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Political costs and fiscal benefits: The political economy of residential property value assessment under Proposition 2 $\frac{1}{2}$



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HIGHLIGHTS

- We use Proposition 2 $\frac{1}{2}$ referendum data to estimate the fiscal cost of assessment value increases.
- Assessors respond to both fiscal benefits and political costs of assessment increases.
- Specifically, assessors respond to signals of political cost from town property owners.
- Elected assessors are more responsive to political costs.

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ABSTRACT

We use a 15-year panel of property value assessment data from 351 Massachusetts municipalities. Appraised values grow more slowly in municipalities with elected assessors. When municipalities pass, via referenda, large increases in the cap on tax revenues, value assessments grow faster under appointed assessors and slower under elected assessors. Appraisals grow slower when alternative revenue sources are available.

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1. Introduction

The assessment of property value is as much an art as it is a science. This is particularly so in small towns and rural areas, where market exchanges of property are less frequent and comparable property less identifiable. The inherent subjectivity of property assessments is of interest, given the importance of property taxes for many local and state governments, often representing the bulk of budgeted revenues.¹ Property assessors, acting as either appointed

agents of government officials or elected officials themselves, have an incentive to maximize government revenues and voter satisfaction. Can changes in assessed residential property value be solely explained by changes in the real estate market, or does the assessment process present an alternative means to raise property taxes and supplement budgets for vote-maximizing elected officials? Using data from a unique legislative environment, we find evidence that assessors respond to both fiscal benefits *and* political costs of assessing a higher rate of growth in appraised property values.

There is an extensive literature on the political economy of property taxation. Strauss and Sullivan (1998) and Eom (2008) each find that appraisal uniformity is influenced by local political economy, while Bowman and Mikesell (1989) find no such relationship. In a study of Massachusetts municipalities, Brueckner and Saavedra (2001) show that local government officials consider the costs and benefits of property tax revenues, while Besley and Coate (2003) find that elected regulators are more consumer

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¹ Lutz (2008) notes that the tax accounts for approximately three-fourths of local government tax revenue. Cornia and Walters (2006) note that property taxes are often substantial enough in magnitude to cause financial hardship, especially during periods of rapidly rising property values.

protective than appointed regulators. In a related paper that examines Virginia towns and counties, Ross (2011) finds that the method of assessor selection influences the rates of appraisal growth, as does local fiscal stress. Ross (2012) concludes that method of assessor selection influences property tax regressivity.

The hypothesis that government officials are motivated by budgetary considerations, and not just the equitable application of the law, is not without precedent. Niskanen (1971) hypothesized that bureaucrat decision-making was, at least in part, an exercise in maximizing their agency's budget. Makowsky and Stratmann (2009) find evidence of traffic citations used as a means to generate revenue when local officials are blocked from raising taxes by referendum. Garrett and Wagner (2009) similarly conclude that municipal budget deficits lead to more traffic citations. Helland and Tabarrok (2002) find evidence that elected judges were motivated by a desire to transfer wealth from non-constituent defendants to constituent plaintiffs.

In the case of property value assessment, a property assessor may be either a bureaucrat appointed by the municipal government or a non-bureaucrat elected by the townspeople. This municipal-level variation in assessor status provides an opportunity to test for the budget-maximizing hypothesis. Specifically, we test whether appointed assessors are more influenced in their assessment decisions by the budgetary concerns of their municipal government than are elected assessors. We consider some of the same issues addressed by Ross but within a unique legislative environment. The results of municipal override referenda for Proposition 2½ in Massachusetts allow us to estimate fiscal constraints and preferences among both local governments and tax payers simultaneously so as to determine the effects of these variables upon appraisal growth.

We examine a 15-year panel of data of property value appraisals, with special attention paid to the effects and interactions of political structure, budgetary conditions, and fiscal institutions. We take advantage of the Massachusetts property tax institution known as Proposition 2½ to better understand how fiscal budgetary conditions and political costs might influence appraisal decisions. We also benefit from differing rules regarding selection of town assessor: an elected position in roughly two-thirds of Massachusetts towns and appointed in all others.

Property value assessments in Massachusetts are made according to a "full and fair cash value" standard using the three common appraisal approaches: income, cost, and market. Assessors estimate the market value of a property based on either its recent sale price or the sale price of comparable properties (market approach). They also consider factors such as current cost of construction (replacement cost approach) and present financing and economic conditions (income approach). There is no precise legal standard for determining the set of comparable properties for a given property. Proposition 2½ places specific limits on both growth in annual tax revenue and total tax revenue levied in a year. Only with the passage of an "override" referendum can a town exceed the soft limits imposed, and even then there are "hard caps" that cannot be surpassed. When such a referendum fails, the local government faces strong incentives to identify alternative sources of additional revenue. Prior studies show that Proposition 2½ slows or decreases municipal spending (Cutler et al., 1999; Bradbury et al., 2001) and shifts municipal revenue sources (Susskind and Horan, 1983; Makowsky and Stratmann, 2009).

2. Hypotheses and empirical method

We hypothesize that incentives facing assessors, beyond accuracy and demonstrating professional acumen, fall under the rubric of political economy. A political economy model of property appraisal predicts that assessors will attempt to maximize fiscal

health subject to legal and electoral constraints. Using this simple model, we arrive at several testable predictions. When assessors are appointed by elected government officials (directly elected by townspeople), they are afforded greater (less) political distance. We predict that residential property appraisals grow more slowly when assessors are elected.

Beyond property taxes, there are alternative revenue sources, some of which carry no discernible political cost to locally elected officials. Our model predicts that municipal property appraisals grow more slowly in proportion of municipal budget originating from alternative sources. The calling of an override referendum signals fiscal distress and the existence of significant fiscal benefits from generating additional revenue. The outcome of the vote signals the preferences of the constituency and their willingness to bear additional taxes. A passing override vote signals lower political costs to increasing taxes, while a failed vote signals higher political costs. The size of the request provides a sense of the relative magnitude of associated fiscal benefits and political costs. When a large dollar value override fails, this indicates greater fiscal benefit from additional revenue. The larger the passed override, however, the greater the political costs of further tax increases. Accumulating these effects, our model predicts (1) less appraisal growth with the failure of small overrides and passage of large overrides, and (2) greater appraisal growth with the passage of small overrides and failure of large overrides.

To test these hypotheses, we estimate the following regression model:

$$\begin{aligned} \text{ResidentialGrowth}_{it} = & \beta_0 + \beta_1 \text{Appraisal}_{it} + \beta_2 \text{Elected}_i \\ & + \beta_3 \text{Budget}_{it-1} + \beta_4 \text{Override}_{it-1} + \beta_5 \text{Municipal}_{it-1} \\ & + \beta_6 \text{Override}_{it-1} * \text{Elected}_i + \text{Municipality}_i \\ & + \text{Year}_t + \varepsilon_{it}. \end{aligned} \quad (1)$$

$\text{ResidentialGrowth}_{it}$ represents the growth in appraised value of preexisting property in town i for fiscal year t .² It is important to restate that the value of $\text{ResidentialGrowth}_{it}$ is not influenced by new construction, remodeling, or renovation projects. Assessed value deriving from these activities is considered "new growth" value and can therefore be separated from assessed value in the prior year. Appraisal_{it} is a vector of variables related to property appraisals, including non-residential growth, lagged residential growth, and changes in property exemption. $\text{ResidentialGrowth}_{it}$ is included as a control variable for the local real estate market. As local socioeconomic conditions ebb and flow, we expect non-residential property values to move in step and, in turn, in the same direction as residential property values.

Lagged residential growth controls for past indirect tax increases through property appraisal growth and constituent "fatigue". We include the change in fraction of property declared exempt from taxation to control for changes in the taxable property base. Elected_i equals 1 (0) in towns where assessors are elected (appointed). Remaining variables include lagged local fiscal and municipal conditions that may affect assessment decisions. Appraisals for fiscal year t occur in the middle of fiscal year $t - 1$. Thus, lagged values are concurrent with the assessment process.

Budget_{it-1} is a vector of budgetary variables. These include local receipts, free cash, stabilization fund, and state aid. Local receipts are revenues generated from court fines, excise taxes, interest, and other fines and fees. Free cash represents a municipality's remaining unrestricted funds from previous fiscal year operations. The stabilization fund represents municipal funds

² This variable nets out property value increases from new growth construction or renovation. Thus, it reflects appraisals of a fixed stock of property over time.

Table 1
Summary data.

	Mean	Std. dev.	Min	Max
Residential growth	0.056	0.111	-0.218	0.957
Non-residential growth	0.009	0.094	-0.426	2.372
Chief appraiser elected	0.667	0.471	0	1
Override fail	0.048	0.214	0	1
Override fail \$ amount (%)	0.002	0.010	0.000	0.315
Override pass	0.074	0.261	0	1
Override pass \$ amount (%)	0.002	0.009	0	0.188
Free cash (%)	0.055	0.055	-0.171	0.517
Stabilization fund (%)	0.048	0.066	-0.002	0.910
Unemployment rate	0.044	0.023	0.000	0.522
Local receipts (%)	0.155	0.065	0.004	0.519
State aid (%)	0.178	0.126	0.001	0.698
Population	15,880.25	26,659.22	83	609,023

N = 4911.

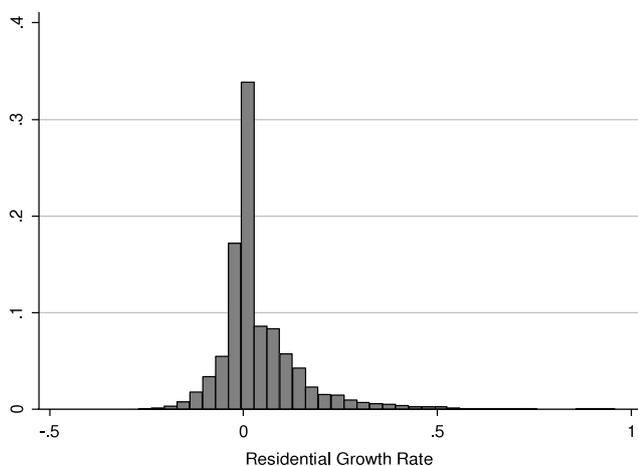


Fig. 1. Histogram of residential growth.

saved to cover budgetary shortfalls. State aid represents payments from the state government. All control variables related to dollar quantities are converted to fractions of local budget. **Municipal**_{*it-1*} is a vector of local condition variables that includes unemployment rate and log population. **Override**_{*it-1*} is a vector of dummy variables indicating if an override referendum passed (**OverridePass**_{*it-1*}), if one failed (**OverrideFail**_{*it-1*}), and their associated dollar amounts (**\$OverridePass**_{*it-1*} and **\$OverrideFail**_{*it-1*}). In some specifications, we interact **Override**_{*it-1*} with **Elected**_{*i*}.

Summary statistics are presented in Table 1. Within the sample, the appraised value of pre-existing residential property grew an average 5.6% per year, with positive growth in 56.2% of observations. Negative growth is prominent because **ResidentialGrowth**_{*it*} tracks the value of existing property over time (i.e., is not affected by the value from new construction or renovation), which is often subject to structural depreciation. The histogram of **ResidentialGrowth**_{*it*} (Fig. 1) displays a distribution that, though largely bell-shaped, is slightly right-skewed and spikes at zero. The noted spike suggests that assigning last year's appraisal values in the subsequent year is a convention among many assessors dealing with existing residential property.

3. Results

The results of five regression model specifications are presented in Table 2. **ResidentialGrowth**_{*it*} is the dependent variable throughout. Each specification includes year fixed effects and robust errors clustered by municipality. Specifications 3 and 5 also include municipal fixed effects. In column 1, we run a simple ordinary least squares (OLS) regression on concurrent non-residential

growth, lagged residential growth, and **Elected**_{*i*}. In column 2, we run the same OLS model, but include budget and municipal control variables. The key control variable, concurrent growth in non-residential property, behaved as expected, with a large positive coefficient. A one standard deviation increase in appraisal growth rate of non-residential property correlated to 5% of a standard deviation increase in the growth rate of residential property.³ Residential appraisal growth was negatively correlated to residential growth from the previous fiscal year. A 1% increase in residential appraisal growth rate from the previous fiscal year led to a 0.23% drop in the following year's residential appraisal growth rate. This supports our hypothesis that assessors are reluctant to increase appraisal growth in consecutive years. Our control for change in tax-exempt property has identical positive coefficients in columns 2 through 5, and is significant at the 1% level, indicating that, when there is a greater change (in dollar value) of property exempt from taxation, assessors reacted with higher appraisal growth for tax-eligible property.

In columns 2 through 5, we include budgetary variables. The political economy model predicts that budgetary variables will have negative coefficients. While free cash, stabilization fund, local receipts, and state aid all have negative coefficients, only state aid and local receipts are statistically significant in any of the specifications. While the standard errors are too large for some of the coefficients to be deemed statistically significant, the fact that the coefficients are negative across all four budgetary variables in all five specifications supports the hypothesis that alternative revenue sources are preferred to appraisal growth as a means of raising revenues.

Column 3 includes the vector of override variables and municipal fixed effects. The only override-related variable that is statistically significant is **OverrideFail**_{*it-1*}. The variable's coefficient is negative, which supports the hypothesis that failed overrides signal high political costs of greater appraisal growth. The cumulative effect of failed and passed overrides is difficult to discern from the specification in column 3, given the low precision of coefficients. In columns 4 (OLS) and 5 (OLS with fixed effects), we interact **Override**_{*it-1*} with **Elected**_{*i*}. Separating the impact of override referendum outcomes in towns with elected assessors and towns with appointed assessors increases the precision of results. In columns 4 and 5, neither of the coefficients on the **OverrideFail**_{*it*} or **\$OverrideFail**_{*it*} variables, on their own, are significant, but both are significant at the 10% level when interacted with the **Elect**_{*i*} dummy. An override failure in a town with elected assessors has a baseline effect of a 3% drop in the appraisal growth rate (column 5). The effect scales up with the dollar value of the failed override. When a failed override requested a dollar amount less than 3.2% of the town budget, the net effect is negative. In our sample, 73% of failed overrides correlated to a negative impact on appraisal growth. This supports the hypothesis that political costs and fiscal benefits of appraisal growth are weighed by local officials. During most budgetary shortfalls, if the constituents reveal their strong preference against higher taxes by voting down an override, the political costs of appraisal growth are higher, and elected assessors react with lower appraisals. But, for the largest 27% of shortfalls, the fiscal benefits of greater revenue are sufficient, and assessors respond with higher appraisals.

The results of a passed override are more complex. The coefficients on **\$OverridePass**_{*it*}, **\$OverridePass**_{*it*} * **Elect**_{*i*}, and **OverridePass**_{*it*} * **Elect**_{*i*} are all statistically significant. The coefficient on **OverridePass**_{*it*}

³ We ran all stated specifications with lagged non-residential growth as well. Its coefficient was not significant, either statistically or in magnitude, and did not meaningfully change any results.

Table 2
Percent growth in appraised value of residential property (ordinary least squares).

	(1)	(2)	(3)	(4)	(5)
Residential growth (lagged)	−0.198*** (0.012)	−0.203*** (0.013)	−0.228*** (0.014)	−0.202*** (0.013)	−0.228*** (0.014)
Non-residential growth (concurrent)	0.426*** (0.091)	0.410*** (0.092)	0.413*** (0.094)	0.411*** (0.092)	0.414*** (0.094)
Δ exempt property	0.003 (0.003)	0.024*** (0.007)	0.024*** (0.007)	0.024*** (0.007)	0.024*** (0.007)
Chief assessor elected	−0.007*** (0.002)	−0.004* (0.002)		−0.003 (0.002)	
Override fail			−0.018* (0.010)	0.005 (0.011)	0.008 (0.014)
Override fail \$ amount (%)			0.412 (0.300)	−0.308 (0.313)	−0.376 (0.418)
Override pass			0.001 (0.009)	−0.006 (0.011)	−0.023 (0.015)
Override pass \$ amount (%)			−0.376 (0.271)	0.397 (0.271)	0.708* (0.383)
Elected * Override fail				−0.026* (0.014)	−0.030* (0.017)
Elected * Override fail amount (%)				0.766* (0.421)	0.941* (0.508)
Elected * Override pass				0.018 (0.014)	0.036** (0.018)
Elected * Override pass amount (%)				−1.090*** (0.341)	−1.516*** (0.456)
Free cash (%)		−0.010 (0.033)	−0.016 (0.048)	−0.012 (0.033)	−0.017 (0.048)
Stabilization fund (%)		−0.047 (0.040)	−0.032 (0.076)	−0.054 (0.046)	−0.033 (0.077)
Unemployment rate		0.197*** (0.061)	0.005 (0.131)	0.197*** (0.064)	0.008 (0.131)
Local receipts (%)		−0.013 (0.018)	−0.258*** (0.061)	−0.013 (0.018)	−0.256*** (0.061)
State aid (%)		−0.029*** (0.010)	−0.079 (0.058)	−0.029*** (0.010)	−0.080 (0.057)
Log population		0.003** (0.001)	0.028 (0.022)	0.003** (0.001)	0.029 (0.022)
Constant	−0.009* (0.005)	−0.019 (0.013)	−0.197 (0.195)	−0.017 (0.014)	−0.212 (0.197)
Error clustering by town	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Town fixed effects by town	No	No	Yes	No	Yes
Observations	5941	4911	4911	4911	4911
R-squared	0.463	0.457	0.470	0.459	0.472

Robust standard errors in parentheses. All specifications are across 351 Massachusetts towns for error clustering and fixed effects purposes. All budgetary variables are lagged values from the previous fiscal year (e.g., are concurrent at the time of appraisal).

* $p < 0.1$.
** $p < 0.05$.
*** $p < 0.01$.

is negative, but not significant at the 10% threshold ($p = 0.12$). A standard Wald test of the group of variables, however, finds their coefficients significant ($p < 0.01$).⁴ The reduced precision of the $OverridePass_{it}$ coefficient makes interpretation less reliable, but we include all four coefficients in interpreting the net effect of passed overrides. $OverridePass_{it}$ and $OverridePass_{it} * Elect$; serve as baseline impacts of the smallest dollar amount of passed overrides. We find that appointing towns have a negative baseline (that assessments shrink with override passage), but that the impact moves toward positive as the dollar amounts increase. In towns with appointed assessors, the net effect of passed overrides on appraisal growth is negative for the smallest 71% of overrides, but becomes positive when the dollar request exceeds 3.2% of the budget (29% of observed passed overrides). Conversely, we find a baseline that is positive in towns with elected assessors, but (quickly) moves towards the negative with larger dollar amounts. In towns with elected assessors, the net effect is negative when a passed override

requested a dollar amount more than 1.6% of town budget (59.6% of observed overrides). Interpretations of net effects are more precise for towns with elected assessors, but it holds true across the sample that the majority of passed overrides result in lower appraisal growth. Results for towns with elected assessors also support the political economy hypothesis as to the importance of political costs and fiscal benefits. In the event of a slight budgetary shortfall and a passed override referendum, the political costs of appraisal growth are revealed to be sufficiently low, and assessors react with larger appraisals. Most passed overrides, however, increase the tax burden on constituents enough that the political costs of a marginal increase in taxes, and the reduced fiscal benefit of raising taxes after the shortfall, result in lower appraisals.

In sum, we find that towns with appointed assessors assess higher growth rates as the cap on property tax revenues is raised. Towns with elected assessors, on the other hand, follow a more complicated political and fiscal calculus. When the town raises the revenue cap, elected assessors assess *higher* growth rates, unless the raise in the cap (and in, turn, the tax burden) is exceptionally large. Conversely, when constituents vote down a referendum to raise the cap, elected assessors assess *lower* growth rates, unless

⁴ The Wald test of all eight override variables (both standard and election interaction variables) is also significant at $p < 0.01$.

the raise in the cap is exceptionally large, signaling significant financial distress. For elected assessors, the municipal pressures to maximize revenue are tempered by political pressures to serve constituents and retain their office.

4. Conclusion

Our results illustrate the difficulty of engendering analytical neutrality in any subjective assessment that is directly connected to government revenues and the political fortunes of elected officials. Assessors face a distinct political calculus which relates to local fiscal conditions, alternative revenue sources, and the means by which assessors are selected. Further to this point, even a relatively small amount of political distance can insulate government officials from political pressures.

Policymakers, when designing institutions, would do well to consider the constraints on bureaucratic officials whenever the discretion imbued by the law is not revenue neutral. While discretionary power, particularly in areas as subjective as property assessment, is often inevitable, well-designed government institutions will actively seek to counterbalance budgetary incentives with the constraints of direct election and transparent decision-making.

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