Fiscal Externalities of Transaction Taxes: Evidence from the Los Angeles Mansion Tax*

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Abstract

We estimate the fiscal externalities of a property transfer tax, the Los Angeles "Mansion Tax", on the revenues from property taxes when assessed values are closely tied to transactions. In California, as in over half of U.S. states, growth in tax assessments between transactions lags market values, so any reduction in transaction frequency reduces the growth of property tax revenue. The fiscal externality is sizable: the resulting property tax revenue loss conservatively offsets at least two-thirds of the revenue generated by the transfer tax. The net revenue loss is larger for high-value and commercial properties.

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1 Introduction

Tax systems often consist of multiple tax instruments over interdependent tax bases. The behavioral response to one tax can impact other tax bases even within the same jurisdiction. The presence of such fiscal externalities implies that the efficiency costs of a tax can be larger or smaller, depending on the sign and magnitude of the externality (Saez et al., 2012). In this paper, we present novel estimates of a previously unexamined, sizable fiscal externality between recurring property taxes and transfer taxes on property sales. We examine how the introduction of Los Angeles' Measure ULA "Mansion Tax", a transfer tax on real property transactions above $5 million, interacts with the LA property tax base. We find that much of the revenue raised by the transfer tax is offset by its adverse impact on the property tax base.

Measure ULA interacts with California's Proposition 13, which limits growth of taxable assessed property values between property sales. Because California real estate values have grown significantly faster than Proposition 13's two percent statutory limit on assessment growth, many properties are significantly under-assessed and the growth of the aggregate property tax base is highly sensitive to the occurrence of property transactions. Real estate transfer taxes such as Measure ULA have been shown to substantially reduce transaction frequencies and reduce the value of property sales (Best and Kleven, 2018; Kopczuk and Munroe, 2015; Slemrod et al., 2017).[1] Under Proposition 13, that behavioral response widens the wedge between assessed and market values, reducing future property-tax collections. We estimate the causal impact of Measure ULA on transaction frequency, the property tax base, and revenue collection using detailed property records and exploiting spatial variation of the applicability of the ULA within Los Angeles County. Our estimates indicate that Measure ULA reduced the transaction rate of eligible properties by 38 percent and that at least 63

[1] A large literature analyzes transaction, stamp, and mansion taxes. Using notches in the UK stamp duty, Best and Kleven (2018) show substantial reductions in mobility and welfare. Kopczuk and Munroe (2015) document price bunching below New York's mansion-tax threshold, while Dachis et al. (2012) find similar distortions in Toronto. Evidence from Switzerland (Brülhart and Parchet, 2014) and Australia (Davidoff and Leigh, 2013) confirms that transfer taxes depress volumes and impede allocative efficiency.

percent, and potentially over 100 percent of the revenue raised by Measure ULA is offset by lower future property-tax collections.

The transaction-externality channel we study has broad relevance because tax assessments lag market prices throughout the United States and the world. Less than half of U.S. states require assessments to occur annually, and nineteen states impose some form of statewide local assessment limit (Higginbottom, 2010; Paquin, 2015; Horton et al., 2024). At the same time, all but five of these states reset assessments at the time of sale (Walczak, 2018; Haveman and Sexton, 2008). These types of property tax systems are also known as *acquisition-value* property taxes since the assessed value is correlated with the sale price rather than the market value and they can theoretically depress transaction frequencies though to a lesser extent than a transaction tax.[2] In this context, taxes, fees or regulatory barriers that reduce transaction volumes will further reduce property tax revenues by reducing reassessment frequency.

More than 30 states impose a property transfer tax of varying rates. Globally, high-value transfer taxes have been introduced in some of the world's largest markets, including London, Toronto and Tokyo (Chi et al., 2021). Research on these taxes has shown that they reduce the value and volume of transactions (Best and Kleven, 2018; Kopczuk and Munroe, 2015; Dachis et al., 2012; Han et al., 2022). One reason for their popularity is their apparent progressivity, especially in a context like California where governments have limited ability to tax property in other ways. In the Los Angeles context, the discussion surrounding the introduction of Measure ULA in Los Angeles focused on the revenue it was anticipated to generate and its impact on affordable housing rather than its impact on reassessments (Manville and Smith, 2025).

The impact of transfer taxes is also illuminating about the fiscal costs of the myriad

[2] Conceptually, property transfer taxes can be viewed as an extreme variant of acquisition-value taxation: while the effective tax rate under acquisition-value systems decreases over time as property values appreciate without reassessment, transfer taxes apply exclusively at the moment of purchase, imposing a high instantaneous effective rate and zero thereafter. O'Sullivan et al. (1995) make this point and suggest that the transfer tax rate would have to be more than 10 times higher to raise the same revenue because of its chilling effect on transactions, which in turn raises the excess burden of a transaction tax.

other transaction costs prevalent in real estate, such as broker fees, title insurance, and so on. Broker fees in particular can be substantial and often scale with property price just like an ad valorem transfer tax. The formulas we derive can be applied to understand the fiscal costs of any such transaction frictions, not just transfer taxes.

While we think the findings have broad relevance, the Los Angeles setting is particularly suited for estimating the extent of fiscal externalities. First, the structure of the tax creates natural treatment and control groups ideal for a difference-in-differences specification. The results are robust to using different cutoffs and data sources, and we estimate no effect in placebo specifications. Second, both the assessment lags and the amount of the transaction tax are larger than in other contexts, creating enough statistical power to estimate credible treatment effects. Third, high quality data on property taxes and assessments are publicly available.

We develop a framework that tracks a representative parcel that appreciates at the market rate but assessment growth is capped. When it sells, the assessment is reset to the new sale price. Four primitives govern future property tax liabilities: the growth rate of market values, the statutory assessment drift allowed under Proposition 13, the probability that a sale occurs in any period, and the constant real discount rate. Together, these determine the expected path of future assessments and, in turn, the present value of property-tax revenues. A transfer tax enters the model in two ways. First, it provides an immediate payment equal to the statutory rate times the sale price whenever a transaction occurs. Second, by discouraging transactions it lowers the arrival rate of reassessments, widens the gap between assessed and market values, and depresses subsequent property-tax collections. We calibrate each primitive directly from administrative data, and our difference-in-differences estimate supplies the semi-elasticity linking the sale probability to the new tax. Feeding these ingredients and the 2022 assessed base into the model delivers a forward-looking balance sheet that reports both the revenue raised by Measure ULA and the property-tax revenue it displaces; sensitivity analysis then vary the primitives to gauge how robust those fiscal effects are to alternative growth, discount, and behavioral scenarios.

There are three main lessons from the calibration exercise. First, our benchmark estimates show substantial loss of mansion tax revenue. Our preferred calibrations show a loss of most or all of the revenue from Measure ULA due to lower transaction frequency. The larger effects come from calibrations with a low turnover rate absent the tax or from calibrations that allow heterogeneous effects across property types. The second lesson is that the future path of house prices and discount rates could have large effects on realized revenue loss. Lower future house price growth would reduce the gap between assessed and market values, decreasing the loss in tax revenue. Third, we learn that the results are highly sensitive to the baseline rate of property transactions. A lower transaction rate absent the tax results in both a lower revenue from the mansion tax, and also larger reassessment lags, which are scaled up even more when the tax is in place.

Our paper adds to the empirical literature estimating sizeable externalities of taxation on related tax bases. In some cases, the externality offsets the direct behavioral effects on the narrow tax base as in the case of responses to the relative tax rates on personal and corporate income (Slemrod and Gordon, 2002; Slemrod, 1998; Sivadasan and Slemrod, 2008; Smith et al., 2022). In others, the externality exacerbates the direct revenue effects by shrinking a related tax base as in the case of out-migration of taxpayers (Agrawal et al., 2025). The relationship between property taxes and transfer taxes that we study are an example of the latter, all the more remarkable because the "externality" *within* jurisdiction. Cross-jurisdictional externalities, where the tax rates set by one jurisdiction affects tax revenues in another, creates welfare costs that are not internalized by the rate-setting jurisdiction (Marion and Muehlegger, 2014; Kleven, 2025; Bovenberg and de Mooij, 1994). We provide what, to our knowledge, the first empirical quantification of fiscal externality of transaction taxes to acquisition-value property tax systems.

Evidence on Los Angeles's Measure ULA is emerging. The UCLA Lewis Center's white paper (Dreier et al., 2022) projected that roughly four percent of transactions would be taxed. Subsequent industry briefs report a post-implementation decline of fifty percent in sales above $5 million and visible price bunching just below the threshold (Ward et al., 2025; Smithberg, 2025; Manville and Smith, 2025). These studies document market outcomes but stop short of linking the volume response to fiscal spillovers. Our paper fills that gap by combining parcel-level reassessment data with a structural framework that maps the estimated sales hazard into property-tax revenue losses and net fiscal effects.

We provide details of Measure ULA and California Proposition 13 in Section 2 and describe our data in Section 3. The present-value formulas we use to calculate revenue impacts and the implied excess burden are given in Section 4. Section 5.1 presents the empirical strategy, causal estimates of the reduction in transaction frequency, and implied revenue impacts. Section 6 concludes.

2 Institutional Context

Measure ULA was passed by referendum in November 2022 and took effect on April 1, 2023. It established a marginal transfer tax that applies in addition to the countywide one-percent ad valorem rate established by Proposition 13.[3] Sales with consideration between $5 million and $10 million owe four percent of the total transaction value; sales exceeding $10 million owe 5.5 percent on the total value (there are also regular inflation-adjustments, shown in Appendix Table A1). The tax applies to virtually all categories of real property—single-family residential, multifamily, commercial, industrial, and vacant land—and is levied on the seller in addition to the existing combined 0.56% transfer tax. Transfers to qualified non-profit affordable-housing developers, government entities, and other transactions already exempt from the standard transfer tax are likewise exempt from the ULA levy.

Measure ULA operates in a legal environment shaped by Proposition 13. County assessors revalue a parcel only at a change in ownership; between transfers its assessed value may rise

[3] The calibration will exclude property taxes not limited by Proposition 13, such as voter-approved debt and direct assessments (non-assessed value based). These are small and their exclusion makes the fiscal externality estimates conservative.

by at most two percent per year. Substantial improvements such as new construction cause the improvement component to be reassessed, but not the land. A transfer therefore triggers two simultaneous events: the base-year value of the entire property resets to market price and the transfer tax liability (if any) is paid. Annual property-tax revenue on the parcel jumps permanently. The consequence for local public finance is that growth in the property-tax base depends disproportionately on transactions that trigger reassessment.

The city expected Measure ULA to yield roughly $600 million annually for subsidized housing and tenant assistance. Actual receipts, shown in Figure 1, have been about half as large, as they depend on high-value turnover, which responds endogenously to the tax and which has been lower given the high-interest-rate environment. Because the tax stops at the municipal boundary, parcels in neighboring jurisdictions within the same county provide a natural control group. Further, by looking at transactions with a smaller value, we are able to provide evidence against spatial spillovers in the region of Los Angeles.

Litigation has established what sorts of avoidance mechanisms are available in California. A reassessment occurs only when a single transferee acquires more than fifty percent of a parcel or of the entity that owns it. The Court of Appeal in *Ocean Avenue LLC v. County of Los Angeles* confirmed that selling minority interests to several buyers in separate transactions avoids this trigger (Ocean Avenue LLC v. County of LA CA2/2, 2014). Because no deed of the real estate is recorded, the arrangement also escapes Measure ULA. Discussions with market participants indicate that such structures remain rare in practice because they require coordinating multiple equity investors, sharing control rights, and securing financing for fractional stakes. Observed avoidance instead takes simpler forms, such as listing prices just below the $5 million threshold or deferring sales altogether.

Another way that large developers could avoid the tax is by shifting their activity outside of the City of Los Angeles. Placebo tests show no evidence for this channel as of yet. Conversations with developers suggest that this inter-jurisdictional externality might be more relevant in the future, as investors adjust their strategies.

3 Data

Our empirical analysis links four administrative sources that together provide a near–census view of high–value real-estate activity in Los Angeles County. Data Appendix C provides more detail.

Assessor Secured Roll (Los Angeles County, 2024) The annual Secured Roll furnishes assessed land and improvement values, base-year assessment dates, and land-use codes for each taxable parcel. Reassessment jumps reveal arm's-length sales. We extract fiscal years 2020 through 2023, retain parcels subject to the one-percent ad valorem tax, classify use codes into residential, multifamily, commercial, and other, and flag parcels inside the City of Los Angeles.

CoreLogic Deeds (CoreLogic, 2025) Exact transfer dates come from CoreLogic deeds data. We treat a deed as an arm's-length sale when it is recorded as a grant, warranty, or trustee deed and is not identified as a quit-claim or related-party conveyance. Matching deeds to assessor parcels by parcel number and month yields a unique link for almost 88% of assessor-identified transfers between 2020 and 2023. Unmatched events are coded as non-sales.

CoStar Transactions (CoStar, 2025) CoStar supplements the roll with post-2023 information on large commercial transactions. Coverage is nearly complete above \$5 million—the statutory threshold for Measure ULA—and extends through February 2025. Appendix Figure A4 shows transaction volumes in CoStar data, discussed in Appendix B.2.

Sample restrictions After excluding Santa Monica, which adopted a distinct transfer tax in 2023, the analysis encompasses roughly 2.2 million taxable parcels, of which about 790,000 lie within the City of Los Angeles. From January 2020 to December 2023 we observe 240,000 matched arm's-length sales, two percent of which exceed \$5 million. See Appendix B.4 for transaction counts pre- and post-tax. Table A3 includes the mean of the variables used in the main analysis.

Measure ULA Remittances (Los Angeles Housing Department, 2025) Monthly revenue reports published by the Los Angeles Office of Finance list remittances under Measure ULA by month and ZIP code. These figures validate our constructed count of taxable transfers and provide a benchmark for present-value revenue calculations. We match 89% of Measure ULA remittances to properties (see Appendix Figure A1). Collections average \$20-\$25 million per month through December 2023 and rise to \$35-\$40 million by early 2025. Despite the name "Mansion Tax", roughly half of the revenue from Measure ULA comes from commercial property, substantially from apartment buildings.

4 Framework

The decrease in transaction frequency due to a transfer tax impacts revenue in all future periods. The resulting revenue impact should be calculated in present-value terms rather than on a per-period basis, which would not capture the full impact. To do so, we specify the present-value of both revenue streams as a function of the current tax base and its evolution over time using a continuous-time model linked to the frequency of real-estate transactions.

Consider a single parcel whose market value evolves deterministically at rate $g > 0$:

$$M_t = M_0 e^{gt}, \qquad t \geq 0. \tag{1}$$

Between sales the assessment grows at the statutory inflation rate $g_s < g$.[4] Sales arrive according to a Poisson process with constant hazard p, so the holding period for a property

[4] Assessed values can also change when there are significant improvements to the property but such reassessments still leave the assessed value of land unchanged. We calibrate g_s to be the average change in assessments including changes in improvements.

since last sale, H, has distribution:

$$H \sim \text{Exp}(p), \qquad f_H(h) = pe^{-ph}, h \geq 0. \tag{2}$$

For the time-being, p is independent of any property characteristics, but we relax this assumption later on. Let a_t denote the statutory assessment, and $k \equiv g - g_s > 0$ measure the wedge between market appreciation and statutory assessment growth. Taking expectations over H and discounting at rate $r > g$ yields a formula for the present value of future property taxes:

$$\theta \int_0^\infty \mathbb{E}[a_t] e^{-rt} dt \; = \theta \frac{M_0}{r-g} \Phi(p) \tag{3}$$

where $\Phi(p) \equiv \frac{p}{p+k}$ is the present-value wedge between assessed and market values and θ is the property tax rate. Denoting the present value of tax-assessments by A_t, note that it has a close relationship with the present value of the transfer tax base, i.e. $A_t = T_t/(p+k)$ (see Appendix D.1 for details).

Ignoring transitional dynamics for the time-being and assuming that property tax rolls adjust instantly to the new hazard rate, the net change in revenue can be given by:

$$\Delta R = \tau T_t + \theta \Delta A_t \tag{4}$$

where

$$\Delta A_t = \frac{M_0}{r-g} [\Phi(p) - \Phi(p'(\tau))]. \tag{5}$$

Including the transitional dynamics, the full change in present value of property tax assessments is given as:

$$\Delta A_t^{full} = \frac{M_0}{r-g}\Phi(p) - M_0\left[\frac{\Phi(p')}{r-g} + \frac{\Phi(p)-\Phi(p')}{r-g+p'+k}\right] \tag{6}$$

Using these formulas, we can calculate the fiscal externality in terms of the property tax revenue loss due to the introduction of the transfer tax. We express these as a share of revenue raised by the transfer tax.

More generally, we can consider what the estimated elasticity of transactions with respect to the transfer tax imply for the marginal excess burden of a transfer tax, including its effects on property tax revenue, and the implied revenue-maximizing transfer tax rate. The formulas for the marginal excess burden and revenue maximizing rates are as follows. Again, see Appendix D for details of derivation.

Defining ϵ^T and ϵ^A as the elasticities of the two tax bases with respect to the net of transfer tax rate $(1-\tau)$, the marginal excess burden, defined as the change in revenue coming from the behavioral response for each additional dollar of revenue raised is given by:

$$-\frac{\mathrm{d}B}{\mathrm{d}R} = \frac{\tau\epsilon^T + \theta\epsilon^A(p'+k)^{-1}}{(1-\tau(1+\epsilon^T)) - \theta\epsilon^A(p'+k)^{-1}} \tag{7}$$

And, the revenue-maximizing rate is as follows:

$$\tau^* = \frac{1}{1+\epsilon^T} - \frac{\theta\epsilon^A}{(p'+k)(1+\epsilon^T)} \tag{8}$$

Note that $\epsilon^A = \epsilon^T - \Phi(p)\epsilon^p$ and $\epsilon^T = \epsilon^p$, where ϵ^p is the elasticity of transactions with respect to the transfer tax rate. We estimate the latter elasticity using a difference-in-differences empirical strategy exploiting the introduction of the LA mansion tax.

Equation 5 nests other channels that depress $A_t(p')$. First, if the sellers bear some of the burden of the transfer tax or if prices "bunch" around the \$5mn threshold, transaction prices may fall.[5] The lower tax-exclusive sale price will lower the property tax base going forward by the degree of price adjustment. Second, the transfer tax can deter capital improvements by effectively raising the user cost of owning property, thereby lowering property values and the tax base even further.

Mapping theory to data

We can now use equations (4), (5) and (6) to calculate the decrease in property tax revenue and the revenue generated by the LA mansion tax. To do so, we calibrate or estimate the necessary parameters in our data as follows:

1. k (wedge between growth rate of market values and capped assessment growth): We calculate k by estimating a regression with data on property sales:

$$\log(1 - \Delta a_i / M_i) = -k h_i + u_i \tag{9}$$

   where h_i is the number of years since the last sale for parcel i and Δa_i is the reassessment jump net of drift at rate g_s.

2. g_s (between-transactions growth in assessed values): For parcels that did not transact within the sample window, we calculate the mean logarithmic growth of assessed values. Proposition 13 caps g_s at two percent per year; the data confirm this median rate, while the mean is 3.2 percent because of improvement-induced reassessments. We set $g = g_s + k$.

[5] Under full price pass-through, we would replace $\Phi(p')$ with $(1-\tau)\Phi(p')$ in Equation (6), lowering the long-run tax base by 4%.

3. p (monthly sale hazard pre-Measure ULA): We impute the market value of each property by multiplying its assessed value by $\exp(gh_i)$. The probability of sale in each period, p_t, is calculated as the number of properties sold with value above $5 million divided by the total stock of properties with imputed values above the same amount. We set p as the average of p_t over 2022 assessment rolls.

4. p' (post-Measure ULA sale hazard): We model the policy as having a proportional effect on the sale probability.[6] Hence the policy-induced change in the hazard is obtained from the Poisson difference-in-differences estimate $\hat{\beta}$. We set $p' = p\exp(\hat{\beta})$ so that we calculate the expected present value of property taxes absent other exogenous changes in p.

5. M_0 (Size of the existing property tax base): We calculate the sum the 2022 assessed values for parcels whose imputed market value exceeds $5 million, scaled up by the wedge factor Φ.

6. r (Discount rate on future tax revenues): Our benchmark discount rate of 6.5% assumes a 2% risk premium above the 10-year risk-free yield of 4.5%. We will also consider a risk-free discount rate of 4.5%.

5 Estimating Measure ULA-induced change in transaction frequency

5.1 Empirical Strategy

We exploit the discrete tax threshold in a difference-in-differences framework estimated via Poisson regression to estimate the Measure ULA-induced decrease in likelihood of transactions. The transaction tax creates a notch in tax liability at $5m resulting in bunching of

[6] A proportional (rather than additive) effect makes sense, since otherwise p' could take on negative values. It also follows naturally from a model where the tax discourages some share of transactions.

sale prices at that threshold (see Figure A2).[7] We measure transaction volumes including observations precisely at the kink by defining treatment as Price $\geq$ 4.9 million; later we will show that the results are robust to changing the cutoff.

Two types of transactions are unaffected by the tax. The first is transactions below the five million dollar range within City of Los Angeles and the second is high-value transactions (above \$4.9 million) outside the City of Los Angeles but within Los Angeles County. Panels c and d of Figure 2 show the time-series of the number of transactions in these different treatment and control categories since 2021, and panels a and b show the corresponding value of net reassessed tax values. Property transactions below \$5m within LA city are on different seasonal and time trends as compared to transactions above \$5m within the city, so these comparisons will require seasonal adjustment. High-value transactions outside Los Angeles city, which were not subject to Measure ULA, display similar seasonality and trends (red series in panel A). The main concern with the latter group, which we adopt as our main control, is that the sample of large properties outside of LA is not that large, which creates noise in the estimates. We will re-create the same treatment and control groups using data on large commercial properties from CoStar, which has a longer sample available.

Figure 2 shows that transaction frequencies inside and outside LA were on parallel trends before the passage of Measure ULA. A spike in transactions occurred between the announcement and enactment of the tax. The "anticipation" sales that took place during these months might plausibly have taken place later in 2023, leading us to overestimate the decrease in transaction volumes relative to the long-run. We will quantify the possible extent of anticipation and incorporate it into our estimates.

We work at the parcel-month level and let Sale_{izt} be an indicator that equals one if parcel i located in zip code z transfers in month t. The Poisson pseudo–maximum-likelihood specification is

[7] While these would be straightforward to quantify, bunching analysis has been the focus of previous work by (e.g., Best and Kleven, 2018); we focus on the effect on property tax revenues rather than behavioral bunching responses.

$$\mathbb{E}[\text{Sale}_{izt} \mid X_{izt}] = \exp\Big(\alpha + \beta\,\text{Treat}_i \times \text{Post}_t + \gamma\,\text{Treat}_i \times \text{Anticip}_t + \lambda_z + \delta_t\Big),$$

where Treat is a \$4.9mn+ indicator, λ_z are time-invariant zip-code fixed effects and δ_t are calendar-month fixed effects. All specifications include month-of-year dummies interacted with the Treat fixed effect to purge seasonality. Post_t turns on in April 2023, while Anticip_t is one from December 2022 through March 2023 to capture accelerated closings. The coefficient of interest is β; $\exp(\beta)$ is the post-policy monthly sale hazard for treated parcels relative to the pretax baseline. Estimation is weighted by each parcel's lagged assessed value to reflect the greater effect that large properties have on the tax base, and standard errors are clustered at the zip-code level. In the event-study variant the single post indicator is replaced by month-relative-to-baseline dummies interacted with the treatment flag, treating 2020 as the baseline year.

The validity of the identification requires parallel trends in the absence of Measure ULA. We validate this assumption using an event study figure and placebo estimates showing no effect for parcels unaffected by the tax.

5.2 Results

Table 1 presents parcel–month Poisson estimates of Measure ULA's effect on the propensity of high-value parcels to sell. The dependent variable is an indicator equal to one when parcel i transacts in month t. Columns (1)-(3) of Panel A report the main specifications; Columns (4) and (5) are placebo checks. Throughout, treated observations are \$4.9 million–and-above parcels inside the City of Los Angeles and the control observations are equivalently valued parcels in the remainder of Los Angeles County. Zip-code and calendar-month fixed effects absorb all permanent location attributes and common business-cycle factors.

The benchmark difference-in-differences estimate in column 1 is -0.675, implying a 51%

drop in the monthly sale hazard for \$5 million+ parcels after April 2023.[8] The anticipation term, 0.591, signals an 81 percent surge in closings during the four months before implementation. Excluding the next four months (column 2) enlarges the post-tax effect to −0.825, indicating the downturn is similar once these forward-shifted sales are removed.

Equal weighting (column 3) produces −0.297, a 26% decline, because it gives less influence to the very highest-priced parcels. Placebo tests in columns 4 and 5—large versus small parcels outside the city, and small parcels inside versus outside—show post coefficients near zero, supporting parallel trends. The former are also important for ruling out inter-jurisdictional spillovers. If large developers increased transactions for valuable properties outside of LA in response to the tax, we would expect to see a positive coefficient in column 4.

Figure 3 charts the monthly coefficients. They sit near zero through November 2022, then rise in December–March as sellers rush to beat the tax. From April 2023 onward the estimates turn strongly negative; the weighted series stays flat, whereas the unweighted one drifts partway back toward zero. The figure thus verifies identification, shows the policy effect is persistent, and supplies the dynamic path used in the exercise that follows.

Timing-shift diagnostics A legitimate concern is that the surge in closings between December 2022 and March 2023 might simply bring forward transactions that would otherwise have taken place later in 2023, thereby overstating the post-ULA decline. We address this in three complementary ways. First, the specification that drops April–July 2023 (Column 2) still shows a 56 percent fall in the sale hazard, so front-loading alone cannot explain the result.

Second, we make the convergence path explicit. Let $k = 0$ denote April 2023 and index subsequent months by $k = 1, 2, \ldots$. We model the change in the monthly sale hazard as

[8] $\exp(-0.675) - 1 = -0.509$.

$$\Delta p_k \;=\; \underbrace{\Delta_\infty}_{\substack{\text{long-run decline} \\ \text{(object of interest)}}} \;+\; \underbrace{\Gamma e^{-\delta k}}_{\substack{\text{exponential adjustment} \\ \text{calibrated to excess mass}}} .$$

where Δ_∞ is the long-run rate of transactions, δ determines the rate of convergence to the long-run, and Γ determines the number of "missing" transactions after tax enactment. The four-month anticipation window generates cumulative "excess mass" in the anticipation region $\sum_{k=-4}^{-1} \widehat{\Delta p_k}$. Setting the excess mass equal to the number of missing transactions leaves two free parameters, (Δ_∞, δ), which we estimate by nonlinear least squares on the post-April coefficients. This yields $\widehat{\Delta_\infty} = -0.474$ log points—a 38 percent steady-state drop—and $\widehat{\delta} = 2.8 \times 10^{-9}$, implying little reversion. We therefore adopt the 38 percent decline as a conservative long-run benchmark for the calibration, while reporting robustness to alternative magnitudes.

Third, the next section shows a similar, persistent contraction in CoStar data through December 2024, confirming that Measure ULA produced a lasting—not merely transitory—reduction in high-value turnover.

CoStar Results To verify that our results are not driven by a brief time-shifting around April 2023, we rerun the difference-in-differences design in CoStar's universe of \$5 million-plus commercial transactions through December 2024. The findings align with the assessor data. The coefficients for commercial property are larger than the main estimates, with an unweighted coefficient of 0.53 (Col. 4, Panel B) and a weighted estimate of 1.84 (Col. 5). Estimates are similar dropping May-December 2023.

Heterogeneity across property types Panel C estimates the preferred specification separately by property type. Commercial parcels show the sharpest contraction: -1.487 log points, equivalent to a 78 percent fall in monthly turnover. Transactions of industrial, institutional and land parcels classified as "other" fall by about one-half (-0.673). Single-family homes above \$5 million register a 25 percent decline (-0.293) that is marginally significant, while the multifamily coefficient is small and imprecise. These specifications suggest that jurisdictions limiting the tax to residential property, as in New York or New Jersey, may avoid the large efficiency losses we estimate.

5.3 Calibration and present-value estimates

Table 2 summarizes the parameters backed out of the administrative data and the implied present values of each revenue stream. The Prop. 13 wedge from (9), $k = 0.0214$, means assessed values trail market values by roughly two percentage points a year beyond the statutory drift $g_s = \ln 1.0298 \approx 0.0293$, yielding forward growth $g = 0.0508$. For \$5 million–plus parcels the 2022 sale hazard is $p_{\text{pre}} = 0.0532$; applying the estimated elasticity delivers a post-ULA hazard $p_{\text{post}} = 0.0331$.

We first consider the benchmark scenario: The lost property-tax present-value (PV) is \$19.4 bn while Measure ULA generates \$30.6 bn, so each dollar raised is offset by \$0.63 of future property-tax revenue. Replacing the model flow with observed ULA receipts (\$312 mn per year) cuts ULA PV to \$22.0 bn and the net gain to \$2.7 bn, illustrating how cyclical slumps magnify the externality. When both r and g fall to 4.5% and 2.5% (with $g_s = 2.0\%$), assessment drift matters far less: the property-tax loss drops to \$3.8 bn, ULA PV is \$16.9 bn, and the offset ratio falls to 22 percent. In both scenarios, the long-run dominates the overall effect of the change, and the short-run adjustment period has a small offsetting effect.

Next we show how varying parameters would affect estimates. Halving the sales elasticity raises ULA PV to \$38.7 bn and trims the loss to \$9.6 bn, so only a quarter of new revenue is offset. A 1.5-times response lowers ULA PV to \$24.1 bn and lifts the loss to \$29.1 bn, producing a \$4.9 bn net deficit. Changing the baseline hazard itself is even more powerful. Halving p_{pre} doubles average holding periods, pushing the loss to \$25.5 bn and turning the net effect negative (\$-5.8 bn). Raising p_{pre} by 50 percent has the opposite effect: drift shrinks, ULA PV jumps to \$41.5 bn, and the net gain rises to \$25.9 bn. Thus a given proportional drop in sales matters most when turnover is already low—important if high interest rates continue to suppress transactions through lock-in effects (Liebersohn and Rothstein, 2025).

Because (3) is nonlinear, heterogeneity can change magnitudes. Splitting the tax base by property type (single-family, multifamily, commercial, other) raises both the loss ($35.9 bn) and ULA PV ($35.2 bn), leaving almost no net change and an offset above 100 percent. Dividing parcels into deciles of years since last sale—capturing the larger assessment gaps for long-held properties—yields a $16.2 bn loss and only $17.8 bn in ULA PV, raising the offset ratio to 89 percent. Ignoring heterogeneity therefore understates fiscal losses, but the qualitative result remains: the property-tax externality is sizable and can erase the net revenue gain under plausible conditions.

To calculate the marginal excess burden, we convert the event–study estimate—a 38% permanent decline in the monthly sale hazard when the transfer-tax rate jumps from 0 to $\tau = 4\%$—into a constant elasticity with respect to the net-of-tax rate $(1 - \tau)$. Plugging this elasticity, together with the benchmark parameters in Table 2 ($\theta = 1\%$, $p' = 0.0331$, $k = 0.0214$), into the long-run formulas of Section 4 yields a marginal excess burden of roughly $21 for every $1 of revenue raised and a revenue-maximizing transfer-tax rate of 4.3%, essentially identical to the statutory 4%. Others estimate the deadweight loss due to a transfer tax as 17 % or even as high as 80 % of revenue raised (Dachis et al., 2012; Han et al., 2022). The fiscal externality raises these figures even further.

6 Discussion and Conclusion

We estimate the fiscal externalities of the Los Angeles Mansion Tax (Measure ULA) on revenues from the property tax. A difference-in-differences estimate that incorporates anticipation effects shows that the Mansion Tax reduces the frequency of transactions by about 38%. Because full property reassessment only happens after transactions, the Mansion Tax increases the average gap between properties' assessed and market values, resulting in a lower property tax base. Calibrated estimates show that the loss in property-tax revenue is between 63 and 138 percent of the revenue raised by the mansion tax, depending on assumptions about i) the transaction probability absent the tax ii) the growth rate of property prices in the future and iii) how heterogeneous the treatment effects of the tax are.

Two channels are absent from the model that could potentially make our estimates conservative. First, we do not consider the incidence of the tax beyond some descriptive evidence, shown in Appendix Section B.1 and Figure A3. Prices could fall if tax incidence falls partly on the seller, as previous studies have shown, e.g., Besley et al. (2014). Prices also fall due to bunching at the tax notch, as we show in Figure A2. However, the tax reduces transactions so much that estimating these price changes with precision is infeasible. As it lowers sales prices, the tax further reduces revenue raised and also reduces the future property tax base. A second channel is that it may cause reductions in investment, with similar effects.

The fiscal externality arises because of the *interaction* of the transfer tax and Proposition 13. In 2020, a California-wide ballot measure proposed to remove Prop 13 restriction on commercial properties above $3 million in value; the measure failed but a majority of Los Angeles county voted in its favor, suggesting a desire to tax high-value property. The restrictiveness of Proposition 13 forces local governments to seek alternative, less efficient means of raising revenue than an annual property tax. Measure ULA allows policy-makers to act on the apparent desire to raise the effective tax on high-value commercial properties, but at the cost of a substantial fiscal externality. Easing Proposition 13 limits could lower the marginal cost of public funds by allowing for more flexible tax instruments.

While overall revenue generated may not be much, revenue generated by Measure ULA is earmarked for expenditure on affordable housing programs and homelessness prevention. Expenditure on these programs increased significantly in 2023 and is expected to grow, despite lower than expected revenue. Even though general revenue through the property tax has decreased, this decrease does not affect expenditure on housing affordability programs. The net impact of the policy on improving housing affordability depends on how this increase in government expenditure offsets the decrease in development of affordable housing due to the transaction tax. We find that a large share of the decrease in transactions is coming from office buildings and other types of commercial property, which have a larger elasticity with respect to the transfer tax than single-family homes. Despite its higher elasticity, commercial property accounts for about half of the total revenues from Measure ULA, showing that the tax does not exclusively apply to “mansions”.

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7 Figures

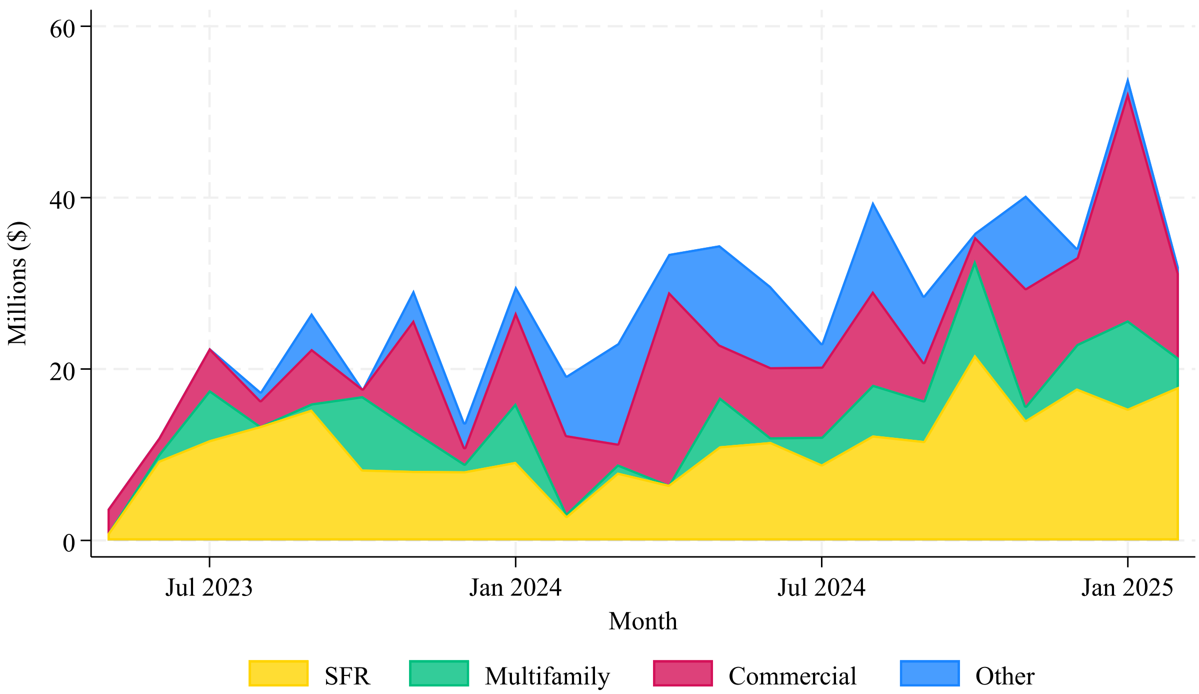
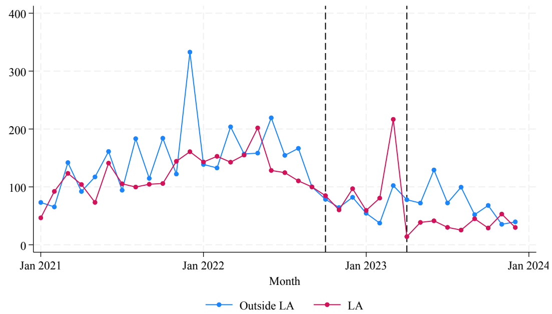
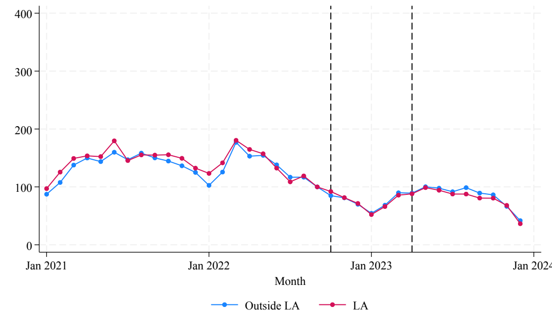


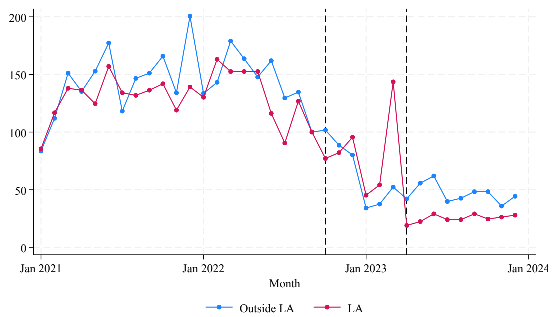
Figure 1: Reported Revenue Raised from Measure ULA
Monthly transaction tax revenue collected under Measure ULA by broad property type after the passage of the measure.



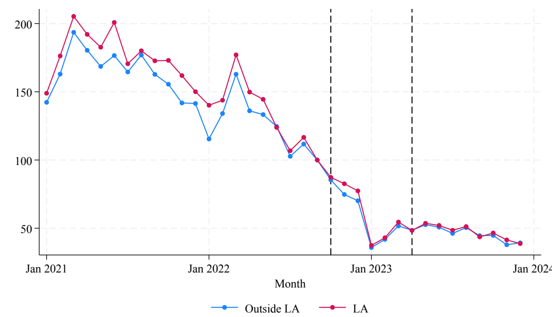
(a) Reassessments above 5m



(b) Reassessments below 5m



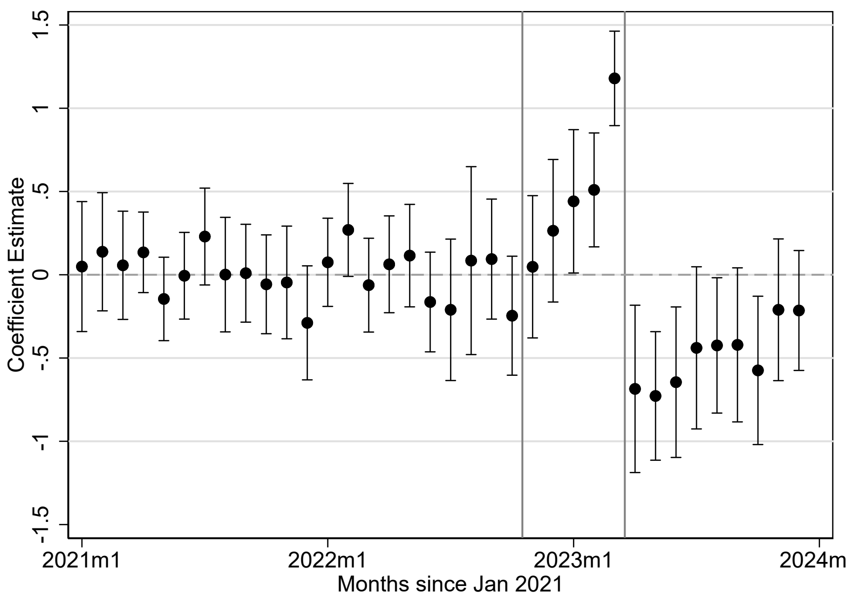
(c) Transactions above 5m



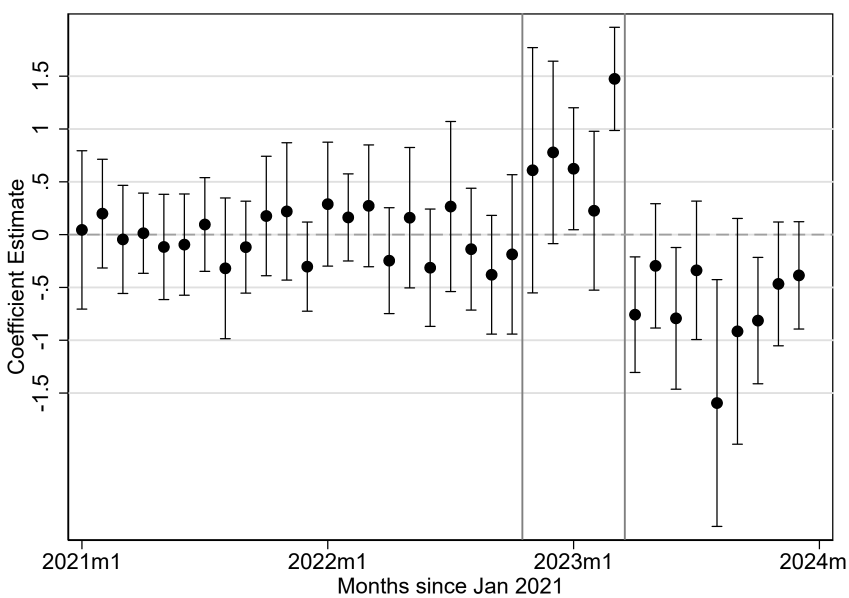
(d) Transactions below 5m

Figure 2: Monthly reassessments and transaction counts

Panels (a) and (b) plot the total transaction volume for sales above and below $5 million, respectively, comparing parcels within the City of Los Angeles with otherwise similar parcels elsewhere in Los Angeles County. Panels (c) and (d) repeat the exercise for transaction counts. Each series has been normalized to 100 in October 2022, the month immediately preceding the ballot results for Measure ULA. When a property is sold near the end of the year, the assessment data may not always be updated quickly. This may cause us to underestimate reassessment volumes in November and December 2024 which affects our calculations of reassessment values in Panels (a) and (b).



(a) Unweighted specification



(b) Weighted by lagged assessed value

Figure 3: Event study

We estimate an "event-study" slope change in sales using PPML:

$$\text{sale}_{izt} \sim \exp\big[\alpha_i + \gamma_t \ + \ \beta\,(salemonth \times \mathbf{1}\{salemonth \geq 2021\text{m}1\}) \times LA_i\big],$$

where $salemonth$ is constant pre-2021 and LA_i is an indicator for Los Angeles. We absorb zip-code (α_i) and calendar-month (γ_t) fixed effects, cluster standard errors at the zip level, and weight by lagged assessed value. The sample runs from January 2020 to December 2023, includes only properties with imputed sale price $\geq$ \$4.9 million, and the period prior to January 2021 serves as the baseline. Upper panel comes from an unweighted specification and lower panel comes from a specification weighted by lagged assessed value.

8 Tables

Table 1: Difference-in-differences estimates of Measure ULA's effect on transactions

	(1)	(2)	(3)	(4)	(5)
Panel A: Main specification and placebos					
Post × Treat	-0.675^{***}	-0.825^{***}	-0.297^{**}	-0.002	-0.108
	(0.168)	(0.233)	(0.117)	(0.142)	(0.079)
Anticipation × Treat	0.591^{***}	0.578^{***}	0.451^{***}	0.100	-0.016
	(0.195)	(0.196)	(0.080)	(0.133)	(0.080)
Specification	Baseline (weighted)	Drop Apr–Jul 23	Unweighted	Placebo (Large vs Small, outside LA)	Placebo (Small, LA vs outside LA)
Panel B: Robustness and CoStar evidence					
Post × Treat	-0.643^{***}	-0.641^{***}	-0.533^{***}	-1.844^{***}	-0.309^{**}
	(0.159)	(0.167)	(0.099)	(0.410)	(0.131)
Anticipation × Treat	0.564^{***}	0.575^{***}	0.365^{***}	-0.252	0.354^{***}
	(0.188)	(0.198)	(0.113)	(0.392)	(0.110)
Specification	Lower cutoff ($4.5 M)	Sample $\geq$ 2021	CoStar main	CoStar weighted	CoStar excl. May–Dec 23
Panel C: Heterogeneity by property type					
Post × Treat	-0.293^{*}	-0.675^{***}	-1.487^{***}	-0.235	-0.673^{*}
	(0.152)	(0.168)	(0.444)	(0.323)	(0.367)
Anticipation × Treat	0.094	0.591^{***}	1.087^{***}	0.658	0.602^{**}
	(0.170)	(0.195)	(0.319)	(0.493)	(0.284)
Property type	Single-family	All CRE	Commercial	Multifamily	Other

Notes: Each column reports a separate PPML regression of parcel-level transaction counts on an anticipation indicator, a post-ULA indicator, their interactions with the treated group, and high-dimensional fixed effects (zip code and month, plus month-of-year × treatment). Regressions in Columns (1)–(2) and Panels B/C are weighted by lagged assessed value; Column (3) of Panel A is unweighted. Standard errors clustered by zip code are in parentheses. Stars denote significance at the 10% (*), 5% (**), and 1% (***) levels. Panel A Columns (4)–(5) serve as placebo checks. Panel B varies the sample or data source (CoStar). Panel C repeats the baseline specification separately by property type.

Table 2: Calibration Targets and Present-Value Fiscal Effects

Panel A: Parameters Obtained from the Administrative Data

Symbol	Definition	Calibrated value
k	Prop-13 wedge, $k = g - g_s$ (reassessment hazard)	0.0214
g	Market-value growth of high-value stock	0.0508
g_s	Statutory assessment drift ($\ln 1.02978$)	0.0293
p	Pre-ULA annual sale hazard for \$5 M+ parcels	0.0532
p'	Post-ULA annual hazard ($p \exp \beta$)	0.0331
θ	Ad valorem property-tax rate	1.0%
r	Benchmark real discount rate	6.5%
M_0	2022 assessed base of LA \$5 M+ parcels	\$233.2 bn

Panel B: Present-Value Revenue Effects (billions of 2025 \$)

Scenario	Lost PV	Long-run	Transitional	ULA PV	Net effect	% loss
Benchmark (r=6.5%, g=5.1%)	19.4	24.4	-5.0	30.6	11.2	63.4
ULA PV \$312 mn yr	19.4	24.4	-5.0	22.0	2.7	87.9
Lower r & g (r=4.5%, g=2.5%)	3.8	5.8	-2.0	16.9	13.1	22.4
Softer response ($\beta/2 = -0.24$)	9.6	11.7	-2.1	38.7	29.2	24.7
Stronger response ($1.5\beta = -0.71$)	29.1	37.7	-8.7	24.1	-4.9	120.5
Half baseline p	25.5	35.0	-9.5	19.7	-5.8	129.7
1.5 $\times$ baseline p	15.6	18.7	-3.1	41.5	25.9	37.6
Type heterogeneity	35.9	52.6	-16.7	26.1	-9.8	137.5
Lock-in heterogeneity	16.2	22.3	-6.0	17.8	1.6	91.2

Notes: *Panel A reports the calibrated primitives that feed the dynamic model in Section 4. Panel B shows the present value (PV) of lost property-tax revenue and new ULA transfer-tax revenue under each counter-factual sales-hazard scenario discussed in Section 5.1. "Long-run" loss is the permanent drop in the steady-state property-tax flow, while "Transitional" loss captures the one-time shortfall during the stock's convergence to the new steady state. "Net effect" equals ULA PV minus total property-tax loss; "% loss" is the ratio of the total loss to ULA revenue. All PVs are expressed in billions of 2025 dollars and discounted at the scenario-specific real rate r.*

A Supplementary Exhibits

Table A1: Measure ULA Implementation

Year	**Value of Property**	**ULA Rate (%)**	**Tax Rate (%)**
Apr 2023-Jun 2024	$\$100; \leq \$5,000,000$	0	0.45
	$> \$5,000,000; < \$10,000,000$	4	4.45
	$\geq \$10,000,000$	5.5	5.95
Jul 2024-Jun 2025	$\$100; \leq \$5,150,000$	0	0.45
	$> \$5,150,000; < \$10,300,000$	4	4.45
	$\geq \$10,300,000$	5.5	5.95
Jul 2025-Jun 2026	$\$100; \leq \$5,300,000$	0	0.45
	$> \$5,300,000; < \$10,600,000$	4	4.45
	$\geq \$10,600,000$	5.5	5.95

The ballot measure was voted on November 8, 2022 and implemented on April 1, 2023. Each July, the thresholds are inflation-adjusted. The City of Los Angeles base rate is $2.25 for every $500 or fractional part thereof. This does not apply to the Measure ULA rate calculations, which are percentage-based.

Table A2: Summary Counts

ULA Tax Rate	Commercial			Multifamily			Single-family		
	Pre	Anticipation	Post	Pre	Anticipation	Post	Pre	Anticipation	Post
0	473	226	252	740	238	338	2,918	998	1,566
4	180	111	34	158	68	34	422	209	141
5.5	126	88	34	77	53	19	146	68	52

Notes: This table shows the counts of property transactions by applicable ULA transaction tax rate and property type before the passage of the policy (January 2022 - October 2022), anticipation before the implementation (November 2022 - March 2023) and post implementation (April 2023 - December 2023).

Table A3: Summary Statistics

Variable	City of LA			Outside City of LA		
	Pre	Anticipation	Post	Pre	Anticipation	Post
Value (millions)	1.23	1.11	1.18	1.60	1.85	1.36
Growth rate	6.62	3.14	6.64	3.03	2.73	5.56
Above 4.9 million=1	0.02	0.02	0.02	0.04	0.06	0.02
Single family home=1	0.84	0.83	0.84	0.79	0.78	0.80
Multi-family=1	0.07	0.06	0.06	0.14	0.14	0.13
Commercial=1	0.04	0.05	0.04	0.04	0.05	0.03
Other=1	0.05	0.06	0.06	0.03	0.04	0.03

Notes: This table shows the mean of variables used in our analysis by applicable ULA transaction tax rate and property type before the passage of the policy (January 2022 - October 2022), anticipation before the implementation (November 2022 - April 2023) and post implementation (May 2023 - December 2023).

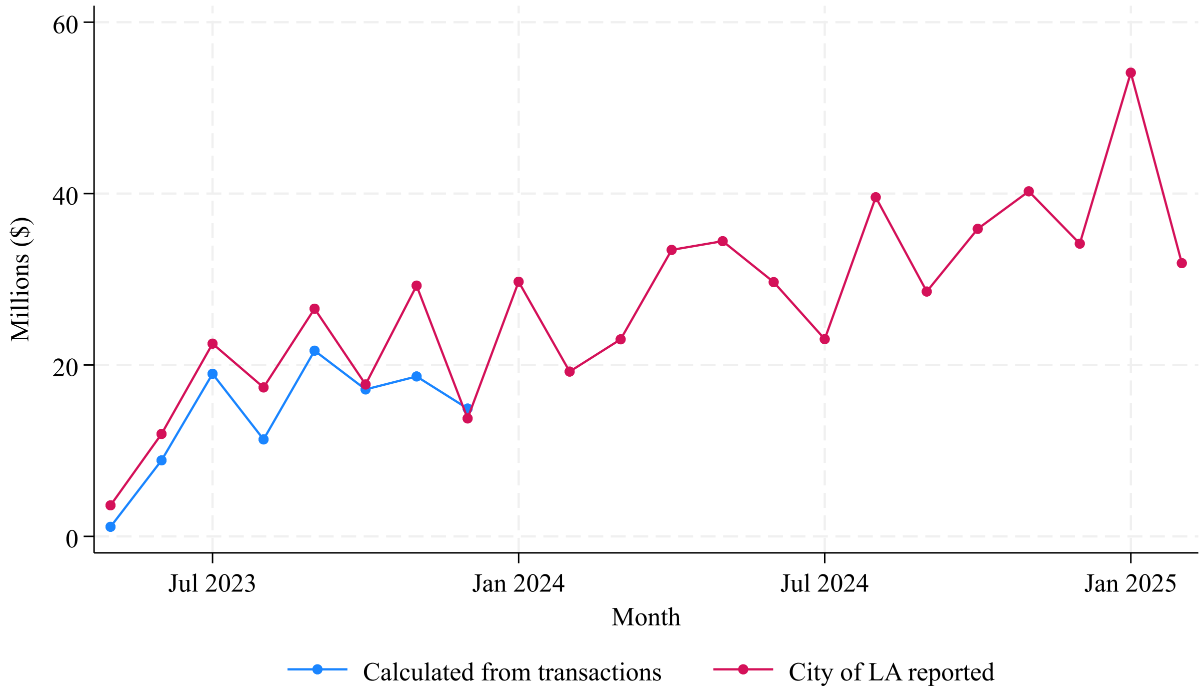
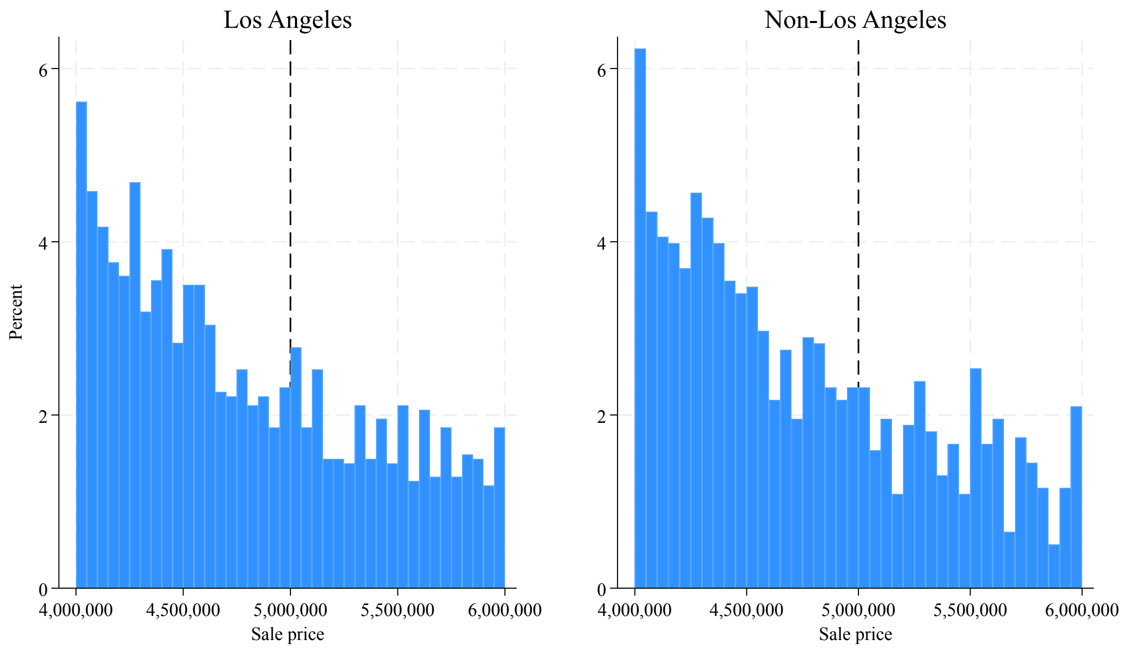
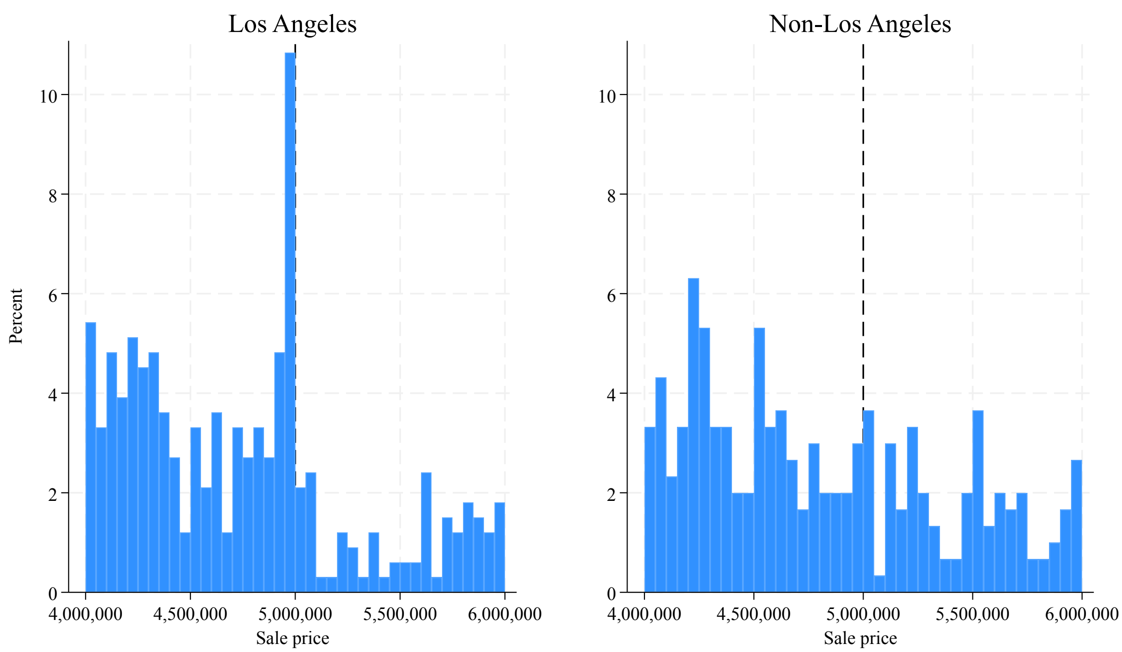


Figure A1: Revenue raised from Measure ULA

Monthly transaction tax revenue collected by Measure ULA calculated from transactions observed versus directly reported from the City of LA after the passage of Measure ULA.

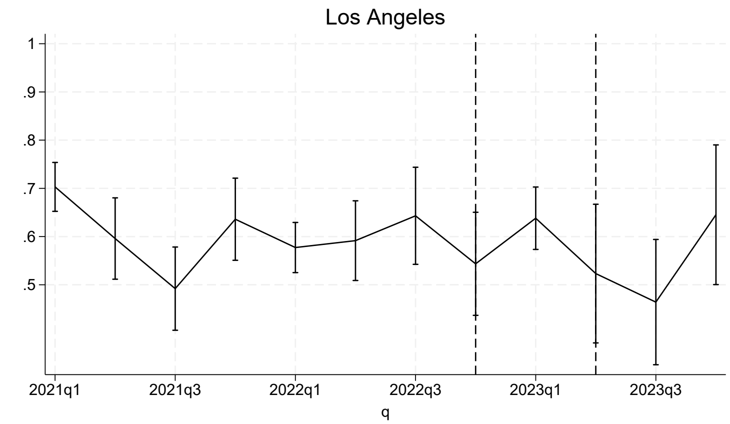


(a) Before the passage of Measure ULA

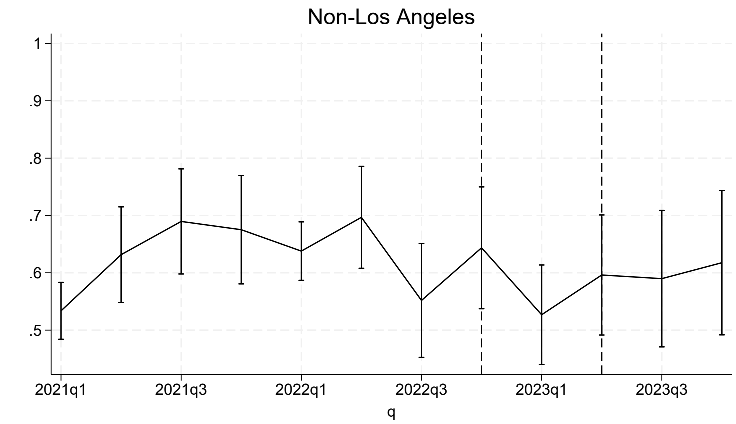


(b) After the implementation of Measure ULA

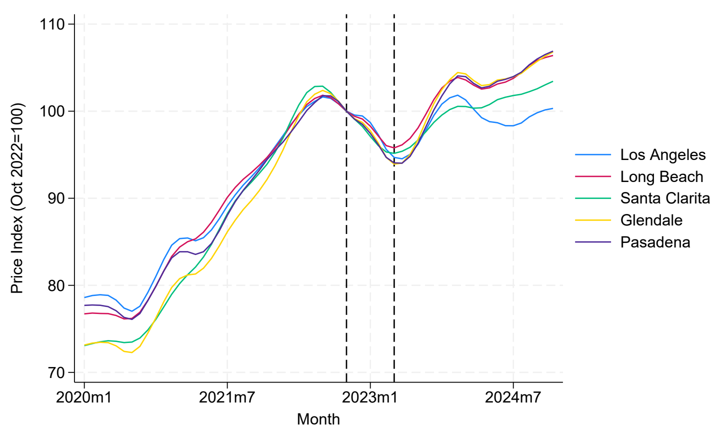
Figure A2: Distribution of single-family home sale prices within and outside the City of LA
Plot of the percent of single-family home sale prices in each \$50,000 price bin between \$4,000,000 and \$6,000,000 within and outside the City of LA. Panel (a) shows distribution of home sale prices inside and outside LA before the passage of Measure ULA (January 2018 to September 2022). Panel (b) shows the distribution of home sale prices inside and outside LA after the implementation of Measure ULA (May 2023 to December 2023).



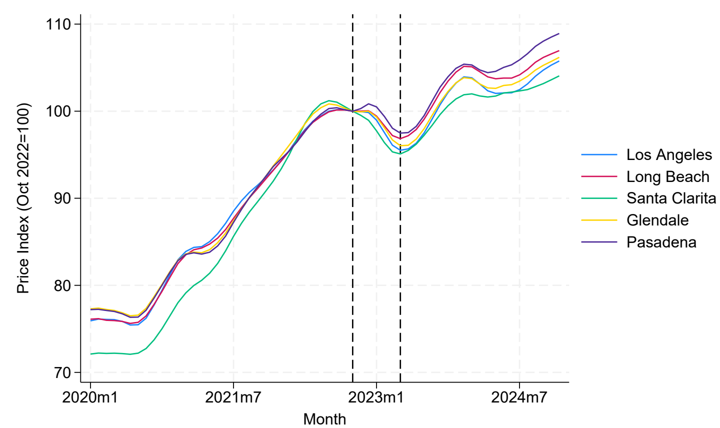
(a) Custom Repeat-Sales Index, Price Above $5mn, Los Angeles



(b) Custom Repeat-Sales Index, Price Above $5mn, Outside Los Angeles



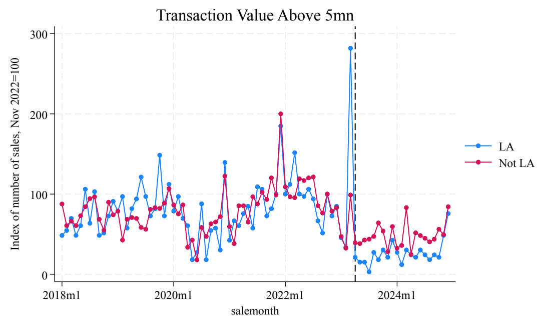
(c) Zillow House Prices, Top Tier



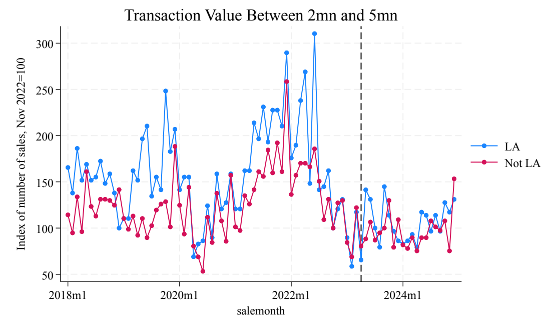
(d) Zillow House Prices, Bottom Tier

Figure A3: House Price Indexes

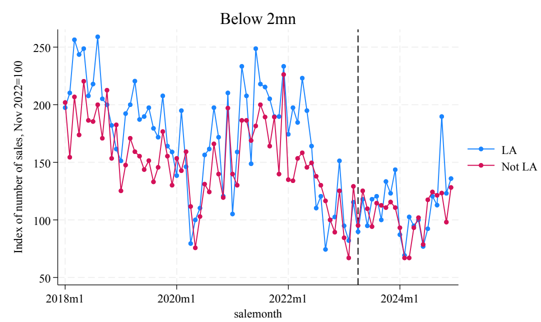
Panels (a) and (b) show the results of a custom repeat-sales index created following the Case-Shiller methodology, splitting prices into those above and below $5mn sale price. Panels c and d show Zillow House Prices, Indexed to 100 for October 2022, calculated for the largest cities in Los Angeles County. Top Tier is defined as 65th to 95th percentile range for a given region and Bottom Tier is defined as 5th to 35th percentile range for a given region. Source: Zillow.



(a) Above 5 million



(b) Between 2 million and 5 million



(c) Below 2 million

Figure A4: Transaction Frequencies from CoStar

Using data from CoStar, Panel (a) shows the total transaction volume for sales above $5 million comparing parcels within the City of Los Angeles with otherwise similar parcels elsewhere in Los Angeles County. Panels (b) and (c) repeat the exercise for sales between 2 and 5 million and below two million, respectively. Each series has been normalized to 100 in October 2022, the month immediately preceding the ballot results for Measure ULA.

B Descriptive results

This section documents further facts that support our estimates and empirical strategy.

B.1 Price dynamics

The price impact of the transaction tax shows the incidence of the tax. Since this has been the focus of previous work on housing transaction taxes (e.g., Best and Kleven, 2018), we do not make this the focus of this paper. Aside from its theoretical interest, one reason to study incidence is that a price impact of the mansion tax reduces both the revenues from the tax itself, and the future property tax base of the homes. Both these effects mean that the revenue from the tax is lower than it otherwise would be. The overall findings are suggestive of a price effect: We find noisy evidence of price pass-through in results from a custom house price index we construct from assessor rolls. We also find evidence of price pass-through using Zillow HPI data, but this data is subject to concerns about coverage and representativeness which we discuss below.

The first two panels in Figure A3 show estimates from our custom repeat-sale index. There is some evidence of a dip in prices in Los Angeles right after the passage of the tax, but we find no such evidence outside of Los Angeles. However, the large standard errors rule out a significant effect. To make this figure, we create a custom repeat-sales index use the Case-Shiller methodology to study the price impacts. The Case-Shiller methodology involves creating transaction pairs for properties sold more than once, and running a fixed-effects regression of price changes on month fixed effects. The fixed effects take a value of -1 in the month the home is purchased and +1 in the month it is bought. We infer the purchase year using the last assessed value in the assessor rolls. We infer the purchase price by rolling back the assessed value using annual assessment limits published since 1978, and limit the data to properties with no reassessments in the value of improvements.

We also study the Zillow Home Value Index (ZHVI), which combines a repeat-sales estimator with a hedonic regression to infer current market values for the universe of residential parcels that have transacted at least once Zillow Research (2023). We download monthly ZHVI series for the five largest incorporated cities that Zillow reports within Los Angeles County—Los Angeles, Long Beach, Santa Clarita, Glendale, and Pasadena—and we focus on two price segments that Zillow constructs consistently across locations. The "top tier" corresponds to the 65th and 95th percentiles of each city's valuation distribution, while the "bottom tier" corresponds to the 5th-35th. There are two limitations to this data. First, the price categories cannot be customized: Most homes in the "top tier" do not qualify for the mansion tax and the category bins may be different in different cities. Second, it does not include commercial real estate. From 2020 through 2024 the ZHVI for the 35th-65th percentile segment evolves almost identically inside the City of Los Angeles and in the non-Los-Angeles comparison area, both before and after the April 2023 implementation of Measure ULA. The top-tier series diverge following the tax. While top-tier prices in neighboring jurisdictions continue their pre-existing upward trend, the Los Angeles top-tier index declines by roughly the statutory two-percent tax rate immediately after April 2023 and fails to recover relative to the control group through the end of our sample. The magnitude of the break is consistent with full pass-through of the transfer tax to selling prices, implying that the statutory burden falls entirely on sellers rather than buyers—a result that departs from earlier studies reporting only partial pass-through. These estimates do not include standard errors because Zillow does not supply them.

B.2 Extended commercial series

Using transaction data from CoStar shown in Figure A4, we extend the volume analysis to 2025 and partition sales into three bands: below $2 million, $2-$5 million, and above $5 million. The anticipatory March 2023 spike and the subsequent collapse in high-value sales are even more pronounced than in the assessor data, and the post-tax decline persists throughout 2024. The sharper response among high-value commercial parcels underscores both their greater flexibility in timing transactions and the larger fiscal externalities generated when they defer sales.

B.3 Statutory schedule

Table A1 summarises the inflation-indexed tax brackets. Beginning on April 1st, 2023, a 4 percent rate applies to consideration above $5,000,000 and below $10,000,000; a 5.5 percent rate applies thereafter. Thresholds are indexed each July. Our empirical work therefore uses the exact statutory cut-offs except when constructing volume series, where we adopt a $4.9 million upper bound to capture bunching immediately below the notch.

B.4 Composition of taxable transactions

Table A2 tabulates annual counts of taxable transfers by property type and tax bracket. Prior to the levy's introduction commercial and multifamily parcels dominate the $5-$10 million range, whereas single-family homes are prevalent below the threshold. Above $10 million commercial assets again predominate and volumes are sparse. The table confirms that the so-called "mansion" tax is in practice a broad-based levy on high-value commercial real estate, a fact exploited in Section 5.2 when we discuss heterogeneous effects across property types.

C Data Appendix

This paper combines parcel–level administrative data from the Los Angeles County Assessor with proprietary deed and transaction records to quantify how the City of Los Angeles's "Measure ULA" transfer tax affects property-tax reassessments and, through them, local public-finance outcomes. We organize the discussion around four sources: (i) the annual Secured Assessment Roll, (ii) deed records from CoreLogic, (iii) transactions drawn from CoStar, and (iv) publicly available monthly Measure ULA revenue reports. Throughout, we exploit the sharp boundary between the City of Los Angeles, where the tax applies, and the remainder of Los Angeles County, where it does not.[9]

Los Angeles County Assessor Secured Roll The Assessor's Secured Roll lists every taxable parcel in Los Angeles County.[10] Proposition 13 sets each parcel's *base-year value* at acquisition and caps nominal growth in assessed value at two percent per year until a "change in ownership" occurs.[11] The roll therefore reports, for every parcel p and fiscal year t, the assessed land value $A^L_{p,t}$, the assessed improvement value $A^I_{p,t}$, and the corresponding base-year assessment dates (τ^L_p, τ^I_p). A jump in $A^L_{p,t}$ coincident with $\tau^L_p = t$ identifies an arm's-length sale under Proposition 13. We keep all parcels whose tax-status code indicates liability for the one-percent ad valorem tax and discard parcels that are constitutionally or statutorily exempt.

The analysis window begins in January 2020 and ends in December 2023, the last month for which complete deed matching is possible before the 2024 roll is finalized. We classify each parcel into single-family residential, multi-family residential, office, retail, or other commercial using the assessor's use codes. Parcels are then assigned to treatment (City = 1) or control (City = 0) based on municipal boundaries.

CoreLogic Deed Records and the Construction of Sales We observe precise transaction dates from CoreLogic's Deed & Mortgage module, which aggregates county recorder documents nationwide. A transaction is classified as an arm's-length sale when the deed type is recorded as a grant deed, warranty deed, trustee's deed, or similar, and the document type excludes quit-claims, inter-corporate transfers, and other non-market conveyances. Matching on the assessor's parcel number and transaction month yields a one-to-one link for 88 percent

[9]Santa Monica adopted a broadly similar transfer tax in 2023. Because the timing and rate schedule differ, all parcels in Santa Monica are excluded from every sample.

[10]As of the 2024 roll the county reports 2.1 trillion dollars in net assessed value across roughly 2.6 million parcels; see Los Angeles County Assessor (2024).

[11]See California Revenue and Taxation Code §60-69.5. New construction can also trigger partial reassessment of the improvement component; land values, however, are updated only upon transfer.

of assessor-identified sales between 2020 and 2023. Unmatched events are omitted, rendering our estimates of the reassessment margin conservative. When multiple arm's-length deeds for the same parcel appear within a calendar year, we retain the earliest sale to align with the assessor's base-year coding convention. The sale price recorded in the deed file is not used; instead, the post-sale assessed value from the roll serves as the sale value, ensuring consistency with the tax base.

CoStar Transactions CoStar supplies property-level transaction data that are especially rich for large commercial assets. Coverage is near-complete for sales above five million dollars, the relevant threshold for Measure ULA, and extends through February 2025. While single-family sales are largely absent, the data complement the assessor roll by allowing us to track high-value commercial transactions after December 2023 and to benchmark the roll-based estimates.

Measure ULA Revenue Records The Los Angeles Office of Finance posts monthly reports of Measure ULA remittances that include the month of collection, the amount remitted, and the ZIP code of the property.

D Derivation Details

D.1 Marginal excess burden of a property transfer tax when there is an existing acquisition-value property tax

We model a single parcel whose market value follows the deterministic path[12]

$$M_t = M_0 e^{gt}, \qquad g > 0,\ t \geq 0.$$

Between sales, the statutory property tax assessment drifts at the capped rate $g_s < g$, so the gap $k \equiv g - g_s > 0$ measures how far assessments lag market values. Sales arrive as a Poisson process with constant hazard p.

The property tax base, i.e. the tax-assessed value a_t, depends on the duration the property has been held since last sale, h at time t:

$$a_t \mid_{H=h} = M_0 e^{g(t-h)} e^{g_s h} = M_0 e^{gt} e^{-kh}$$

The distribution of holding periods follows an exponential law, $H \sim \text{Exp}(p)$. Conditioning on a realised holding period $H = h$, the assessed value at time t is

$$a_t(h) = M_0\, e^{gt}\, e^{-kh}$$

Taking expectations over H therefore gives

$$\mathbb{E}[a_t] \;=\; M_0\, e^{gt}\, \mathbb{E}\big[e^{-kH}\big] \;=\; M_0\, e^{gt} \int_0^{\infty} e^{-kh}\, p\, e^{-ph}\, dh \;=\; M_0\, e^{gt}\, \frac{p}{p+k}. \tag{10}$$

Define

$$\Phi(p) \;\equiv\; \frac{p}{p+k}.$$

With this notation, (10) becomes

$$\mathbb{E}[a_t] \;=\; M_0\, e^{gt}\, \Phi(p),$$

so $\Phi(p)$ is the present-value wedge between assessed and market values.

The present value of the property tax base discounting cash flows at $r > g$ is therefore

[12] Allowing M_t to follow a geometric Brownian motion would leave all expressions unchanged because only the expected growth rate matters for the present-value integrals.

given by:

$$A_t(p) = \frac{M_0}{r-g}\Phi(p)$$

The present value of the property transfer tax base is closely related, and given by:

$$T_t(p) = \frac{M_0}{r-g}p$$

Note that $A = T/(p+k)$.

Now consider a reform where the transfer tax rate τ is changed unexpectedly at $t = 0$, shifting the hazard to $p'(\tau)$; the ad valorem property tax rate θ is held fixed. In the long-run, the tax bases shift to $T_t(p')$ and $A_t(p')$. In the near-term, there are potentially important transitional dynamics to consider as the distribution of holding period of properties, and therefore the distribution of assessed values, shifts towards to the new sale hazard. We will first derive the marginal excess burden of the transfer tax and the revenue-maximizing rate assuming instant adjustment of property tax adjustment and then consider how the transition dynamics affect these quantities.

Total revenue from the property tax and transfer tax is given by $R = \tau T + \theta A$. A marginal change $\mathrm{d}\tau$ induces a change in revenue that is separable into a mechanical, $\mathrm{d}M$, and behavioral, $\mathrm{d}B$, component:

$$\mathrm{d}R = \underbrace{\mathrm{d}\tau T}_{\mathrm{d}M} + \underbrace{\tau \mathrm{d}T + \theta \mathrm{d}A}_{\mathrm{d}B}. \tag{11}$$

Defining ϵ^T and ϵ^A as the elasticities of the two tax bases with respect to the net of transfer tax rate $(1-\tau)$, we can write $\mathrm{d}T = -T\epsilon^T\frac{\mathrm{d}\tau}{1-\tau}$ and $\mathrm{d}A = -A\epsilon^A\frac{\mathrm{d}\tau}{1-\tau}$. Substituting into equation (11), we get:

$$\mathrm{d}R = \mathrm{d}\tau[(1 - \frac{\tau}{1-\tau}\epsilon^T)T - \frac{\theta}{1-\tau}\epsilon^A A]$$

The marginal excess burden, defined as the change in revenue coming from the behavioral response for each additional dollar of revenue raised is given by:

$$\frac{-\mathrm{d}B}{\mathrm{d}R} = \frac{\tau\epsilon^T T + \theta\epsilon^A A}{(1-\tau(1+\epsilon^T))T - \theta\epsilon^A A}$$

Setting $\mathrm{d}R = 0$, we can solve for the revenue-maximizing rate of τ^*:

$$\begin{aligned}
(1-\tau(1+\epsilon^T))T - \theta\epsilon^A A = 0 \\
\tau^* &= \frac{1}{1+\epsilon^T} - \theta\frac{A}{T}\frac{\epsilon^A}{1+\epsilon^T} \\
&= \frac{1}{1+\epsilon^T} - \frac{\theta\epsilon^A}{(p+k)(1+\epsilon^T)}
\end{aligned}$$

Note that $\epsilon^A = \epsilon^T - \Phi(p)\epsilon^p$ and $\epsilon^T = \epsilon^p$.

Including transitional adjustment Consider expected assessment at $t + \Delta t$:

$$\mathbb{E}[a_{t+\Delta t}] = (1 - p'\Delta t)[\mathbb{E}[a_t](1 + g_s\Delta t)] + p'\Delta t M_0 e^{gt}$$

Taking $\Delta t \to 0$ yields the linear ODE $\frac{d}{dt}\mathbb{E}[a_t] = (g_s - p')\mathbb{E}[a_t] + p' M_0 e^{gt}$, whose solution using the pre-tax change initial condition $\mathbb{E}[a_0] = M_0\Phi(p)$ is:

$$\mathbb{E}[a_t] = M_0 e^{gt}[\Phi(p') + (\Phi(p) - \Phi(p'))e^{-(p'+k)t}]$$

Therefore, the full present value of property tax assessments including the transition adjustment is:

$$A_t^{full} = M_0\left[\frac{\Phi(p')}{r-g} + \frac{\Phi(p) - \Phi(p')}{r - g + p' + k}\right]$$

The first term is the new steady state and the second is the *transition* term, which is strictly positive when $p' < p$ and shrinks as $\Phi(p') \to \Phi(p)$.