Land, Power, and Property Tax Limitation[1]

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The property tax is the oldest tax in the United States, as well as being the only substantial tax on landed wealth, a major part of the housing expense of most American families, and the most important revenue source for local governments. It is also increasingly constrained by law. Since 1978, when California voters approved a ballot measure called Proposition 13 to limit the annual increase of local property tax revenues, 26 other states have enacted similar legislation. These property tax limitations are popular—one U.S. poll from summer 2014 finds that 70% of American adults agree that State government should limit the percentage that property taxes can be raised each year (Princeton Survey Research Associates International 2014)—but their effects are poorly understood.

This paper synthesizes the existing literature on property tax limitations to argue that they provide some homeowners with social protection at the price of diminished state capacity. Karl Polanyi (2001 [1944]) coined the term social protection to describe collective efforts to protect social relations from the disruptive effects of market exchange. Polanyi argued that land is often the focus of demands for social protection because land is a fictitious commodity (2001 [1944], p. 71)—both necessary for human social reproduction, and especially subject to market failures. This paper proposes an extension of his argument to the domain of fiscal sociology. Taxation can itself become the object of demands for social protection. Where authorities tax homeowners according to the market value of real estate, e.g., the tax itself can turn price fluctuations into income shocks, and demands to protect the values of home and community from the corrosive effects of the price mechanism therefore may extend to demands for protection from tax liability. Property tax limitations protect homeowners by decoupling their rights to habitation from the vagaries of market prices. But they also reduce public revenues, and thereby reduce the state's capacity to provide social protection in other ways and to other groups.

The paper proceeds in two parts. The first part outlines a Polanyian theory of property taxation, and provides a capsule overview of evidence for a Polanyian interpretation of the politics of property tax limitation. The second part summarizes the effects of property tax limitation on state

capacity by means of a formal meta-regression analysis of published studies of the effects of property tax limitations on property taxes, public revenues and expenditures. Many of the most vigorous debates about property tax limitation in the public sphere concern its impact on other aspects of social life; critics charge, for example, that a policy of property tax limitation can exacerbate housing inequality, distort land-use decisions, impair residential mobility, worsen local public services, block educational opportunity, and undermine trust in local government (see e.g. Schrag 1998). Whatever the indirect effects of property tax limitations on such distal outcomes, they are generally assumed to exert such effects by changing how governments tax and spend. Measures of tax revenues are a conventional indicator of state capacity, because taxation provides fungible resources for all of the activities of states (Lieberman, 2002; Martin, Mehrotra, and Prasad, 2009). This study investigates the effects of property taxation on state capacity by separately summarizing the available quantitative evidence on threee points: whether property tax limitations have the intended effect of reducing property taxes; whether they induce local governments to increase *other*, non-property taxes; and what net impact they may have on the magnitude of local government budgets. The evidence is consistent with the hypothesis that property tax limitations, on average, reduce aggregate local spending by as much as 5%. This is a substantial reduction in public spending, and the paper concludes with reflections on what implications property tax limitation might have for other aspects of social life.

Property tax between state and market

All taxes can be contentious. A tax is an obligation to transfer resources into a public fund without direct remuneration. The absence of direct and immediate recompense may establish an expectation of *indirect* reciprocity, as when taxpayers expect good government in return for their contributions. It thereby also creates the potential for conflict (see Martin et al., 2009; cf. Mauss, 1990

[1925]). The exchange is never exact, and the fairness of the transfer is, therefore, always potentially in question. It is likely that every tax has been evaded or resisted, at least sometimes.

The property tax may be particularly prone to provoking conflict, however, because it is primarily a tax on the market value of real estate. Although some state and local governments tax certain forms of moveable property, the bulk of the tax is on land, and on structures whose value derives substantially from their location on the land (Lincoln Institute of Land Policy and Minnesota Center for Fiscal Excellence, 2017). Land has peculiar characteristics that make it different from—and potentially more contentious than—other taxable resources. The most important of these characteristics derive from the fact that land is fixed in space.

The spatial fixity of land has made land tax a primary power resource for state-builders. A state is an organization that monopolizes the legitimate means of violence within a given territory (Weber 1946 [1918], p. 78). Its power derives from its legitimacy, but also from its ability to cage people and resources within its territory (Mann, 1986). People are mobile; the means of violence are portable. Land is neither. It is therefore a particularly opportune tax base for governments that do not control their borders. Producers can flee across the frontier to escape the tax collector, but they cannot carry their land with them. In part for this reason, land tax was one of the earliest forms of taxation, and one of the most universal in early states (Weber, 1924). Land tax lost importance in the early modern era as states established internal markets with well-defined borders: internal trade provided other resources to tax, and border enforcement permitted the collection of tariffs and customs duties on external trade (Seligman, 1919). But real estate remains an especially important tax base for sub-national governments within federal states (Bird and Slack, 2002; Slack, 2011). These are small polities with open borders. They do not much tax financial wealth, which can be easily carried across city limits. They tax real estate because it cannot.

The spatial fixity of land also makes land tax into a primary tool by which states have encouraged the development of private property and market exchange. A farm household in an agrarian society might be able to subsist without selling its produce or its labor power—but only until it is compelled by force to come up with money to pay taxes. The attachment of monetary obligations

to land has often forced people had to sell their land, sell their produce, or move in search of work. Weber (1891) argued that Western European ideas of private property had their origins in the administration of Roman land taxes, which individuated parcels and disambiguated ownership for the purpose of assigning fiscal obligations. Polanyi (2001 [1944], p. 172) pointed to colonial hut taxes as a key device by which European imperial powers deliberately forced colonized people to join labor markets. Even within developed market economies, the taxation of land is often seen as a tool by which states can encourage more intensive capitalist development (e.g. Dye and England, 2010).

The same characteristic of land also makes it a site of *resistance* to market relations. Land is central to human social reproduction and will remain so as long as community requires proximity in space. We come to value particular places because of the social activites that they enable and the associated meanings that those places hold for us. The use value of a place on earth includes its capacity to produce social or aesthetic experiences that are unique to that place. The difference between the use value of land and its exchange value in the marketplace is a contradiction in the Marxian sense that people who value the same place in these different ways may come into conflict (Molotch and Logan, 1990). Those who wish to realize the exchange value of land must appropriate it as private property, with the associated rights to exclude others, including others who may have deep social ties or sentimental attachments to the place. Those who regard a particular place as unique and incomparable because of what it means to them may resist those who value the same place primarily as a speculative investment, for whom its value comes from its *interchangeability* with other land and other commodities. Lefebvre (1991) famously, and obscurely, characterized the incompatibility between these viewpoints as a conflict between "representational space" and "representations of space." Polanyi (2001 [1944], p. 35), focusing on conflict between people who dwell on the land and people who sell the land for profit, described it as a conflict of "habitation versus improvement."

The spatial fixity of land also creates opportunities for collective action. Neighbors have particular capacities for collective action by virtue of the fact that they occupy adjoining places. The value of land, whether in use or in exchange, comes from its location in relation to *other* valuable land, and neighbors therefore often develop common sentimental attachments to the same places and

common economic interests in those places. They also have opportunities for face-to-face interaction that make it easier to mobilize collectively. The creation of markets always involves exclusion. But the creation of markets in land—more than the creation of markets in linen coats, software, or abstract financial instruments—tends to affront the customary rights of people who have the opportunity for collective action. For this reason, the creation of markets in land may be especially likely to generate what Polanyi called a countermovement (p. 136), or a countervailing collective action to sequester resources from market pressures. Polanyi argued that countermovements were especially to be expected when markets threatened people's customary standards of living. He included under the heading of countermovements a wide variety of measures and policies that might protect people from the economic shocks induced by market competition (p. 79).

A countermovement may be directed against property taxation because of the link between land taxes and market relations. A tax on the market value of real estate, for example, will fluctuate with price movements—and it can thereby transmit price shocks to people who value the land for its use. Consider a homeowner who derives no cash income from the ownership of a home, and who values it for its unique sentimental qualities rather than as a speculative investment. This homeowner nevertheless may owe property tax on the nominal market value of that home. That market value can be quite volatile for any of a number of reasons beyond the control of the household: the market value of a home may increase because, say, a neighborhood becomes fashionable, or the local labor force grows rapidly, or investors decide that housing is an especially attractive investment relative to other forms of wealth. Rapid increase in the value of a home can cause rapid changes in the household's tax obligations and thereby cause substantial shocks to a household's budget (see Anderson, 2012; Sheffrin, 2013).

Protest movements against the property tax have followed just such shocks. Figure 1 illustrates the pattern by depicting a time series of the annual rate of change in the aggregate value of owner-occupied housing minus the annual rate of change in GDP. The peaks in the graph correspond to years in which the property tax caused or exacerbated especially severe household income shocks, whether because taxable housing wealth was increasing much more rapidly than income, or because

income was falling much more rapidly than taxable housing wealth. Several of the peaks correspond to the most historically significant years of property tax protest in the long twentieth century, beginning with the Populist rebellion of the 1890s, which was directed partly against property tax grievances (see, e.g., McMath, 1993). Much of the subsequent historiography of property tax protest focuses on the state of California, where property values were particularly volatile in the twentieth century, and some examples from the historical literature on California will illustrate the twentieth-century pattern.

- California farmers and real estate agents launched a grassroots referendum campaign in 1910 for a measure called Amendment 1 that would shift the tax burden from land to corporate income (Martin, 2015).
- Several California municipalities experienced property tax strikes in 1932, and state officials proposed a program of property tax relief to pre-empt the threat of a California-wide tax strike (Martin, 2008; on other property tax strikes of 1932, see Beito, 1989).
- A Los Angeles property reassessment in the winter of 1957-8 provoked what Lo (1990, p. 112) has called the largest tax protest in California.
- The summer and fall of 1977 saw the largest petition drive in the history of California to that point, in support of a constitutional amendment to limit the property tax (Allswang, 2000).

An exception that tests the rule is 1946, the year of the greatest peak in the graph, when there was no property tax rebellion to speak of; what there was instead was the largest industrial strike wave in American history, in which the strikers demanded greater incomes, not least to meet the rising price of housing. In Oakland, California, for example, that year saw a historic general strike, followed the next year by an unprecedented grassroots mobilization to elect a labor slate to the city council on a platform that addressed the high cost of housing. The insurgent candidates demanded rent controls and a redistribution of the property tax burden from working class homeowners onto downtown businesses (see Rhomberg 2004, pp. 111-2). The comparison of these episodes suggests that the rapid increase of housing prices relative to income predictably created a critical mass of aggrieved potential

protesters, although the mere fact of this shared grievance did not tightly constrain the form of their protest, or the policy remedies that they would demand.

FIG 1 HERE

In the 1970s, these protest movements increasingly promoted a particular policy remedy: a law limiting the annual increase in the property tax levy. Figure 2 illustrates the cumulative number of states with property tax limitations. It counts states that had a legal limit on the annual increase in the total property tax revenues collected by local governments, and it includes limitations from the date that they effectively covered *all* categories of local government within a given state, including cities, counties, and school districts or the equivalent. What the graph illustrates is that property tax limitation policies began to spread particularly rapidly in the 1970s.

FIG 2 HERE

The micro-level evidence from studies of public opinion and voting is consistent with the hypothesis that it was rising property values that most encouraged popular mobilization for these property tax limitation policies. One study of Milwaukee, for example, found that the homeowners who signed a petition in support of property tax limitation in the summer of 1978 had experienced increases in the assessed market value of their property more than four times greater than the average for the city (Stein, Hamm and Freeman 1983, p. 190). In California, opinion polls showed that support for property tax limitation surged in Los Angeles County in the spring of 1978 immediately following the mailing of property reassessment notices, which notified taxpayers of large increases in the taxable market value of their homes; counties that did not mail reassessment notices saw no such surge in support (Sears and Citrin, 1986). Post-election polls from the June 1978 primary in California show that the magnitude of the expected property tax increase correlated strongly with the likelihood of voting in favor of Proposition 13 (Martin 2006, p. 545). Post-election polling from November 1978 in Michigan found that voters who paid a large share of property tax compared to others in the same community—that is, holding the local property tax rate constant—said they wanted greater reductions

in public spending and were generally more likely to support property tax limitation (Courant, Gramlich and Rubinfeld 1980, p. 6). In Massachusetts, a post-election survey from November 1980 found that residents of communities with the highest property tax rates were *least* likely to support property tax limitation (Ladd and Wilson 1983, p. 259). By contrast, homeowners the assessed market value of whose property was highest relative to others in the same community were *most* likely to support property tax limitation (p. 261). The mobilization for property tax limitation was not a response to high tax rates. It was a response to the taxation of property at its market value.

To understand the effects of property tax limitations, it is useful to resort to algebra. We may represent the total property tax revenues Y of a local jurisdiction schematically by the equation $Y=\tau\Sigma v_i$, where τ is the local property tax rate and v_i is the assessed value of an individual property i. Some early-twentieth-century efforts to limit property sought to constrain the tax by setting a maximum value for τ. The conventional scholarly wisdom is that these early property tax limitation laws proved to be easily circumvented. Local officials who were not free to increase τ could still achieve a desired increase of Y by manipulating the values of v_i, for example by changing their rules for evaluating property, or by exercising discretion in the application of those rules. The drafters of the late twentieth century and early twenty-first century property tax limitations therefore went further to limit the increase of Y, the total property tax levy.

The property tax limitations described in Figure 2 aim to limit the property tax in one of two ways.[2] The first strategy, which I will call an *explicit* levy limitation, is a fixed numerical cap on the annual growth rate of Y, the total property tax levy. If the aggregate value of local property is increasing faster than the cap permits—for example, if the housing market is booming—then jurisdictions subject to an explicit levy limitation must compensate for the increase in Σv_i by reducing

[2] This classification simplifies the bewildering variety of property tax limitations, and excludes several other kinds of tax and expendiure limitations (or TELs) that are commonly classed with them. For the canonical conceptual typology, see Joyce and Mullins (1991); for other important overviews, see Mullins and Wallin (2004), Anderson (2006), and Haveman and Sexton (2008).

the property tax rate τ. The best-known property tax limitation of this type is Massachusetts' Proposition 2½, a 1980 law that, subject to some exclusions and caveats, constrains the aggregate property tax levy of any local government to increase by no more than 2.5% per year, plus an allowance for any new development that was added to the property tax base. The second strategy, which I will call *implicit* limitation, does not constrain Y directly, but instead imposes both a maximum value of τ and a legal cap on the growth rate of v_i, the assessed value of any individual parcel. Implicit property tax limitation works by changing the rules for valuation of property. If the market value of local property is increasing faster than the cap permits, then local officials who are subject to an implicit property tax limitation must permit the assessed values of at least some individual properties to diverge from their market values. The best-known policy of this type is California's Proposition 13, which constrains the tax rate to 1%, and constrains the assessed value of any individual property to increase no more rapidly than 2% per year until the parcel is sold, regardless of the change in its market value in the meantime. When an assessment limitation is combined with a limitation on the property tax rate, as it is in the case of Proposition 13, it is also a *de facto* limitation on the growth of the aggregate property tax levy. Unlike explicit levy limitations, however, an assessment limitation has the additional consequence of freezing the distribution of tax payments within the taxing jurisdiction. Under an assessment limitation, even very great relative changes in the value of real estate within the taxing jurisdiction must go unrecognized for tax purposes.[3]

[3] A further distinction may be drawn between assessment limitations that permit reassessment at the time a property is sold (as with Proposition 13) and assessment limitations that do not (as is the case, for example, with Oregon's Measure 50). The former type is much more common, and is sometimes called acquisition value assessment (O'Sullivan et al., 1995) in contrast to market value assessment, because it amounts to taxing property on the value it had at the time it was acquired (plus an inflation adjustment).

What explicit and implicit levy limitations have in common is that they protect property owners from economic shocks that may arise from real estate price movements—and that they do so by limiting the resources available to local governments. These two types of property tax limitation otherwise differ in various ways. They may have different implications for the distribution of housing wealth and the operation of housing markets. They may also have different implications for voter awareness: implicit levy limitations allow every individual real property owner to monitor a local government's compliance with the limit simply by reading year-to-year changes in his or her own property tax bill (Seljan, 2014). Both types of levy limitations, however, decouple property tax revenues from movements of the real estate market. And, as the following section will show, both types of limitations may have the effect of reducing state capacity in the long run.

Property tax limitations and state capacity: a meta-regression analysis

The question of whether, and how much, property tax limitations affect state capacity has been the subject of considerable empirical inquiry, because it is not obvious that a policy of property tax limitation should have any effect. In the first place, the degree to which a limitation actually constrains the growth of the property tax levy depends on quantitative policy parameters. These vary substantially—California's implicit property tax limitation caps annual increases at 2%, for example, while Minnesota's explicit limitation caps annual increases at 3.9%—and some may be set so high that in a normal year they do not affect the behavior of local taxing authorities at all. State legislators might adopt an effectively nonbinding property tax limitation as a purely symbolic gesture, pandering to voters who like the idea of property tax limitation while avoiding the difficult conflicts entailed by any serious effort at retrenchment of local spending. In the second place, even potentially constraining property tax limitations may be circumvented. Public officials are not always faithful executors of policies made by others, perhaps especially not when the purpose of those policies is to constrain their power. Local officials who wish to increase revenues faster than a property tax levy limitation permits

might have a variety of options, ranging from the creation of additional taxing jurisdictions, to the creative legal interpretation of what counts as a property tax, to simply raising taxes in defiance of state law. The options for circumventing a given property tax limitation will presumably depend on the particulars of how the law is drafted, but if such options exist, we might expect that revenue-hungry officials will be motivated to find them (Kousser, McCubbins and Moule, 2008).

Even if property tax limitations *do* constrain property tax revenues, moreover, that does not mean that they constrain the growth of local government revenues or expenditures more generally. One one hand, officials who find their revenues constrained by a property tax limitation may simply increase other taxes to compensate for the unavailable property tax revenues. Some libertarian advocates of small government, reasoning along these lines, have been skeptical of property tax limitation: a policy of property tax limitation may introduce market distortions without actually constraining the increase of local budgets (e.g. Buchanan, 1979). On the other hand, the alternative revenue sources available to local government may not permit the same revenue growth as the property tax, inasmuch as they are more structurally constrained by tax competition. In contrast to real estate, other tax bases—such as sales or income—are more easily moved outside the city limits, and this mobility can provide a check on the growth of revenues. To the extent that a property tax limitation induces local government to shift from taxes on real estate to taxes that are levied on more mobile resources, it may constrain the growth of government indirectly.

Although several studies examine the effects of property tax limitation, conceptual and methodological differences among these studies complicate the interpretation of their findings. Conceptually, many studies of the impact of property tax levy limitations lump them together with one or another set of policies that limit the growth of local revenues or expenditures. This literature on the fiscal impact of tax and expenditure limitations (TELs) in general (see the summary in Ballal and Rubenstein, 2009) provides only limited information about the effects of property tax limitation in particular. Different kinds of TELs may have very different effects. Methodologically, social scientists have relied on regression analysis of observational data to identify the effects of property tax limitation, and differences in the specification and estimation of these regression models may affect

the estimates they yield. The existing studies also analyze data corresponding to different places, units of analysis, and years: they range from cross-section time-series analysis of local government revenues aggregated to the state level, to short panels of data on specific categories of local government within a single state. Even when these studies aim to estimate the same conceptual parameter (say, the effect of property tax limitation on property tax revenues per capita), the parameter in question may be context-dependent in ways that would make a simple average misleading.

My solution to these problems in the remainder of this paper is not to discard prior research but instead to summarize its findings with meta-regression analysis. Meta-regression analysis is a formal method for summarizing the results of quantitative research. This method permits us to average the findings of multiple studies, thereby increasing our sample size and reducing uncertainty, while adjusting the average for known differences in conceptualization, regression specification, and context. When confronted with multiple studies of the same quantitative relationship, one often wants to know an average result, and when the studies come to different conclusions, one may also wish to know whether the differences depend systematically on characteristics of the study. This is a problem in estimating a conditional mean; and in principle, regression analysisis by the method of least squares calculates the best linear unbiased estimate of a conditional mean. Thus meta-regression analysis: a regression analysis that takes as its data the coefficients estimated in previous regression analyses.

The process of summarizing the literature on property tax limitation with a meta-regression analysis proceeded in three stages: the construction of a sample of estimates, the coding of study characteristics, and the statistical estimation of a conditional mean.

The construction of the sample. I selected every estimate I could identify that met three criteria. First, it was *published since 1978*, the year of California's Proposition 13, *in a peer-reviewed journal*. Some recent methodological texts on meta-analysis counsel the inclusion of unpublished studies in order to counteract the assumed bias of journal editors in favor of publishing papers that show large and statistically significant results (see e.g. Ringuist, 2013, Poot, 2014). The available methods for identifying, locating, and retrieving the relevant unpublished studies, however, have not

been shown to address the most important sources of selection bias, and they may introduce potential selection biases of their own that are at least as grave as those they are designed to correct.[4] The virtue of selecting only peer-reviewed studies is that it provides an impersonal and replicable criterion for identifying available results of adequate quality.

Second, studies to be included must have *reported at least one regression estimate of the partial coefficient of property tax levy limitation* in a regression of state or local revenues or expenditures. This criterion excluded qualitative case studies (e.g., Bennett and DiLorenzo, 1982; Saxton, Hoene and Erie, 2002) and simulations (e.g., Agarwal and Morgan, 1985; Anderson, 2012; Julia-Wise, Cooke and Holland, 2002; Waters, Holland, and Weber, 1997). It also excluded studies of state tax and expenditure limitations that do not limit the local property tax (e.g. Kioko and Martell, 2012).

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[4] The literature on meta-analysis discusses the problem of publication bias as the file drawer problem (Rosenthal, 1979; Simonsohn et al., 2014): journal editors may regard statistically insignificant results as uninteresting, and such results may therefore end up gathering dust in a file drawer, even if they are correct. The potential for such bias is real, but the mechanisms producing it are many and subtle, and the image of dozens of relevant papers sitting in file drawers for every published result is misleading. The realities of contemporary statistical practice in the social sciences are such that a statistically insignificant or equivocal result may not even be saved on a hard drive, or recognized by the investigator as a result worth writing up—much less written up in a paper that will be saved for decades in a file drawer, only to be remembered and made available, on request, to a stranger who may be suspected of having an axe to grind. An additional complication is that many rejected or unsubmitted papers, and perhaps most, may have been rejected or remained unsubmitted for the good reason that their methods were unsound. Even if an unbiased index to the proverbial file drawer studies existed, so that a representative sample of these studies could be obtained, they must then be vetted for relevance and quality. There is no reason to think that the judgments of meta-analysts about these matters are more unbiased than the judgments of journal referees.

Although regression-based designs were common in the literature, different studies employed different operational definitions of property tax limitation. Because the focus of this review is on property tax levy limitations, I excluded studies of laws that merely capped the property tax rate, without also limiting the annual growth of property tax revenues (see, e.g., Nguyen-Hoang, 2013); but I included studies of implicit levy limitations that capped the property tax levy by capping the property tax rate *and* the annual increase of assessed property values. I included studies that grouped subtypes of modern property tax levy limitation together, as well as studies that treated them separately. I also included studies that subsumed property tax limitations into a more general category of policy such as potentially binding tax and expenditure limitations (Joyce and Mullins, 1991) and reported estimates of the average impact of policies belonging to the more general category.

Third, I included only estimated coefficients of property tax limitation from regression models that operationalized the presence of property tax limitation *as a dichotomous variable*. The estimates summarized here therefore refer to the average difference in the measured outcome between units with and without property tax limitations. This regression specification is common in the literature—it is, indeed, the only specification common to more than one study, and thus the only specification that permits a quantitative summary of any kind—but it disregards potentially relevant differences in the stringency and coverage of property tax limitations. A study using this method will yield an estimate of what the average property tax levy limitation has done, which is likely to be a conservative estimate of what the most stringent property tax limitations have done, to say nothing of what property tax limitations *can* do. To the extent that this dummy variable specification averages over differences among heterogeneous policies, we may expect that coefficients will be biased towards zero. Alternative specifications in the literature model the effect of property tax limitation as a variable function of home prices (Alm, Buschman, and Sjoquist, 2011); as the coefficient of the number of kinds of tax and limitation laws implemented in a given state, from zero to two (Baker, 2003); as a function of the number of years in which levy reductions were required to meet the target (Bradbury, Mayer and Case, 2001); and the coefficient of the percentage of value exempt from taxation (Twait, 2011). Such alternative specifications generally find that property tax limitations do,

in fact, reduce state capacity, but they do not yield commensurable estimates, and so they are not easily summarized with a statement about *how much* property tax limitations reduce state capacity. Because my present purpose is to say something about how much, on average, property tax limitations reduce state capacity, I limit my attention to studies that produce commensurable answers to that question.

The search for estimates that met these criteria proceeded in stages. First, I consulted published literature reviews including Anderson (2006), Haveman and Sexton (2008), Martin (2008: ch. 7), and Ballal and Rubenstein (2009). Second, I searched the Social Science Citation Index, Google Scholar, and JSTOR with the keywords property tax or the combination of the keywords tax and limitation. I inspected all titles and abstracts for relevance, and I read a subset of 80 studies that appeared likely to meet the criteria for inclusion. Third, I identified relevant sources cited in the studies I had selected for inclusion. I also conducted a reverse bibliographic search for recent studies that cited the studies I had already selected for inclusion. Fourth, I consulted the tables of contents of relevant journals that I had identified in the early stages of my search, including the *National Tax Journal*, *Regional Science and Urban Economics*, *Public Finance Review*, *Education Finance and Policy*, and *Public Budgeting and Finance*.[5] The studies that were selected for inclusion are described in Table 1.

TABLE 1 HERE

Coding procedures. Once I selected studies, I recorded the estimated impact of property tax limitation. I transformed each estimate into a *semi-elasticity of dollars per capita*, or the estimated percentage difference in dollars per capita between a unit with property tax limitation and a unit

[5] While this systematic search strategy gives me some confidence that my sample is complete, in the sense that it includes every estimate meeting my search criteria that was published in a peer-reviewed journal from 1978 to the present, I would welcome references to any additional studies that meet these criteria if I have missed them.

without property tax limitation. In most cases this required no transformation whatsoever, as most of the regression specifications in the literature are designed to estimate semi-elasticities of per capita fiscal quantities. The appendix to this paper lists the different functional forms of the regression estimates included in the database, and the algebraic transformations (if any) that were required to render them into comparable semi-elasticities.

I also coded each estimate for characteristics of the underlying regression model. First, I coded a dichotomous variable equal to one if the model lumped together property tax limitation with other limitations on local government revenues or expenditures. Second, I coded a dichotomous variable equal to one if the regression equation omitted to control for the presence of other local TELs. A model that does not control for the presence of alternative forms of local TEL may underestimate or overestimate the impact of property tax levy limitation. Third, I coded a dichotomous variable equal to one if the underlying study sample was limited to a single state. Fourth, I also coded for whether the underlying regression equation included any adjustment for unmeasured time-invariant differences between jurisdictions with and without property tax limitation. A study might adjust for such time-invariant charateristics by including jurisdiction-specific fixed effects, or by first-differencing all variables. A study that fails to adjust in either of these ways is likely to confound the impact of a property tax limitation with the impact of unmeasured characteristics of the states that subsequently adopt a property tax limitation. All of these dichotomous variables are coded so that the reference category is the preferred specification. Thanks to this coding scheme, the intercept in the meta-regression analysis that follows may be interpreted directly as the effect we would expect to estimate in a model with the best specification: namely, one that that treats property tax limitation separately from other TELs, controls for the presence of other local TELs, samples multiple states, and controls for time-invariant characteristics of the jurisdiction. Note that even with these adjustments, however, the outcome of the meta-analysis is an average coefficient; and if the effects of property tax limitations vary systematically with other, unmeasured features of context, then the average may be uninformative or misleading.

I report separate meta-analytic results for each of three dependent variables. The first dependent variable is the estimated impact of property tax limitation on property tax revenues per capita. The second dependent variable is the estimated impact of property tax limitation on other (non-property-tax) revenues per capita. This general heading encompasses all estimates of the impact of property tax limitation on revenues from any non-property-tax revenue source, where the sources in question range in specificity from such specific categories as school lunch fees per capita to such general categories as total per capita local own-source revenues net of property taxes. The heterogeneity of fiscal variables under this heading might lead us to expect that property tax limitation would have heterogeneous effects, in which case any estimate of the *average* effect of property tax limitation on non-property-tax revenues may be biased toward zero. The third dependent variable is the estimated impact of property tax limitation on any aggregate measure of local government budgets, including measures of local expenditures and various total measures of local revenues (e.g., total revenues, total own-source revenues, or total tax revenues). At the local level, aggregate revenues and aggregate expenditures are roughly equivalent measures of the overall magnitude of a public budget, because bond markets and, in many cases, state and local law effectively prohibit local governments from operating at a deficit for any length of time. Table 2 reports the number of estimates and the means of these variables, alongside the mean of the dependent variable, for each of three dependent variables in this study.

TABLE 2 HERE

Statistical methods. The standard regression assumption that errors are independent and identically distributed is inappropriate in the context of a meta-regression of published research results. Because the data are regression estimates with unequal variances, they are not identically distributed. I therefore fit the meta-regression equations by generalized least squares, with each observation weighted in proportion to the inverse of the standard error of the semi-elasticity (see Koetse, Florax, and de Groot, 2010; Poot, 2013). Because multiple estimates from the same published study are unlikely to be independent of each other, I treat each published study as a cluster of

observations, and compute the standard errors of the meta-regression from a cluster robust variance estimator that permits an arbitrary correlation structure among observations from the same cluster (see Ringquist, 2013). Finally, I compute statistical significance tests for coefficients using the wild cluster boostrap recommended by Cameron and Miller (2015) for clustered data with few clusters.[6]

Findings. Do property tax levy limitations actually limit the property tax levy? To answer this question I summarize 41 estimates of the impact of property tax limitation on per capita property tax revenues from 11 studies. Summary statistics suggest that property tax limitations do have the intended effect: they reduce property tax revenues. The precise magnitude of the effect is unclear. The unweighted average semi-elasticity is -0.13; the weighted average semi-elasticity, with weights proportional to the inverse of the standard error, is -.11. Many of these studies lump property tax levy limitations together with other TELs, and it is not clear from the average what portion of the average effect is attributable to property tax limitation as such.

To adjust for differences in conceptualization and measurement of the impact of property tax limitation, I therefore regressed the semi-elasticity of property tax revenues per capita on a vector of dummy variables describing study characteristics. The first column of Table 3 reports the results. The intercept, -0.11, describes the proportional impact of property tax limitation on property tax revenues

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[6] The p-value associated with a focal variable represents the proportion of times that a t-statistic computed from the coefficient and standard error of that variable exceeded the analogous t-statistic computed after a regression over one of 999 pseudo-samples generated from a simulation that assumed the null hypothesis to be true. In each pseudo-sample, the dependent variable y was replaced by a predicted value $y^*=\boldsymbol{\beta}'\mathbf{x}+\delta_i u$, where u was the residual from a regression of y on all x's except the focal variable; i indexes the cluster (in this case, the published study); and δ_i was a randomly chosen (wild) element of $\{-\sqrt{1.5}, -1, -\sqrt{.5}, \sqrt{.5}, 1, \sqrt{1.5}\}$. In monte carlo studies of clusterered data with few clusters, this wild cluster bootstrap has been shown to produce more accurate p-values than the cluster robust variance estimator, which only approaches satisfactory levels of unbiasedness and efficiency as the number of clusters exceeds about fifty. See Cameron and Miller (2015).

per capita that we would expect to measure in a study with the best specification (a study of property tax limitations only, controlling for the presence of other local TELs and for time-invariant characteristics of the jurisdiction, in a sample covering multiple states). The bootstrapped p-value of .098 means that an effect of this magnitude would be expected by chance in fewer than 10% of cases if the true effect were zero. The meta-analysis also reveals how measurement choices of prior studies may affect their estimates. Studies of single state, for example, are expected to find even stronger effects of property tax limitation on property tax revenues. It may be that single-state case studies are likely to be conducted in states that have especially stringent property tax limitations, while multi-state studies average across property tax limitations of variable stringency in ways that attenuate estimates of the effects of the strictest property tax limitations. The meta-regression results also show that regression analyses that fail to control for the confounding presence of other forms of TEL may substantially underestimate the impact of property tax limitation.

TABLE 3 HERE

Do property tax limitations increase reliance on other revenue sources per capita? I summarize 59 estimates from six studies. The weighted average semi-elasticity of 0.035 suggests a positive impact, but this quantity averages a decidedly mixed pattern of findings, including several negative semi-elasticities, two large positive outliers, and most estimates quite close to zero. The variability in findings may be dependent on the particular non-property-tax revenue source in question or on other study characteristics. The meta-regression results summarized in the second column of Table 3 clarify that the expected effect of a property tax limitation on non-property-tax revenues is indistinguishable from zero. The intercept of .006 implies that the best estimate (from a multi-state study that distinguishes property tax limitations from other TELs, controls for the confounding influence of other TELs, and controls for time-invariant characteristics of the jurisdiction) is trivially different from zero, and the bootstrapped p-value of .55 indicates that an estimate at least this large might be expected by chance in a majority of cases even if the true effect were zero. It may be that property tax limitations truly have no effect on other tax and non-tax revenue sources, or it may be

that the average effect is attenuated by the heterogeneity of estimates summarized in this meta-regression, which concern a variety of non-property-tax dependent variables. All of the estimates are from multi-state studies, but the variation in findings also might reflect other sampling differences in the time periods or jurisdictions studied, and, by extension, real heterogeneity in local governments' revenue strategies. Local officials have many options for adapting to a property tax limitation; one city might raise sales taxes, while another might cut expenditures, and a third might rely on a mix of increased fees and hotel taxes, or what have you.

If property tax limitations decrease property tax revenues, and do not cause an increase in revenues from alternative sources, then it is to be expected that their net impact on aggregate local government revenues and aggregate local expenditures will be negative. That is indeed what meta-analysis shows. The literature includes 59 estimates of the impact of tax limitation on various measures of aggregate local budgets from 14 studies. The estimates included here include estimated impacts on measures of aggregate local government revenues per capita (from multiple sources that include the property tax), and measures of local government expenditures per capita. Most estimates of the impact of property tax levy limits on these per capita budget quantities are negative. The unweighted mean semi-elasticity is -.027, but this average is influenced by a substantial outlier, and the weighted semi-elasticity is only -0.0065. Property tax limitations reduce local government spending, but the proportional impact on spending is not as great as the proportional impact on property tax revenues. The finding of a moderate negative impact is what we should expect: all else being equal, an 11% reduction in property tax revenues will imply a less-than-11% reduction in the local budget, unless a local government relies exclusively on property tax revenues.

The meta-regression results in the last column of Table 3 confirm that property tax limitation has a negative impact on total local spending per capita. The intercept, which represents the expected impact of property tax limitation on aggregate local budget estimated in a model with the preferred specification, is -0.053, with a bootstrapped p-value of .046. We may infer with a relatively high degree of certainty that budgets per capita after adoption of a property tax limitation are, on average, about 5% lower than they would be otherwise. The coefficient of +.063 associated with models that

omit controls for other local TELs implies that the impact of property tax limitation can be entirely obscured by the confounding presence of other policies that limit local government revenue or expenditure growth.

The social impact of property tax limitation

The most general implication of these findings is that property tax limitation is a policy with distinctive consequences—at least in part because the taxation of land differs from other forms of taxation. The heterogeneous findings of the literature on tax and expenditure limitations or TELs, particularly with respect to the effects of TELs on aggregate fiscal quantities *other* than property tax revenues, result both from heterogeneous measurement decisions and from real heterogeneity in the effects of the various policies at issue. The evidence reviewed here suggests that the umbrella category itself may have limited analytical utility. To generalize about the effects of TELs is to overgeneralize. A limitation on the growth of the property tax levy can have the effect of limiting the growth of local spending, but it does not necessarily have the same effect as an explicit limitation on local spending, or as an easily evaded limitation on the property tax rate, or as a non-binding truth-in-taxation policy that merely requires voter notification of revenue increases. And its effects may be very different indeed from those of a limitation on *state* appropriations or expenditures (cf. Kioko and Martell 2011).

In particular, the findings summarized here are consistent with the hypothesis that property tax limitations provide social protection to some homeowners, but at the cost of diminished state capacity—including, ironically, the capacity to provide social protection to other people or groups. A state policy of property tax limitation may be a major constraint on the growth of local government finance. By limiting the ability of local officials to tax the one resource that cannot be moved across county lines, property tax limitation constrains local revenues in general. Because local governments cannot long spend more than they take in, property tax limitation will tend to restrain the capacity of

the local state to provide public services. The political sociology of the welfare state has sometimes associated Polanyi's concept of the countermovement with mobilization in support of the welfare state (e.g. Esping-Andersen 1990). But Polanyi (2001 [1944]) noted that social protection from the market could also take conservative and anti-statist forms of social closure against the market, including the defense of local status orders and quasi-feudal property relations. Property tax limitation more resembles the latter. At its limit, property tax limitation may approximate a regime of aristocratic privilege, in which a socially closed group of landed property owners enjoy tax exemptions linked to their special status.

The findings summarized here also suggest that some of the critics' claims about the broader social impacts of property tax limitation may be plausible hypotheses worth testing. It is a foundational principle of fiscal sociology that taxation has important consequences for resources available to the state, and thereby, in Joseph Schumpeter's phrase, for all of "the deeds its policy may prepare" (1991 [1918], p. 101). By reducing the taxation of real estate, a policy of property tax limitation may have a substantial impact on the inequality of housing wealth, and thereby on wealth inequality in general. By reducing local spending, property tax limitation may reduce spending on services from public education to public health that are particularly important to the household budgets of low-income Americans. Education is particularly important, and particularly concerning: local property taxation is the single greatest source of funding for public schools, and resource inequalities among school districts may produce substantial inequalities in learning outcomes (Jackson, Johnson, and Persico, 2016; Lafortune, Rothstein, and Schanzenbach, 2018; Owens, 2017). Researchers have found that districts subject to property tax limitations may have larger class sizes (Figlio, 1997), worse teacher qualifications (Figlio and Rueben, 2001), and lower test scores (Downes, Dye and McGuire, 1998; Figlio, 1997). Property tax limitation may also affect other social outcomes with socio-economic gradients, from subjective outcomes such as well-being, satisfaction with public services, and trust in government, to intersubjectively verifiable outcomes such as morbidity and mortality (see Newman and O'Brien, 2010).

Karl Polanyi argued 75 years ago that land was necessary to social reproduction, and that whenever land was treated as a pure commodity, households therefore could be expected to take collective action to protect their social ties from the destructive effects of the price mechanism. He also argued that such protection sometimes comes at a steep social and cultural cost. If we object to the stratifying effects of property tax limitation, we would do well to consider alternative means of providing households with economic security.

Appendix

All of the studies summarized in the meta-regression analysis report regressions of fiscal quantities on a dummy variable representing the presence of a property tax limitation (or a more encompassing category of TEL). The regression specifications vary, and in order to summarize them meaningfully it is necessary to transform regression coefficients into a common measure of impact. I chose the *semi-elasticity of dollars per capita*, or the proportional change in per capita fiscal quantitites associated with the presence of a property tax limitation. Most regression specifications included one coefficient that could be interpreted directly as a semi-elasticity of dollars per capita, but in some cases the transformation of the coefficient into a semi-elasticity required additional information about the mean of the dependent variable. The appendix Table A lists the studies summarized here by generic regression specification, and details the algebraic form of the semi-elasticity derived from each generic specification. The notation is as follows: Y is the dollar-denominated fiscal variable (usually representing a measure of aggregate revenues from a particular source, but in some cases representing aggregate expenditures or aggregate revenues from multiple sources, as in the meta-analysis summarized in Figure 3). T is a dummy variable for the presence of a property tax limit. P is the measure of population that provides the denominator of per-capita calculations (usually P represents the total residents of a given jurisdiction, but some measures of school revenues or expenditures are

reported in the literature per pupil rather than per adult resident). X is a vector of covariates including a constant. The Greek letter β represents the regression coefficient of T, γ represents the regression coefficient of X, φ represents the regression coefficient of P, and ε represents the error term. Horizontal bars over letters represent mean values. All quantities are annual measures, unless prefixed by the Greek letter Δ, which signifies year-on-year change.

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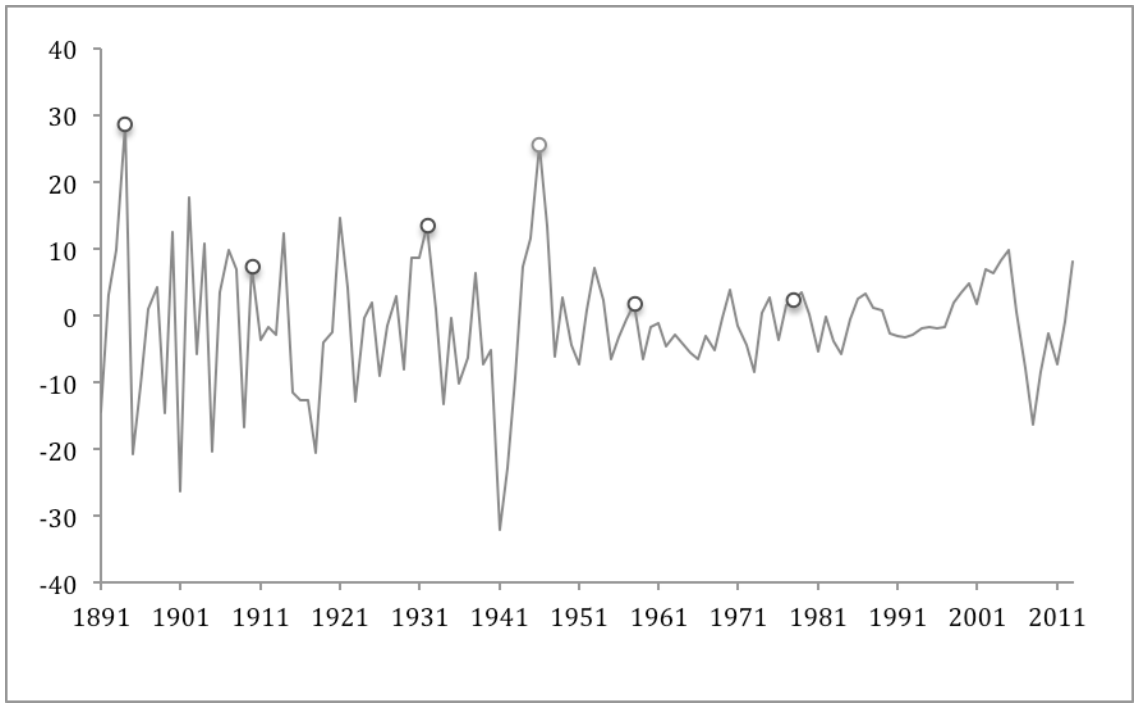
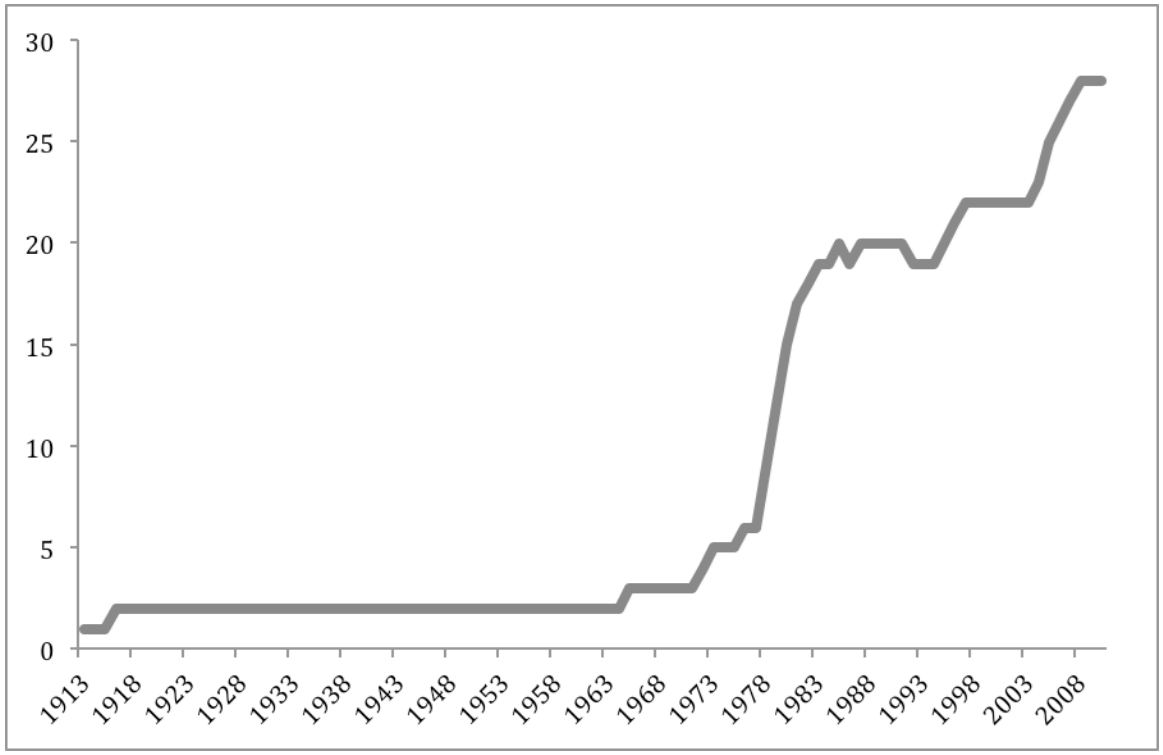
Figure 1. Difference between growth rate of housing prices and growth rate of GDP per capita



Sources: Shiller 2015; Sutch 2006; Bureau of Economic Analysis

Notes: Circled data points correspond to the dates of well-known property tax protests, including the Populist rebellion (1894), the campaign for Amendment 1 in California (1910), the Great-Depression-era wave of tax strikes (1932), the Oakland general strike (1946), the largest property tax protest in the history of Los Angeles (1958), and the campaign for Proposition 13 in California (1978).

Figure 2. States with explicit or implicit limitations on the property tax levy, 1913-2010



Source: Martin and Beck 2016

Table 1. Selected characteristics of studies in the sample

Publication	**Unit of analysis**	**Sample(s)**	**Sample years**	**Dependent variables**
Preston and Ichniowski (1991)	Municipality	U.S.	1976 - 1986	Total rev., property taxes
Dye and McGuire (1997)	Various	Various	1987 - 1993	Total exp., instructional exp., operating exp.
Figlio (1997)	School	U.S.	1987 - 1993	Administrative exp.
Shadbegian (1998)	State	U.S., excl. Alaska	1972 - 1992	Local own-source general rev., property taxes
Skidmore (1999)	State	U.S., excl. Alaska	1976 - 1990	Property taxes, non-property taxes, federal and state aid, local charges and misc. rev., state misc. rev.
Shadbegian (1999)	County	All counties	1976 - 1990	Own-source general rev., property taxes, non-property taxes, non-tax rev.
Skidmore (1999)	State	U.S., excl. Alaska	1962 - 1987	Local own source rev.
Figlio and O'Sullivan (2001)	Municipality	Cities with pop. >2000	1975 - 1986	Administrative exp., police and fire exp.
Shadbegian (2003)	State	Contiguous states	1966 - 1992	Local direct own-source education exp.
Blankenau and Skidmore (2004)	State	Contiguous states	1971 - 1993	Local direct own-source education exp., state aid to school districts

Dye Mcguire McMillen (2005)	School district	Illinois school districts	1988 - 2001	Operating exp., instructional exp.
Gore (2009)	Municipality	U.S.	1997 - 2003	Total taxes, property taxes
McCubbins and Moule (2010)	State	U.S., excl. Alaska	1980 - 2000	State and local property taxes
Anderson (2011)	City	Minnesota	1977 - 2002	Total exp.
Hoyt, Coomes and Biehl (2011)	State	States	1977 - 2002	Property taxes, non-property-taxes, education exp.
Jung and Bae (2011)	County	U.S.	1980 - 2003	Own source rev., total taxes, user charges
Anderson (2011)	City	Minnesota	2000 - 2001	Capital exp., current exp., property taxes, intergovernmental aid
Seljan (2014)	State	U.S., excl. Alaska	1970 - 2006	State and local property taxes
Sun (2014)	Municipality	Cities with pop.>25,000	1970 - 2006	Property taxes, sales taxes, income taxes, other taxes, misc. general rev., user charges
Downes and Killeen (2014)	School district	U.S.	1972 - 2008	Fees, transportation fees, rev. from school lunch, total own-source non-tax rev., rev. from local sources

Table 2. Sample means of selected study characteristics, by dependent variable

	Dependent variable is impact of property tax limitation on...					
	...property tax revenue		... non-property-tax revenues		...total revenues or expenditures	
	unweighted	weighted	unweighted	weighted	unweighted	weighted
Semi-elasticity	-0.13	-.011	0.19	.035	-0.027	-0.0065
Independent variable *includes* other local TELs? (1=yes)	0.54	.37	0.85	.83	0.69	0.73
Model *fails* to control for other local TELs? (1=yes)	0.76	.80	0.73	.89	0.71	1.00
Sample is from a single state? (1=yes)	0.24	.97	0	1	0.17	0.26
Model is *unadjusted* for time-invariant characteristics of state or jurisdiction? (1=yes)	0.46	.10	0.14	.03	0.39	0.40
N estimates	41		59		59	
N studies	11		6		14	

Table 3. Results of meta-regression analysis

	Property tax		Other revenues		Total revenues or expenditures	
	Effect	p-value	Effect	p-value	Effect	p-value
Intercept	-.114	.098	0.006	.55	-.053	.046
Estimated effect *includes* other local TELs? (1=yes)	-.006	.466	-.021	.42	-.017	.434
Model *fails* to control for other local TELs? (1=yes)	.108	.168	.052	.326	.063	.026
Sample is from a single state? (1=yes)	-.034	.098	...		-.027	.300
Model is *unadjusted* for time-invariant characteristics of state or jurisdiction? (1=yes)	.009	.122	-.002	.89	-.0085	.390
N estimates	41		59		59	
M studies	11		6		14	

Note: P-values are computed from a wild cluster bootstrap (see Cameron and Miller 2015).

Table A-1. Functional forms of regression equations and derived semi-elasticities of dollars per capita with respect to property tax limitation

Functional form	Derived semi-elasticity	Sources reporting models with this functional form
$ln(Y/P) = \beta T + \gamma X + \varepsilon$	β	Anderson (2011), Downes and Killeen (2014), Shadbegian (1998)
$(Y/P) = \beta T + \gamma X + \varepsilon$	$\beta / \bar{Y}$	Blankenau and Skidmore (2004); Figlio and O'Sullivan (2001); Hoyt, Coomes and Biehl (2011); Jung and Bae (2011); Shadbegian (1999); Shadbegian (2003); Skidmore (1999); Sun (2014)
$ln(Y) = \beta T + \varphi ln(P) + \gamma X + \varepsilon$	β	McCubbins and Moule (2010), Seljan (2014)
$\Delta Y/Y = \beta T + \varphi \Delta P/P + \gamma X + \varepsilon$	β	Dye and McGuire (1997); Dye, McGuire and McMillen (2005)
$\Delta(Y/P) = \beta T + \gamma X + \varepsilon$	β	Dye and McGuire (1997); Gore (2009); Preston and Ichniowski (1991); Shadbegian (1998)