors' errors" (Eom, 2008, p. 65), using the metaphor contributed by Shannon (1969) to the field. All of these authors appear to assume that fractional assessment is itself a reflection of suboptimality in the assessment process, assessors' behavior, the assessors themselves, or a combination of the three.

Yet little attention has been given to the possibility that fractional assessment could also be used purposively, as an intentional political or fiscal strategy. Despite this lack of conclusive evidence surrounding the factors associated with the use of fractional assessment, the literature is clear on the negative consequences linked to its use. As Epley (1974) notes, fractional assessment can create confusion on the part of the property owners that, in turn, can mask uneven or unfair assessments, as property owners will be less likely to detect over-assessment when it occurs (Mikesell, 2007). Fractional assessment can also interact with state-imposed limits on local debt and property tax rates, making such practices more restrictive than originally intended. Differences in assessment rates can also raise questions of horizontal equity. If fractional assessment varies in its rate and use between jurisdictions, this produces variation in the practi-

cal rates at which different properties are assessed, meaning the tax burden is not fairly distributed among taxpayers (Mikesell, 2007). Identifying and understanding the factors associated with fractional assessment's use represents an important first step to correcting the suboptimality that the practice introduces into local property taxation.

This study proposes to examine three sets of factors in an attempt to identify the determinants associated with fractional assessment in local property taxation. The first set of factors represents political influences, both at the state and local level. Specifically, to the extent that tax relief in general and property tax relief specifically tends to be associated with conservative politics, use of either legal or administrative fractional assessment may be linked to the degree of conservatism in state legislatures and in state and local chief executives. For these factors, fractional assessment, whether in terms of formal codification or an increased tolerance for its practice, may represent a legitimate strategy to achieve goals of tax relief. One would expect such goals to be easier to formally pursue at the state level in situations where the legislature and governor are of the same party. If employment of fractional assessment is less difficult to achieve in practice than changing the nominal property tax rate, one might also expect conservative political actors to favor its employment as a means of tax relief under divided governments, rather than opting for the more politically difficult route of attempting more formal tax policy changes in the face of partisan opposition. Fiscal flexibility represents a second set of factors that might impact the use of fractional assessment in property taxation.

While not addressed as directly by the literature as administrative, or even political, influences, one might argue that if fractional assessment represents a potential method for providing property tax relief locations with more available revenue-raising instruments would be less likely to resort to fractional assessment. Put in a different fashion, assessment of properties at less than their full value leaves open the possibility of altering that assessment rate, to either decrease it as a means of providing short-term tax relief or increasing it as a means of quickly generating additional revenue. One might argue that fractional assessment acts as a kind of 'safety valve,' a fiscal policy lever that could allow local governments to react more

quickly (and with less political opposition) to changes in economic conditions than they would be able to through more formal changes in tax policy. To the extent that a jurisdiction relies solely on the property tax for raising own-source revenue, they may therefore be more apt to use fractional assessment to enable this type of adjustment. In light of this argument, this study will also examine whether the availability of other local sources of tax revenue (specifically, local income taxes, local sales taxes, and the local tax burden overall) plays a role in the use of fractional assessment. This study will also examine administrative-level factors to determine their impact on the use of fractional assessment. As suggested by Eom (2008) and Sjoquist and Walker (1999), the administrative burden that assessment places upon the assessors can result in lower assessment rates, while availability of additional resources or opportunities for realizing economies of scale in assessment practice can lead to higher, more accurate assessments. To account for both relative administrative resources as well as the burden represented by assessment, this study will examine the role administrative density (administrators per unit area) and population density have on the use of fractional assessment to represent these two influences on assessment levels.

Finally, this study will also include several local population characteristics, including measures of income, education, race, age, and land use (agricultural and manufacturing). To the extent that one might expect more affluent and older populations (both of which might be more likely to own property), as well as agricultural and manufacturing interests (which employ land to a greater extent than commercial or service firms) to be particularly desirous of property tax relief, it may be reasonable to expect a positive association between the local representation of these groups and fractional assessment use. Conversely, a more educated population may be more aware of the negative consequences of fractional assessment and therefore less tolerant of the practice. To the extent that local administrators are drawn from, and thus reflective of, local populations, more educated locations may also be more likely to produce more capable, effective, and accurate property tax assessors. In both cases, the expectation would be a negative association between education levels and fractional assessment practice.

METHODS

In order to measure the impact the various political, fiscal, administrative, and demographic/economic factors have on the use of fractional assessment, this paper employs panel data techniques incorporating both year and location-specific fixed effects. As this estimation deals with a specific set of units, the most populous city from each of the 50 states, the use of fixed effects is a more appropriate approach than the alternative of modeling through random effects (Baltagi, 2002; Hsiao, 2003). The following model is estimated:

$$(1) \quad RATE_{i,t} = \beta_0 + \beta_1 \bar{P}_{i,t-1} + \beta_2 \bar{F}_{i,t-1} + \beta_3 \bar{A}_{i,t-1} + \beta_4 \bar{L}_{i,t-1} + \alpha_i + \gamma_t + e_{i,t}$$

The dependent variable is average residential property tax assessment rate (assessed value as a fraction of estimated market value) in percentage points of local jurisdiction i in year t , while the explanatory factors include four vectors of variables with the values measured in the previous time period. The first of these, $\bar{P}_{i,t-1}$, is a vector of political characteristics for each location, including the percent of Republican-held seats in the state legislature, a dummy equaling one if the state had a Republican governor, two additional dummy variables indicating whether a location had a Republican mayor or an independent/nonpartisan mayor, and a dummy equaling one if the majority party in the legislature differed from the party of the governor. The second vector, $\bar{F}_{i,t-1}$, contains each location's fiscal characteristics, including per capita income (in constant 2010 dollars), income tax burden (in percentage points), the local sales tax rate (beyond any state-assessed sales tax), and a dummy if a jurisdiction employed a local income tax. The third vector, $\bar{A}_{i,t-1}$, represents locations' administrative capacity and the relative administrative burden of assessment, including population density (persons/square mile) and administrative density (public employees/square mile). Finally, the vector $\bar{L}_{i,t-1}$ represents other demographic and economic location-specific taxpayer characteristics that may impact demand for fractional assessment, including percent agricultural land use in the state, local manufacturing density (establishments/square mile), the state's average education level (percent of the population with a bachelor's degree or higher), percent of the jurisdiction's population that is white, and percent 65 years of age or older. The

final terms in the equation, α_i , γ_t , and $e_{i,t}$, represent a place-specific fixed effect, a year-specific fixed effect, and a stochastic error term, respectively.

DATA

This paper's data are compiled from six primary sources. The dependent variable, residential property assessment level as a fraction of estimated market value, is drawn from the Government of the District of Columbia's annual "Tax Rates and Tax Burdens" report, as well as information on local income tax burden and use, and local sales tax rates (in excess of state-imposed sales taxes). Annual state-level political information was drawn from the U.S. Census Bureau's "Statistical Abstract of the United States," including the number of state legislative seats held by each party and gubernatorial party affiliation, which were used to create the variables for percent of Republican-held legislative seats, and the dummies for Republican governor and divided government. The "Statistical Abstract of the United States" provided annual demographic information, including percent agricultural land use per state, percent of each state's population that was white, with a bachelor's degree or higher, and that was 65 years of age or older. Information on local executives' political affiliation, used to create the dummies for Republican and Independent/nonpartisan mayors, were drawn from the Our Campaigns website (www.ourcampaigns.com). Local administrative density was calculated using information on public sector employment from the "Bureau of Labor Statistics' Current Employment Statistics," which was then divided by each location's total area to produce a measure of density. Manufacturing establishment density was calculated similarly, using the number of manufacturing establishments from the U.S. Census Bureau's annual "County Business Patterns Data." Finally, per capita income for each location was supplied by the Bureau of Economic Analysis' "Regional Economic Accounts." The combination of the above data produced a panel of 635 year-location observations covering the largest city in each state from 1997-2010.

RESULTS AND DISCUSSION

Table 1 presents the estimation results from equation 1. Several political factors display a

Table 1
Impact of Selected Factors on Effective Local Property Tax Assessment Rate

<i>Independent Variable</i>	<i>Coefficient Value</i>	<i>(std. error)</i>
Percent Republic Legislature	-0.347**	(0.111)
Republican Governor	5.509**	(1.600)
Divided Government	-4.549**	(2.027)
Republican Mayor	-1.038	(2.012)
Independent/Nonpartisan Mayor	3.642*	(1.913)
Percent State Agricultural Land Use	0.027	(0.151)
Per Capita Income (2010 dollars)	-0.001**	(0.000)
Income Tax Burden	-0.412	(0.547)
Local Income Tax Use	16.506**	(3.493)
Local Sales Tax	-0.885	(1.365)
Percent Bachelor's Degree or Higher	0.483	(0.314)
Percent Non-Minority	0.107	(0.185)
Percent Age 65 or Older	-4.057**	(1.504)
Local Manufacturing Density	-0.753	(0.599)
Local Administrative Density	0.013	(0.005)
Population Density	-0.021**	(0.005)
	N = 635	F = 3.31 (p = 0.000)
		Adj. R ² = 0.917

Note: ** signifies the coefficient is significant at a $p < 0.05$ level or higher, * significant at a $p < 0.10$ level or higher

statistically significant relationship with Effective Residential Property Tax Assessment Rate at the 5 percent significance level, including the percent of a state legislature's seats held by Republicans, the presence of a Republican governor, and the presence of a divided government, while the presence of an Independent or nonpartisan mayor is significant at the 10 percent level. Interpreting the magnitude of these political factors, a 1 percentage point increase in the share of a state legislature held by Republicans is associated with a 0.35 percentage point decrease in a location's effective assessment level, while states with Republican governors display a 5.51 percentage point higher assessment rate than states with governors from other parties. Divided government is linked to an assessment rate 4.55 percentage points lower than states where the legislature and the governor are of the same party, while locations with nonpartisan or Independent mayors are associated with a 3.64 percentage point higher assessment.

Examining local fiscal factors, a number of interesting results emerge. Local per capita income is significantly and negatively associated with a location's assessment rate, with each \$1,000 of additional per capita income associated with

a 0.1 percentage point decrease in the effective assessment rate for residential property. Among the variables capturing the presence of other local taxes, local income tax (although not local sales tax) displays statistically significant, positive association with local assessment levels, with locations having local income tax linked to an assessment level 16.51 percentage points higher than jurisdictions without this tax. When examining administrative variables, local administrative density is not significantly associated with assessment level, but population density is, with each additional person per square mile linked to a small decrease in assessment level of 0.02 percentage points. Finally, of the economic and demographic variables, only the coefficient for percent of individuals aged 65 or older shows statistical significance, with each percentage point increase in this population associated with a 4.05 percentage point decrease in the residential property tax assessment rate.

In evaluating these results, a number of interesting findings become apparent. First, as expected, a number of political variables show a statistically significant association with assessment rate. In particular, at the state level, both higher levels of Republican legislative representation and the pres-

ence of divided government are associated with lower assessment levels – that is, with fractional assessment practice. Given the prior expectation that this group would be especially interested with providing tax relief to their constituents, and that a context of divided government might impede the ability to affect such reform through more formal means, the results obtained are consistent with these expectations. Furthermore, the magnitude of the coefficients of these variables, while not overwhelming, are still arguably significant from a practical standpoint as well. At the local level, evidence for a link between Independent or non-partisan mayors and higher assessment accuracy is also not terribly surprising, given that many Independent, and particularly nonpartisan, mayors tend to be drawn from administrative backgrounds. Of the significant political results, only republican governors, whose presence is linked to roughly 5.5 percent increase in effective assessment rate, is somewhat surprising, given the typical association of politically conservative actors with providing tax relief. It is possible that this finding could be a manifestation of another value typically associated with conservative politics – that of administrative reform, transparency, and simplification. Given the more direct link between the political success of legislative actors and their ability to provide direct constituent benefits such as tax relief, the broader, statewide political base and constituency of the governor may, to some degree, insulate him or her from a need to provide such benefits, freeing governors to promote administrative reform that they may be more able to achieve, as well as more sensitive to themselves given their position of control as head of the state’s bureaucracy. In terms of fiscal variables, two factors, per capita income and local income tax use, display statistically significant association to assessment rate. Both relationships are in the direction expected, with higher local incomes associated with lower assessment rates and local income tax use linked to higher assessment levels. It is not surprising that more affluent communities, which might be expected to be more likely to own property and to own property of higher value, oppose higher levels of taxation. The associated lower assessment levels could, thus, be an expression of political placation of these groups. The association of higher assessment rates with local income tax use is also consistent with previously noted expectations that the availability of additional means of generating local revenue,

and additional instruments to adjust to provide tax relief, would remove some of the need for less than full assessment practice as a fiscal strategy. From this perspective, while one would expect a similarly significant result to be associated with the presence of local sales taxes as well, the proceeds of many local sales taxes tend to be earmarked for specific purposes; local governments cannot as easily adjust that tax rate to generate revenue or provide tax relief in the short term, meaning that the presence of such a tax would not provide an effective ‘safety value’ of adjustment in response to changes in local economic conditions.

Administrative variables of administrative density and population density are also of interest. In the latter case, the results of this analysis are consistent with Eom (2008) in finding a negative association between population density and assessment rate, and to be expected if one supposes that more densely populated areas contain a concomitantly denser concentration of properties for the assessor to evaluate. Also of interest is the lack of significance for the coefficient associated with administrative density. Here, a number of possibilities might explain this result. On the one hand, given that the measure used expressed a measure of general administrative capacity, rather than the administrative capacity and resources specifically devoted to property tax assessment and associated activities, it may be that this variable fails to fully capture differences in assessment resources in particular. Conversely, it may reflect the fact that assessment practice, either formal or informal, plays the most significant role in relatively large, urban contexts – that is, *how* assessment is conducted at a local level is more important than *how many* administrators are available to conduct it. Finally, among location-specific economic and demographic characteristics included in the model, only the percentage of a location’s population aged 65 and older displayed a significant association with effective assessment levels, given that older individuals may be presumably more likely to own property and, additionally, may be more sensitive to effective property tax rates if living on fixed incomes. Also potentially unsurprising, if nevertheless disappointing, is the insignificance of the percent of individuals with a bachelor’s degree or higher. It appears that more educated populations are no more or less likely to pressure local politicians or administrators to reduce the use of fractional assessment practice.

CONCLUSION

The results presented above suggest that both political and fiscal factors are indeed associated with the use of fractional, below-market value assessment of residential property, consistent with conventional public finance wisdom that political strategy provides a rationale for fractional assessment. This paper's results demonstrate in particular that fractional assessment is associated with political factors, such as higher levels of Republican legislative representation and divided government, suggesting that the practice may be the path of least resistance for enacting effective property tax relief. These results are also consistent with fractional assessment's use as a purposive local strategy to achieve fiscal flexibility, as locations with the additional revenue-raising capacity provided by local income taxes appear less likely to assess residential property at lower effective rates.

The contributions of this paper are thus three-fold.

First, the work provides empirical confirmation of what has been a largely unverified assumption of the public finance canon – assessment of property at below-market value for tax purposes is a practice motivated by political as well as administrative factors. This study also suggests that local fiscal conditions, and the availability of other local tax instruments, may play a role in the use and degree of fractional property assessment. Second, this paper's panel data improves on the literature in this area by examining determinants of property taxation using a unique data set spanning all 50 states. This breadth of focus allows exploration of the impact of variation in state-level political and legal contexts, which many previous efforts' focus on assessment within a single state have missed. Finally, the findings provide information to those seeking to eliminate fractional assessment due to its negative consequences, and that the impact of reform may be limited if one confines their efforts to addressing administrative factors alone. In light of its continuing use, as well as the fiscal drawbacks associated with it, understanding the determinants of fractional assessment in property taxation remains an important goal. This paper represents an additional step toward that end by verifying not only traditional public finance wisdom surrounding

the political motivations of less than full assessment, but also tests the possibility that fractional assessment may also be employed as a fiscal tool.

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