The Incidence and Efficiency of Land Value Taxation

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Land Value Taxation among Economists

- Long and rich intellectual history
  - Well-understood by Adam Smith (1776) and Henry George (1879)
  - Georgists also emphasize progressivity

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  - Well-understood by Adam Smith (1776) and Henry George (1879)
  - Georgists also emphasize progressivity
- Popular among economists due to **efficiency**
  - **François Quesnay, 1767**:
    That taxes should not be destructive or disproportionate to the mass of the nation's revenue; that their increase should follow the increase of the revenue; and ***that they should be laid directly on the net product of landed property, and not on men's wages, or on produce, where they would increase the cost of collection, operate to the detriment of trade, and destroy every year a portion of the nation's wealth.***

Land Value Taxes in the Wild

Mirrlees Review, UK 2011

- **Land**, whether used for business or residential property, can be taxed at an arbitrarily high rate on economic efficiency grounds.

California Tax Study (2023)

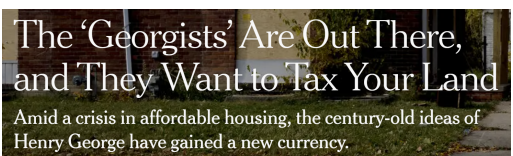
169.5. (a) The California Department of Tax and Fee Administration shall conduct a study on the efficacy of a statewide land value taxation system as an alternative to the current appraisal methods for real property taxation.

Denmark 2024

Lavere grundskyldspromille

I 2024 blev grundskyldspromillen sat ned i alle kommuner. Før var den gennemsnitlige grundskyldspromille i Danmark på 27 (altså 2,7 %). I 2024 blev den sat ned til 7,4 promille (altså 0,74 %) i gennemsnit.

Detroit Land-Value Tax Plan (2023)



What We Do

- Despite rich history and active policy debate:
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We provide new empirical evidence using a 2007 reform in Denmark

Model

A Neoclassical Model with Land and Buildings

Households

- Consume C_t and housing services H_t, and supply labor N_t
- Housing consists of land and buildings: $H_t = H(L_t, B_t)$
- Own land and buildings

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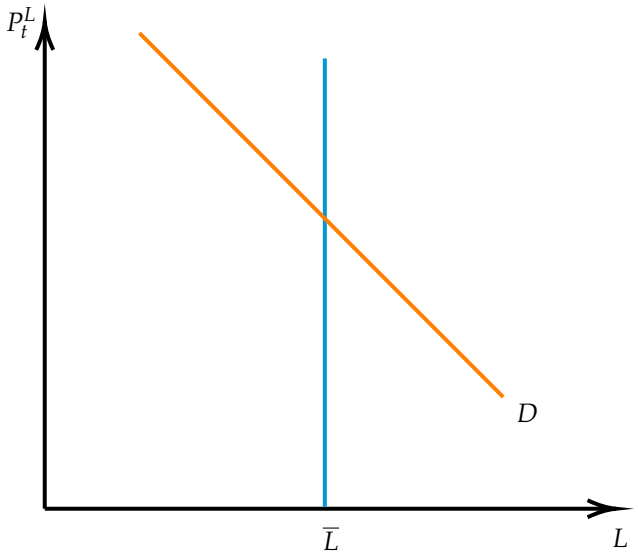
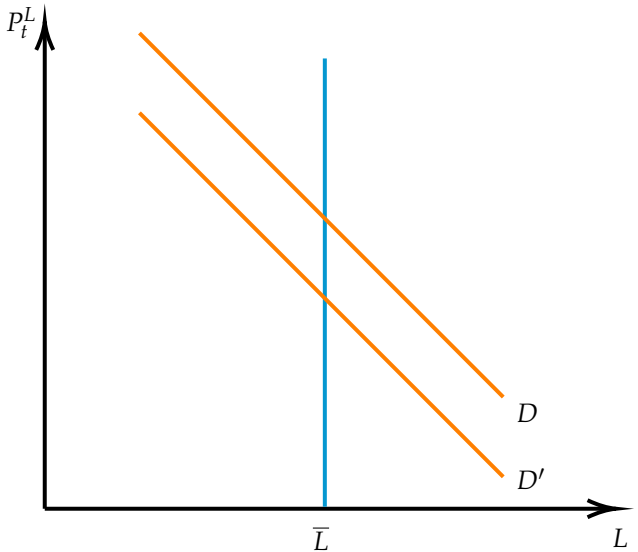
Government

- Taxes land value at rate τ

A Model of the Market for Land



All Adjustment Through Prices ⇒ No Deadweight Loss!



Key Takeaways from Model

Two Key Features Drive Everything in the Model:

1. Supply curve for land is vertical
   - Normally, if you tax something, you get less of it!
   - Not true with land due to fixed supply + land market clearing condition

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Two Key Features Drive Everything in the Model:

1. Supply curve for land is vertical
   - Normally, if you tax something, you get less of it!
   - Not true with land due to fixed supply + land market clearing condition
2. What does the government do with tax revenue?
   - If rebated to households, land tax does not affect any variable **except asset price of land**
   - If thrown in the ocean, behavioral responses emerge due to income effects

Empirical Design

Land Value Taxation in Denmark

- Denmark has a land value tax (grundskyld) at the municipal level
- Tax rates vary between 1.6% and 3.4% per year
- Land value assessed by central government
  - Based on sales of unimproved land, hedonic regressions, ad hoc adjustments, etc.
  - From 2002: Cap on assessment growth each year (7%)
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  - From 2002: Cap on assessment growth each year (7%)
  - From 2012: Assessments stopped updating, but taxable land value continued to increase
- Also a property tax at the national level
  - Combined tax on land and buildings
  - Does not vary across municipalities

2007 Structural Reform

- 2007 reform forced small municipalities to merge
  - 271 municipalities merged into 98
  - New tax rate is constrained by a ceiling set by central government
  - Explicit goal not to change service levels: motivated by desire to reform hospital sector

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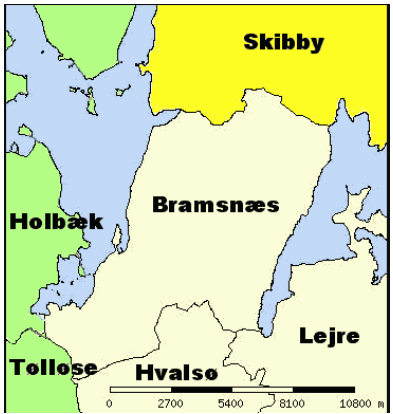
  - New tax rate is constrained by a ceiling set by central government
  - Explicit goal not to change service levels: motivated by desire to reform hospital sector
- Benefits of this reform:
  1. Permanent tax shock
  2. Formula-based tax changes: create instrument for tax changes using historical data
  3. Many places experienced substantial changes
  4. Narrative history of reform: unanticipated

Instrument

Example: Lejre Municipality



Prior to Reform: Lejre 2.0% vs. Hvalsø 2.6% vs. Bramsnæs 2.8%

After Merger: 2.5%, raised to 2.8% in 2010

At average land values, the **difference** is few hundred dollars in taxes per year.

Data

Housing Data

- Land and property taxes and assessments
- Danish Housing Census: property-level characteristics
- Records of all sales of real property
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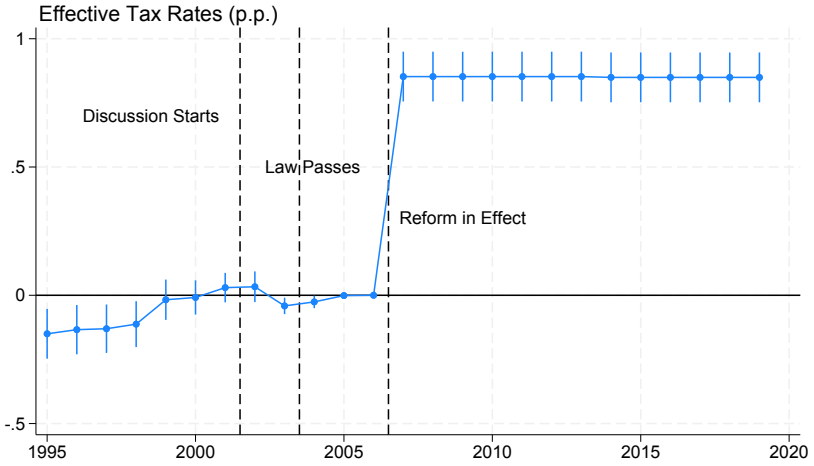
Municipal Data

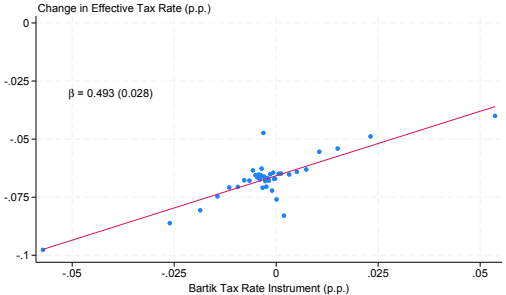
- Local demographic, economic variables
  - Use these + statutory tax rates to create instrument

Instrument Based on Historical Data Strongly Predicts Policy Change

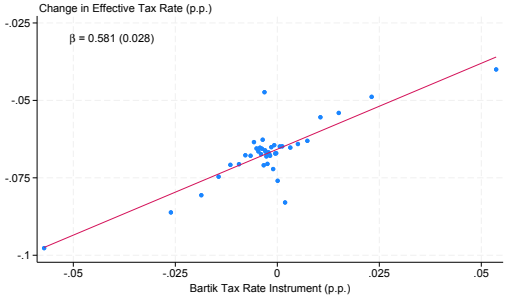


Combine With Within-Treatment-Area Variation in Land Exposure

A. Land-Share Exposure Instrument



B. Combined Policy and Exposure Variation

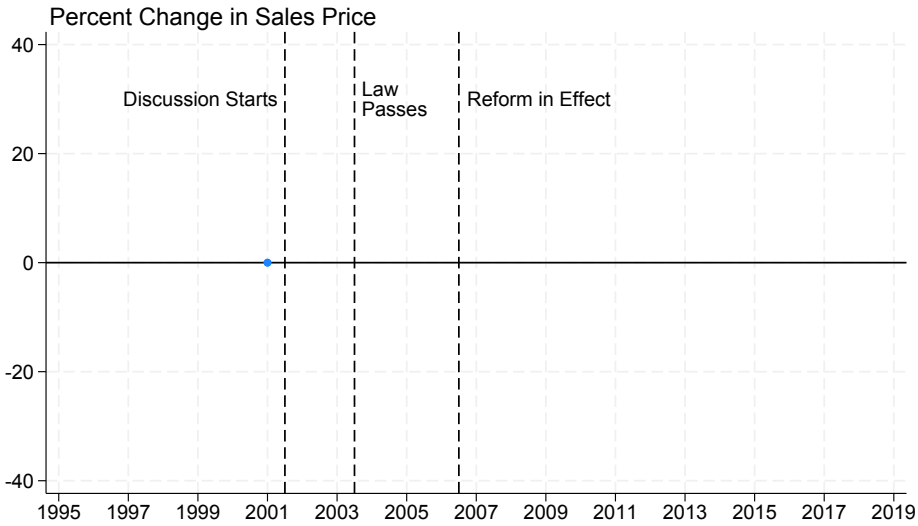


Event Study Design

$$y_{j,a,t} = \sum_{h \neq -1} \beta_h \Delta\tilde{\tau}_a \theta_j \mathbf{1}_{\{t-h=2001\}} + \gamma_j + \eta_{m(a)\times t} + \delta' X_a \mathbf{1}_{\{t-h=2005\}} + \psi_{j\times t} + e_{j,i,t}$$

- $y_{j,i,t}$ is the log sales price of property j in treatment area a in year t
- $\Delta\tilde{\tau}_a$ is the policy-shock instrument
- θ_j instruments for "exposure" to the policy shock using the land share
- $\eta_{m(i),t}$ is new municipality by year fixed effect
  - Only look at variation *within new municipalities*
  - Comparing properties across old borders with **different exposure** to land tax changes

Land Taxes and Sales Prices



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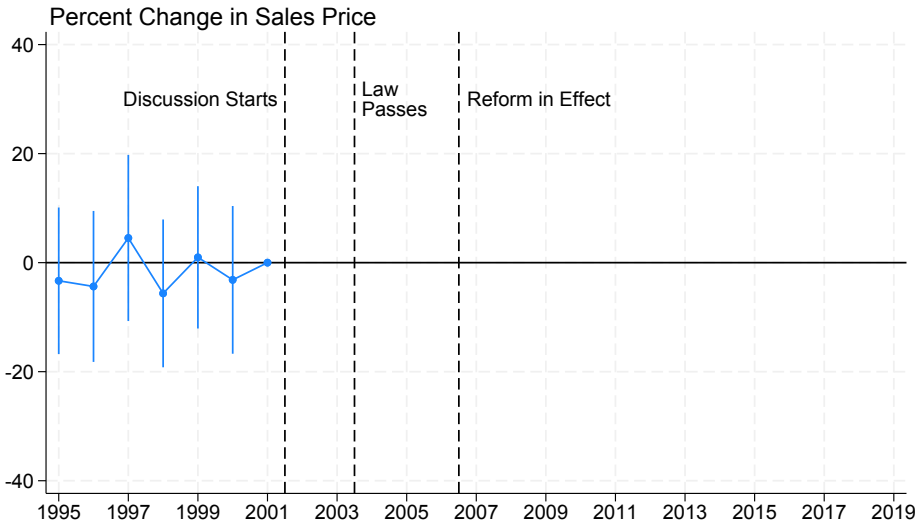

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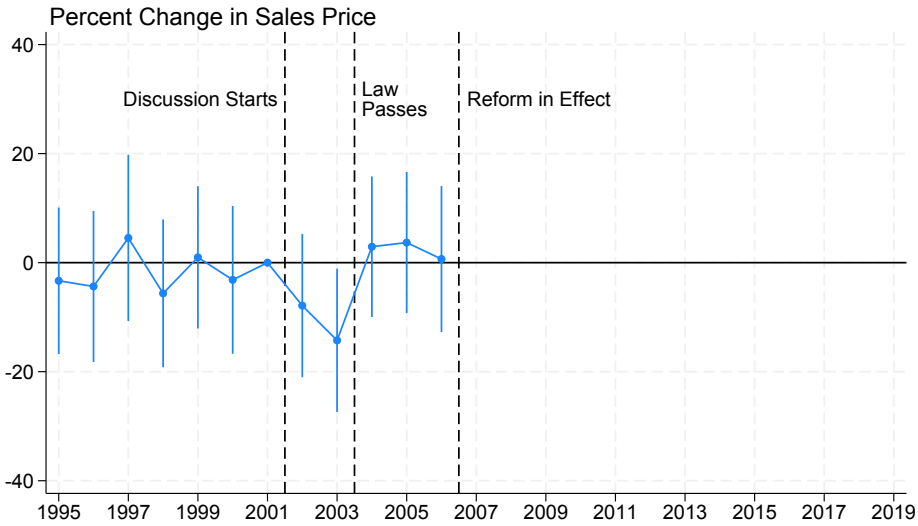

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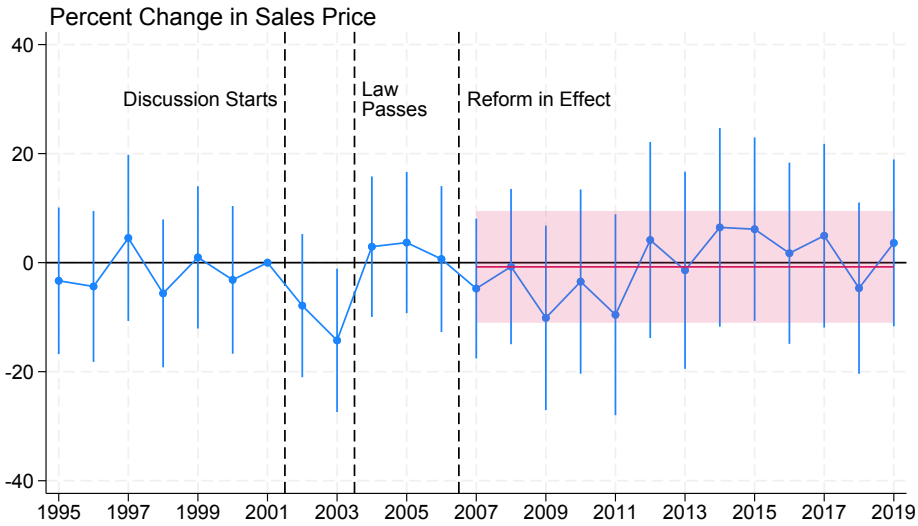
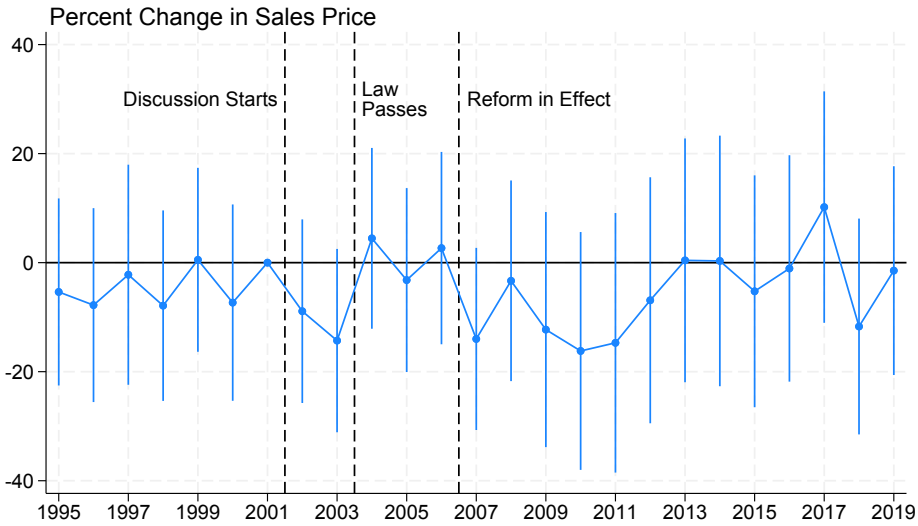


Even True When Looking Just At *The Most Exposed Housing*



Can Rule Out Full Capitalization With High Confidence

Table: Effect on Home Prices and Implied Discount Rates

	OLS	IV: Baseline	IV: Trim 5%	IV: Single-Family	IV: Q4 Shocks
Anticipation x Treat	-3.654	-1.253	-2.310	-0.215	1.637
	(2.022)	(4.928)	(3.944)	(5.662)	(6.264)
Post x Treat	-7.194	1.609	-1.168	-1.652	-2.244
	(2.129)	(5.032)	(4.026)	(6.376)	(6.269)
Observations	1015414	1015414	895685	314045	229366
D. Rate L.B.	8.800	12.10	11	7.100	6.900
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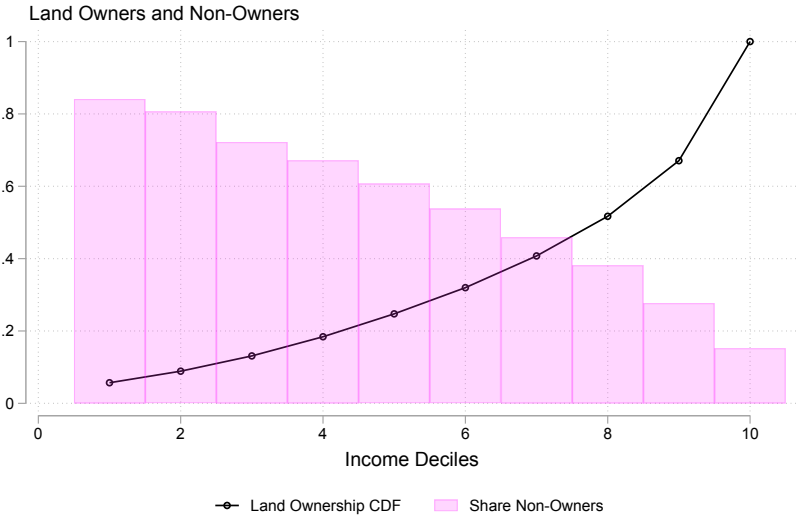
Mechanism

One potential explanation: rents adjust not sales prices

- Rent control explicitely allows for adjustment of rents in response to land tax changes
- Recent research, in a variety of contexts, shows rents affected by property taxes
- Null responses even in markets dominated by owner-occupants

Results suggest incidence shared with future purchasers, tenants



How Do Higher Taxes Affect Aggregate Quantities?

Policy Motivation: Does not affect the incentive to develop, unlike conventional property tax

- Widespread concern that owners, esp. retirees, could be pushed out of homes (Wong, 2024).

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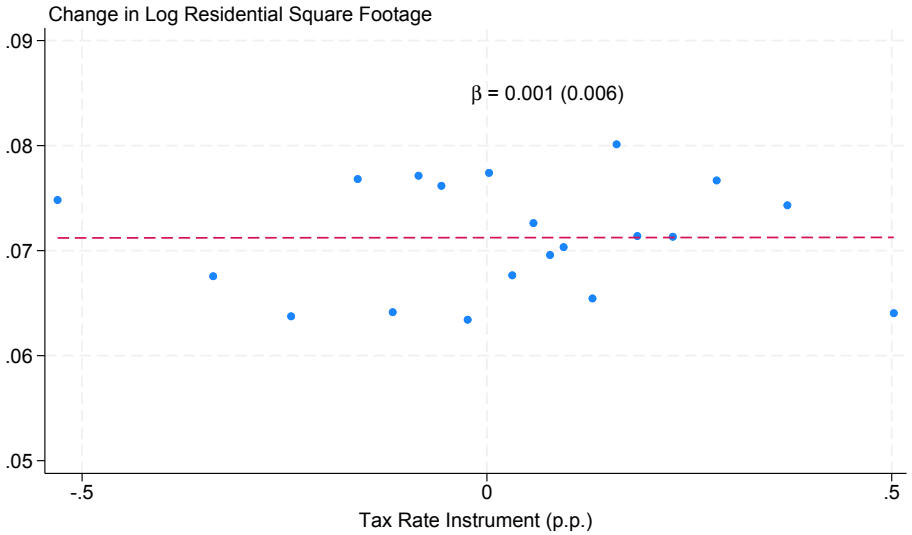
Empirical Strategy:

$$y_{a,2019} - y_{a,2006} = \beta \Delta \tilde{\tau}_a + \eta_{m(a)} + \delta X_a + e_a \tag{1}$$

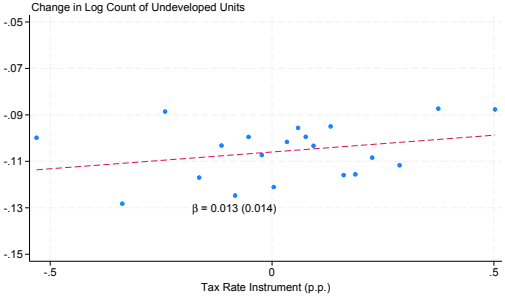
- Capture long-term effects of taxes on slow-moving variables (like mobility/development)
- Can check pre-period long differences to assess pre-trends

No Effect of Land Taxes on Aggregate Development

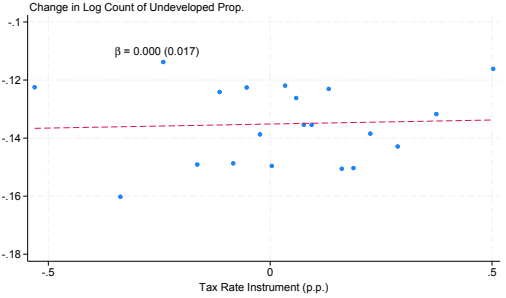


True Even in Most Policy-Relevant Areas

A. Undeveloped Land

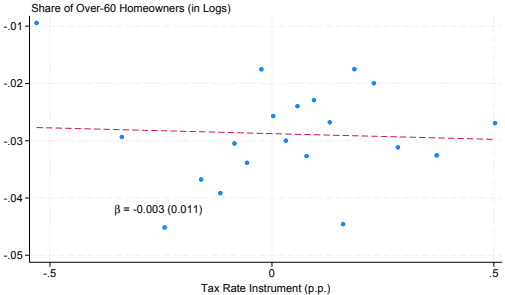


B. Undeveloped Urban Land

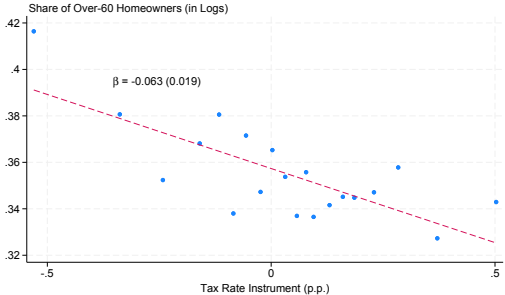


Older Homeowners Sort Away from High Tax Areas

A. Pre-Period



B. Post-Period



Conclusion

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- Precise, null effects of taxes on home values
- Older homeowners sort away from high-tax areas
- Development invariant to tax rate

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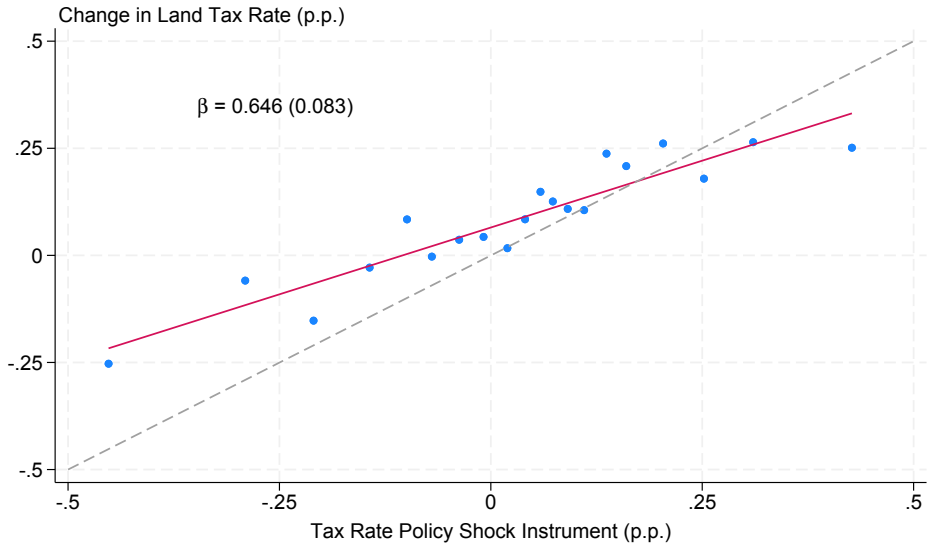
Implications:

- Economic incidence doesn't fully fall on incumbent landowners.
  - Supply and demand curves are not sufficient statistics for tax incidence (Benzarti, 2024).
- Scope for efficiency costs/misallocation: can move to avoid tax.
  - Older homeowners seem to do this!
- Land taxes don't affect development $\rightarrow$ benefits to moving from property to land taxes
- Market-level inattention to even quite large tax changes.

Appendix

Instrument Strongly Predicts Actual Tax Changes



Residential Construction

Land Use

Total floor area (adjusted for delays)

Use: Residential building | Phase of construction: Under construction | Builders: Private builders | Seasonal adjustment: Non-seasonally adjusted: