Standardizing the Measurement of Cigar Tax Rates in the United States, 2010–2024

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Data disclaimer

- Researcher(s)' own analyses calculated (or derived) based in part on data from Nielsen Consumer LLC and marketing databases provided through the NielsenIQ Datasets at the Kilts Center for Marketing Data Center at The University of Chicago Booth School of Business. The conclusions drawn from the NielsenIQ data are those of the researcher(s) and do not reflect the views of NielsenIQ. NielsenIQ is not responsible for, had no role in, and was not involved in analyzing and preparing the results reported herein.

Personal disclosure

- I have not received any tobacco-related research funding over the last 10 years.

Cigars and cigar taxes

- **Use**: Second-most used combustible tobacco product in U.S.*
  - 1.5% among high school students; 5.4% among 18–25 year-olds; 3.8% among 26+
  - Current cigarette use: 1.7% of high school students; 11.6% of adults
  - Current e-cigarette use: 7.8% of high school students; 6.0% of adults

- **Evidence gap**: Much less empirical work on cigar-specific policies vs. cigarette policies (Levy et al., 2025), despite health risks comparable to cigarettes (Chang et al., 2015)

- **Tax complexity**: Mix of per-unit, ad valorem, caps, and product-specific or tiered rates across states and localities

*Sources: American Lung Association (2024); Jamal et al. (2024); Cornelius et al. (2023)

Cigar types taxed differently

- **Little cigars**
  - Similar size to cigarettes; ≈1g tobacco
  - Federal law: weigh less than 1.36 grams per stick
- **Large cigars**
  - Dominant cigar product; ≈3g tobacco
- **Premium cigars**
  - Hand-made, typically 5–20g tobacco
  - Taxed federally at same rate as large cigars

How states tax cigars

- For cigarettes, almost every state uses a specific tax per pack (e.g., $1.50 per pack of 20)
- State-level cigar tax structure varies
  - Specific per-unit
  - Ad valorem:
    - Percentage of manufacturer or wholesale price
  - Tiered rates based on price or weight
  - Caps: maximum tax per cigar
- Within a state, structure and level often differ by cigar type
  - Thus, normally not just one "cigar" tax

Examples: how cigar taxes differ across states

Minnesota

- **Little cigars**: taxed \$0.152 per unit, indexed to state cigarette tax
- **Large cigars**: taxed at 95% of the manufacturer's price (ad valorem)
- **Premium cigars**: 95% of manufacturer's price, but with a \$0.50 maximum tax per cigar (cap)

Oklahoma

- **Little cigars**: taxed \$0.101 per unit, indexed to the state cigarette tax
- **Large/premium cigars** (weigh more than 3 lbs per 1,000):
  - Manufacturer price's $\leq$ \$0.04: \$0.11 per cigar
  - Price $>$ \$0.04: \$0.12 per cigar

This presentation

- Create cigar taxes across type to be comparable to state cigarette taxes and suitable for analysis
- Construct standardized, per-stick cigar tax measures for:
  - Little, large, and premium cigars
  - States + D.C. and 88 localities, 2010–2024 (quarterly)
- Convert all structures (specific, ad valorem, caps, tiers) into dollar-per-stick rates
- Use database + TWFE to estimate pass-through rates
  - How much of the tax is passed onto consumers

How states tax cigars (2024)

	Little	**Large**	**Premium**
Ad valorem	26	43 + D.C.	42
Per-unit	22 + D.C. *	—	—
Tiered rate	1	5	5
Caps on tax / stick	—	10	12**

* 19 of these tax as cigarettes

** 2 add. states specifically have tax on premium

No tax: FL (little); FL, PA (large); FL, PA, DC, NH (premium).

Methodology overview

- Follow similar approach for standardizing e-cigarette taxes (Cotti et al., 2023, 2024)
- Use legislated tax changes for variation in cigar taxes
  - Avoid price endogeneity from other market forces
- Start in 2010: first full year after Tobacco Control Act and last change in federal cigar taxes
- Key steps:
  1. Obtain baseline retail prices from Florida in 2010 (no state cigar tax)
     - Find FL prices generalizable to prices elsewhere
  2. Remove assumed mark-ups to infer wholesale and manufacturer prices
  3. Apply state and local tax statutes (including caps and tiered rates)

Data

- Retail prices and sales: NielsenIQ Retail Scanner Data (NRSD)
  - 53% of food stores, 55% of drug stores, 32% of mass merchandisers, 2% of convenience stores, and 1% of liquor stores
- Classify products on UPC characteristics into little, large, and premium type
- State taxes collected from Tax Burden on Tobacco (Orzechowski and Walker, 2024) + CDC STATE system, validated against legal texts
- Local taxes sourced from American Nonsmokers' Rights Foundation U.S. Tobacco Control Laws database.

Baseline prices (Florida 2010)

- Florida: only state with no tax on any cigar type in 2010
- Use NRSD prices and quantities:
  - 6.1M little cigars (87 UPCs), 29.5M large (788 UPCs), 3M premium (324 UPCs)
- Winsorize UPC-specific prices at 5th/95th percentiles
- Baseline mean retail prices per stick:
  - Little: \$0.15, Large: \$0.72, Premium: \$1.53
  - Prices from retail stores; excludes cigar lounges

Validity check: Are Florida prices representative?

- Compare Florida 2010 cigar prices to states with per-unit or near-zero cigar taxes (AZ, TX, PA, OK, D.C.)
- For each state–product type, compute sales-weighted mean prices, restricting to UPCs sold in both Florida and the comparison state
- Assume temporary 1:1 pass-through and subtract standardized tax to estimate pre-tax prices elsewhere
- Result:
  - Florida prices about 0.8% lower than tax-adjusted prices in per-unit states
  - Difference of 1.5% when weighting by Florida sales
- Suggests 2010 Florida prices are broadly representative as a baseline

Validity check: Prices in low- or no-tax settings

State	Product	State price	FL price	$ Δ	% Δ
DC	Premium	1.562	1.462	-0.100	-6.4%
PA	Large	0.751	0.726	-0.025	-3.3%
PA	Premium	1.218	1.079	-0.139	-11.4%
TX	Little	0.136	0.154	0.018	13.2%
TX	Large	0.749	0.733	-0.016	-2.1%
TX	Premium	2.160	2.086	-0.074	-3.4%

Notes: Prices are 2010 sales-weighted means, restricted to UPCs sold in both Florida and the comparison state.

- Little and large cigars: Florida prices compare to prices in low- or no-tax states
- Premium cigars: Florida prices tend to be somewhat lower than comparison states

Validity check: Are 2010 prices reasonable?

- Policy goal: estimate how changes in cigar taxes affect cigar consumption
- If taxes are constructed from observed prices (especially ad valorem taxes), tax and price both move with demand:
  - Demand falls $\rightarrow$ firms lower prices $P \downarrow$
  - Ad valorem tax per stick $T \downarrow$
  - Spurious regression that tax decrease $\rightarrow$ decrease in cigar consumption
- Using 2010 prices as a fixed anchor and then applying only statutory tax changes means that:
  - All variation in our tax series stems from legislative changes, not from demand-driven price movements
  - The tax variable can be interpreted as an exogenous policy measure

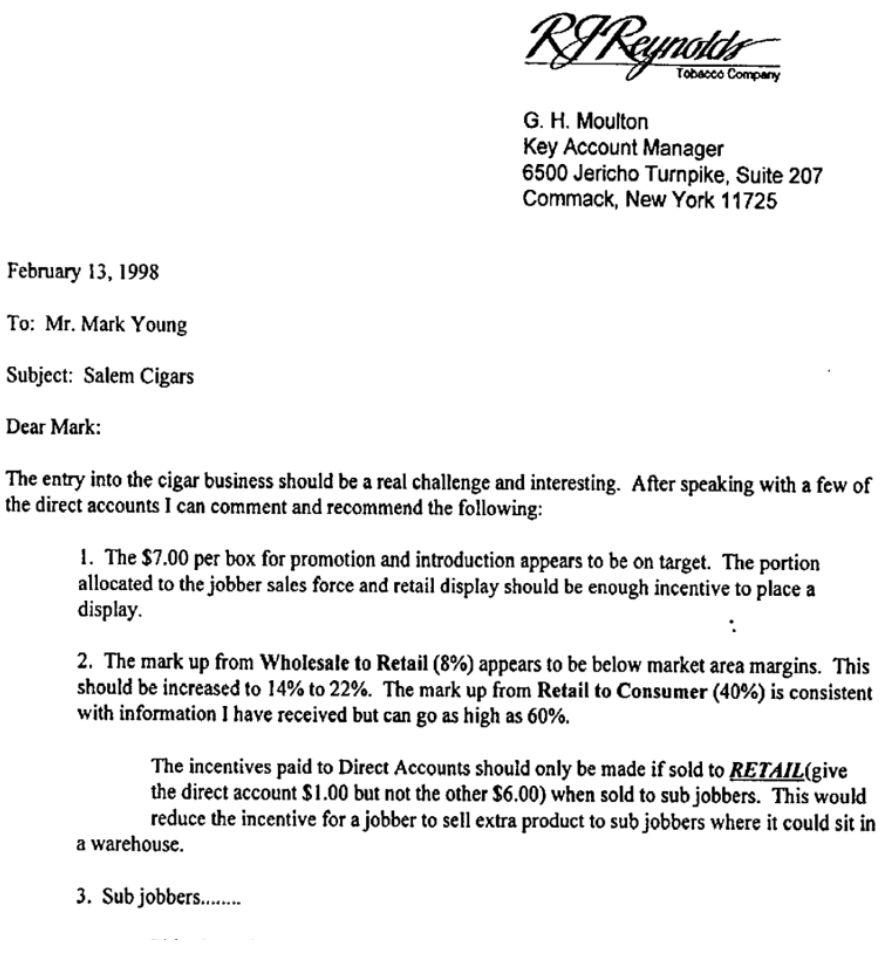
Why do mark-ups matter for cigar taxes?

- States tax cigars at different points in the distribution chain: manufacturer price or wholesale price
- Simple example (one cigar):
  - Manufacturer price: \$1.00
  - Wholesale price: \$1.18
  - Retail price: \$1.68
  - A 50% tax: on manufacturer = \$0.50; on wholesale = \$0.59; on retail = \$0.84
- To compare taxes across states, we need to:
  - translate taxes at different points in the chain into a common per-stick amount, and
  - work backwards from observed retail prices to the taxed price

Mark-up assumptions

- Industry documents used to infer mark-ups (John Middleton Co., 2009; Moulton, 1998)
  - List of Middleton wholesale prices (John Middleton Co., 2009) compared to retail prices
  - Correspondence from RJ Reynolds executive on suggested mark-ups (Moulton, 1998)
- Assumed mark-ups:
  - Wholesale $\rightarrow$ retail: 18%
  - Retail $\rightarrow$ consumer: 42.5%
- Higher than mark-up for cigarettes/e-cigarettes (Chaloupka and Tauras, 2020)

Example of industry document



R.J. Reynolds Tobacco Company

G. H. Moulton
Key Account Manager
6500 Jericho Turnpike, Suite 207
Commack, New York 11725

February 13, 1998

To: Mr. Mark Young

Subject: Salem Cigars

Dear Mark:

The entry into the cigar business should be a real challenge and interesting. After speaking with a few of the direct accounts I can comment and recommend the following:

1. The $7.00 per box for promotion and introduction appears to be on target. The portion allocated to the jobber sales force and retail display should be enough incentive to place a display.

2. The mark up from **Wholesale to Retail** (8%) appears to be below market area margins. This should be increased to 14% to 22%. The mark up from **Retail to Consumer** (40%) is consistent with information I have received but can go as high as 60%.

The incentives paid to Direct Accounts should only be made if sold to ***RETAIL***(give the direct account $1.00 but not the other $6.00) when sold to sub jobbers. This would reduce the incentive for a jobber to sell extra product to sub jobbers where it could sit in a warehouse.

3. Sub jobbers.....

Figure 1: Truth Tobacco Industry Documents

Calculating state cigar taxes

- **Ad valorem**
  - Identify if rate applies to the *manufacturer* or *wholesale* price
  - Multiply the ad valorem rate by the corresponding average pre-tax price (baseline retail price with mark-ups removed)
- **Caps on tax per stick**
  - For prices below the cap-binding price: $tax = \text{rate} \times \text{price}$
  - For prices at or above that threshold: $tax = \text{cap}$
  - Take a sales-weighted average using the share of prices below vs. above the cap-binding price
- **Per-unit (specific) taxes**
  - Use the statutory amount per cigar directly (e.g., \$0.20 per stick)
- **Tiered rate structures**
  - Convert the tiered schedule into a single per-stick rate.
  - Typically use the highest (most binding) tier, giving a conservative overestimate of the tax

Local cigar taxes

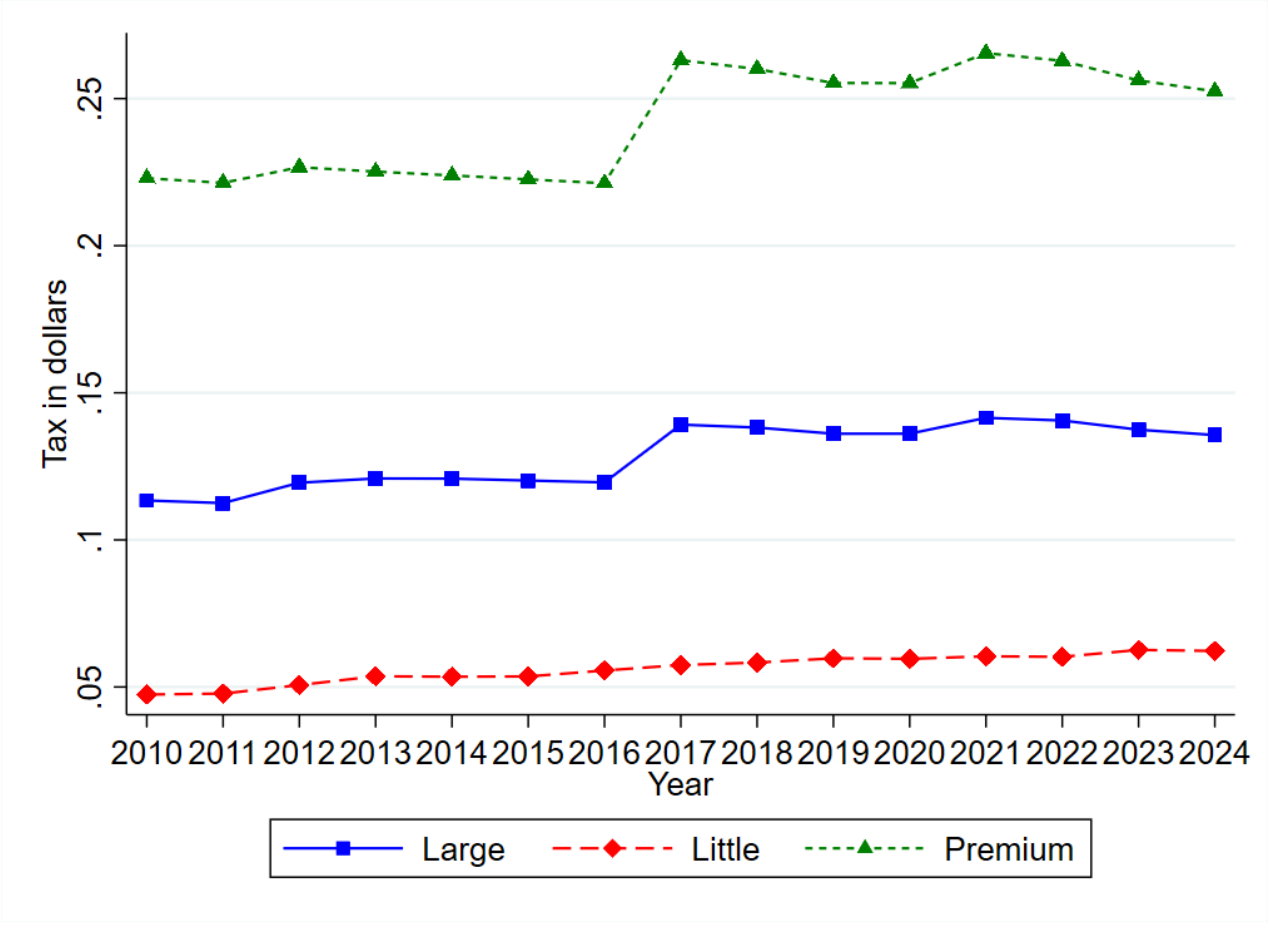
- 88 localities impose additional cigar taxes
  - Range from New York City to Bibb County, AL
- Types:
  - Per-unit or ad valorem on wholesale price
  - A few retail-level ad valorem taxes
  - No local taxes on manufacturer price
- Assume local large-cigar taxes also apply to premium cigars

Snapshot of standardized taxes

State	Y2017Q1	Y2017Q2	Y2017Q3	Y2017Q4
AL	0.0405	0.0405	0.0405	0.0405
AK	0.3204	0.3204	0.3204	0.3204
AZ	0.218	0.218	0.218	0.218
AR	0.1792	0.1792	0.1792	0.1792
CA	0.1166	0.1166	0.278	0.278
CO	0.1709	0.1709	0.1709	0.1709
CT	0.1292	0.1292	0.1292	0.1292
DE	0.0641	0.0641	0.0641	0.1281
DC	0.3276	0.3276	0.3276	0.3024
FL	0	0	0	0

Figure 2: Standardized large cigar taxes by state/quarter

Standardized taxes across time



- Population-weighted taxes across United States, Q4 each year

Summary of standardized tax findings

- Jump in 2017/2018 reflect tax changes in CA
- Largest 2010–2024 increases:
  - Little: New York (+544%)
  - Large: Maryland (+366%)
  - Premium: Utah (+145%)
- Largest taxes in Q4 of 2024
  - Little cigars: NY ($0.27), DC ($0.23), CT ($0.22)
  - Large cigars: VT ($0.65, MN ($0.41), UT ($0.37)
  - Premium cigars: VT ($0.99), MN ($0.86), UT ($0.78)
- Coefficient of variation (SD / mean) in 2024:
  - Cigar taxes: 1.02 (little), 0.71 (large), 0.83 (premium)
  - Cigarette taxes: 0.63

Per-gram tobacco tax equivalence

	Little	Large	Premium	Cigarette
Avg state tax / stick	0.062	0.136	0.252	0.080
Grams per stick	1.0	3.0	12.5	1.0
Tax per gram	0.062	0.045	0.021	0.080

- Goal: compare tax burden across cigar types
- Need to account for tobacco content by cigar type

Per-gram tobacco tax equivalence

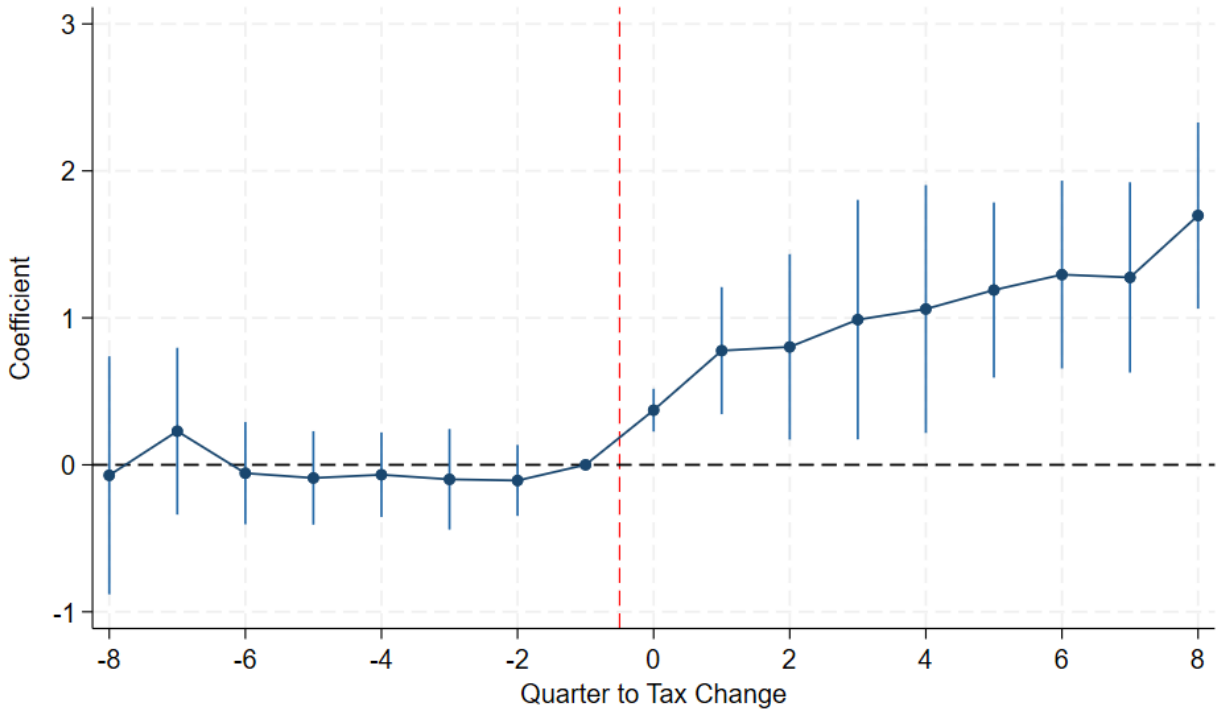
	Little	**Large**	Premium	Cigarette
Avg state tax / stick	0.062	**0.136**	0.252	0.080
Grams per stick	1.0	**3.0**	12.5	1.0
Tax per gram	0.062	**0.045**	0.021	0.080

- Per gram, cigarettes are taxed more heavily than cigars, especially premium cigars
- Suggests cigar taxes should be increased for risk parity with cigarette taxes

Pass-through analysis

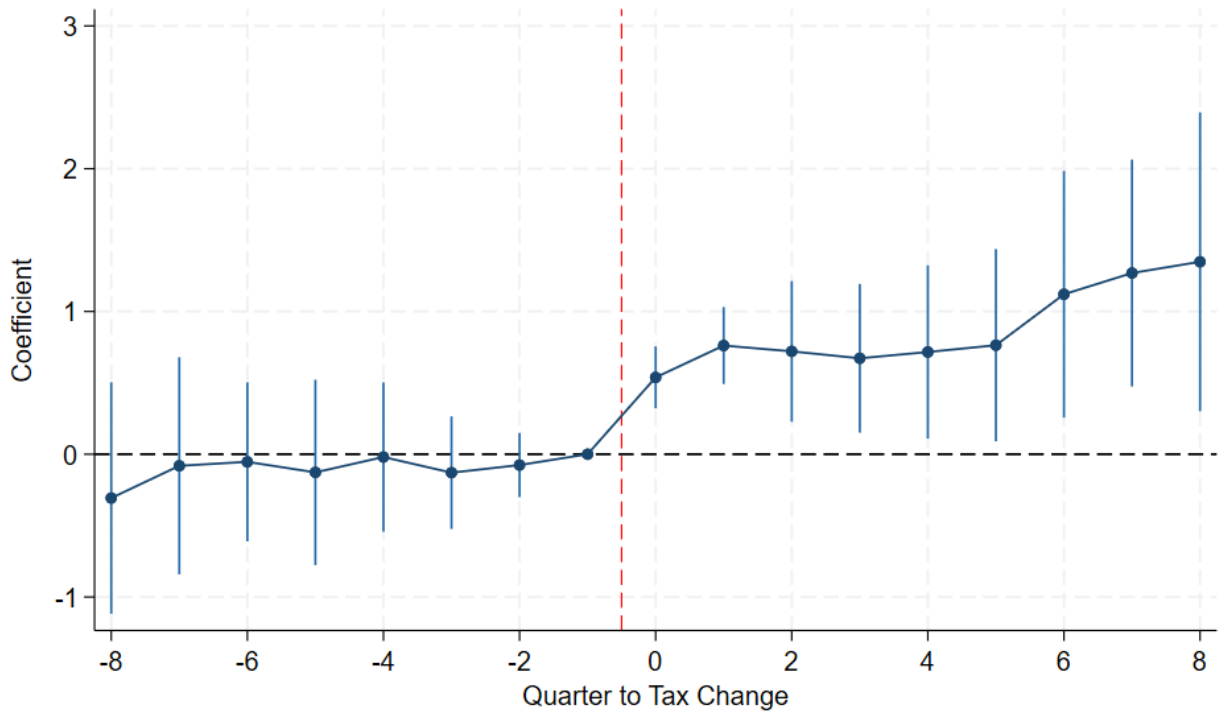
- Estimate how much of cigar tax changes are passed through to retail prices
- State by quarter by cigar-type average price panel from NRSD linked to standardized tax rates
- Formally regress: $Price_{cst} = \beta \cdot Tax_{cst} + \delta_s + \lambda_t + \varepsilon_{cst}$
  - State & time fixed effects; separate β by cigar type.
- Pass-through typically falls between 0 and 1 depending on S & D
  - Ex: e-cigarette pass-through of 0.90 (Cotti et al., 2022)
  - Non-competitive markets, like tobacco, may exceed 1
  - $\beta \approx 1$ implies full pass-through

Pass-through estimate: little cigars



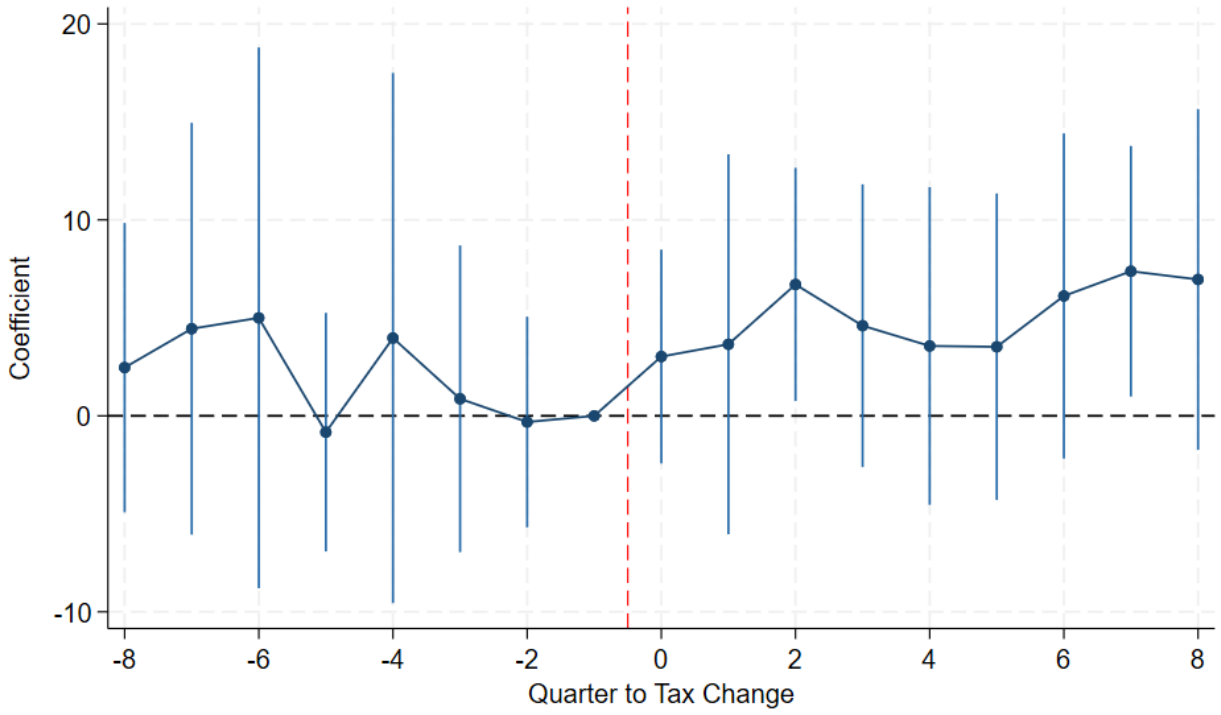
$$\hat{\beta}\ (\mathrm{SE}) = 1.31^{***}\ (0.26)$$

Pass-through estimate: large cigars



$$\hat{\beta}\ (\mathrm{SE}) = 1.11^{**}\ (0.48)$$

Pass-through estimate: premium cigars



$$\hat{\beta}\ (\mathrm{SE}) = 2.56^{***}\ (0.51)$$

Takeaways and next steps

- Cigar tax structures are complex and highly heterogeneous across states
- Our standardized per-stick measures provide a consistent way to compare cigar taxes across:
  - Products (little, large, premium)
  - States and localities
  - Time (2010–2024)
- On a per-gram basis, cigars taxed less than cigarettes, especially for premium cigars
- Find standardized tax rate pass-through above 1 on prices
- Public dataset is designed to support future causal studies of cigar taxes on tobacco use and sales

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