

DID TOBACCO 21 LAWS AFFECT CIGAR SALES? EVIDENCE FROM SURVEY AND SALES DATA

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TCORS 2.0

University of
Michigan &
Georgetown
University

**Center for the
Assessment of Tobacco
Regulations
[CAsToR]**

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- I perform consulting work for the World Health Organization and Johns Hopkins University
- The opinions expressed here are my own and do not represent those of my funder and employers, past or present, or those of my co-authors

The Confession of a Self- Doubting American

**Is it a good idea to export
an American policy to the
rest of the world?**



Background

Tobacco 21 - What is it?

- Tobacco 21 makes it illegal for a retailer to sell a tobacco product to someone under 21 years old
 - Minimum Legal Sale Age to 21
- First adopted in Needham, Massachusetts, in 2005
- New York City adopted in 2014
- Similar, not the same as rules around alcohol

Tobacco 21- Policy Diffusion

- 2015 Institute of Medicine report estimated a US federal T21 policy would avert 250K premature deaths
 - Rapid diffusion across cities and states followed
- Led to US Federal Tobacco 21 policy in December 2019
- Philippines and Singapore followed afterward
 - Prince Edward Island, CA too
- Sri Lanka, Honduras, Mongolia, Uganda, and Ethiopia had Tobacco 21 laws predating the US

Tobacco 21 - Policy Effects

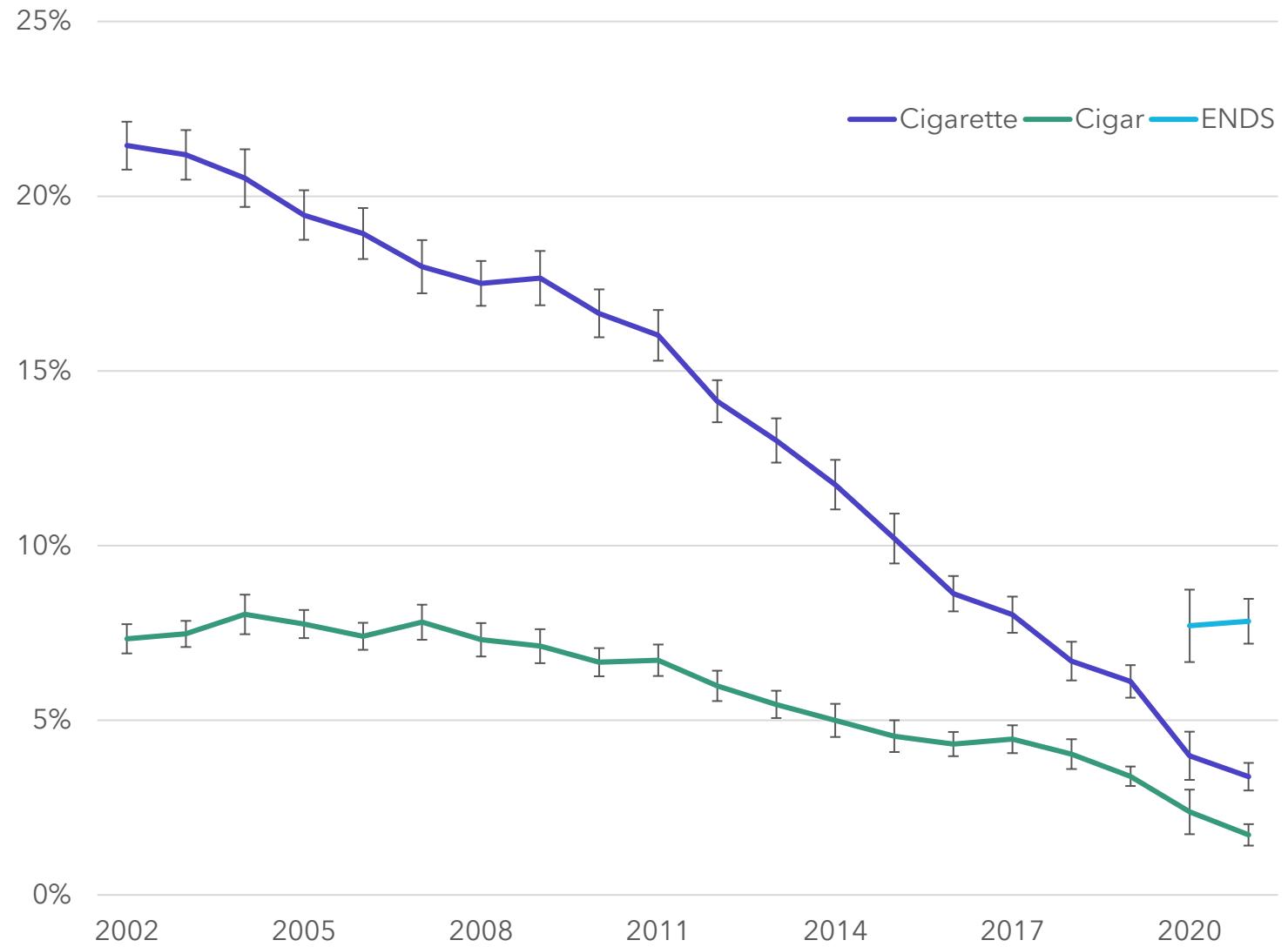
- Decrease cigarette smoking
 - Positive to Mixed
- Decrease e-cigarette use
 - Positive to Mixed
- Decrease sales of cigarettes used by young people

Tobacco 21 - Effects on Cigar Use

- Sales of cigars declined faster after T21 in Hawaii vs California¹
- Cleveland, OH students were less likely to report smoking cigars after T21 adoption²
- Little else...

¹doi:10.1136/tobaccocontrol-2019-055248 ²doi:10.1001/jamanetworkopen.2022.22987

Past Month Usage by Product (US, 12-20-Year-Olds, NSDUH)



Plan of Project

What Cigars do Young People Smoke?

- Use NSDUH data to calculate which brands are consumed by Under 21s

Where were T21 laws put into place?

- Collect data from Colston et al, 2021, CDC-STATE, and Tobacco21.org on T21 details and population coverage

Did T21 laws decrease sales of cigars?

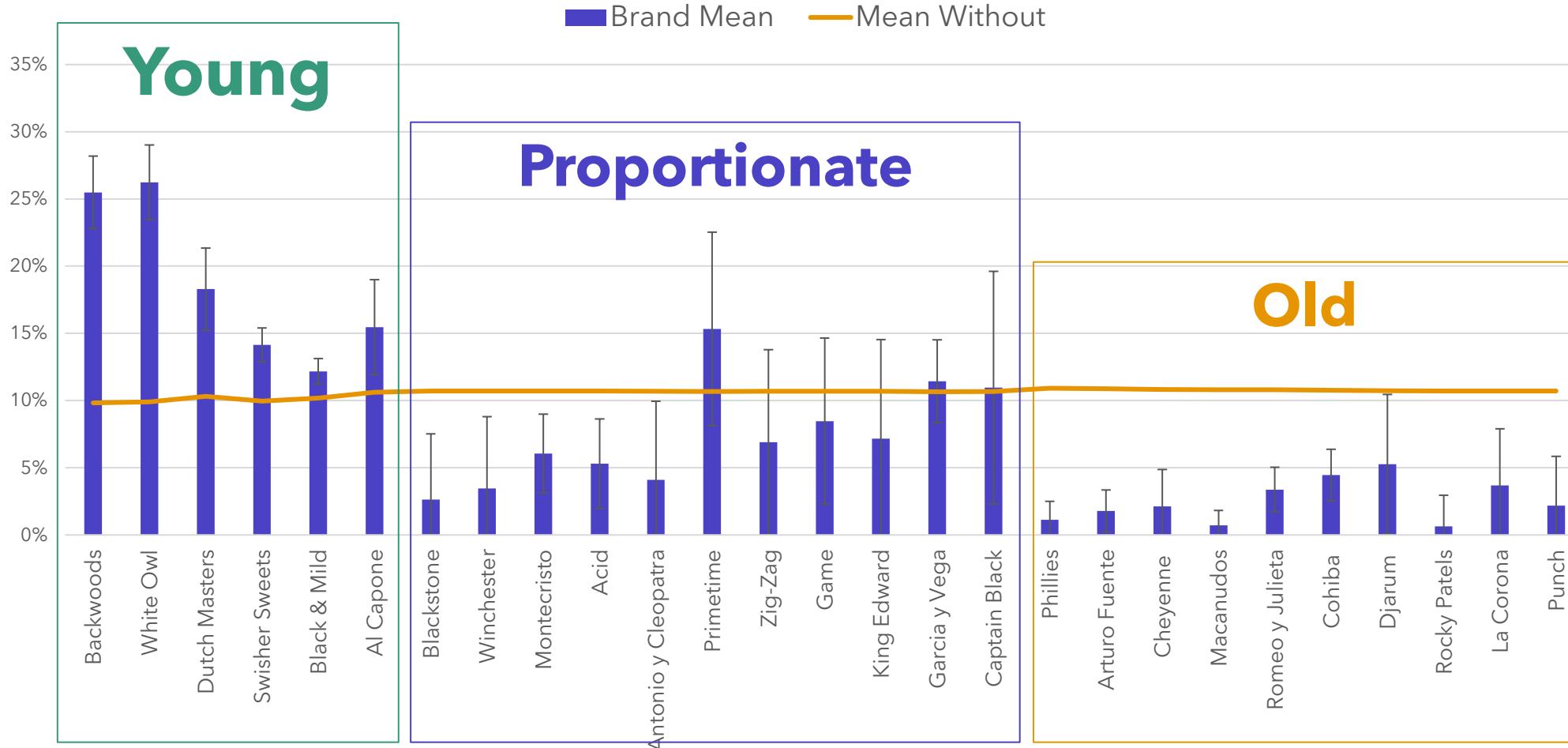
- Difference-in-Differences analyses of T21 by brand groups and flavor divisions

Methods + Data

What Cigars do Young People Smoke?

- National Survey of Drug Use and Health
- Multiplied Usage Days in the Past 30 by Final Respondent Weight to create a “Consumption” Weight
- Calculated the Proportion of Total and each Brand of Cigar-days assigned to persons under the age of 21
- Assigned brands across 2014-2019 results

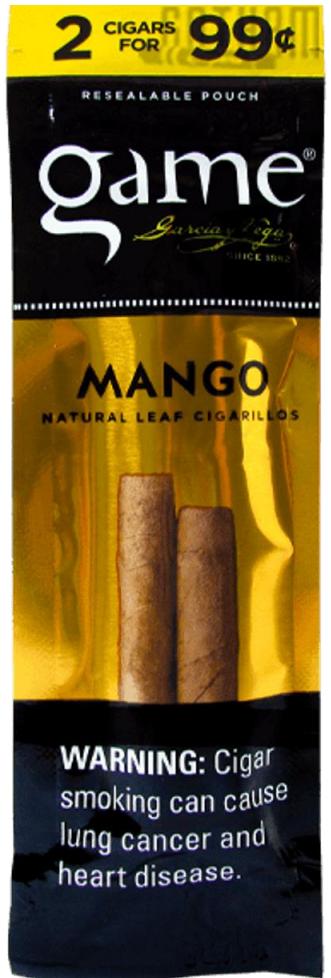
Cigar Brand Under 21 Consumption Shares (NSDUH, 2014-2019)



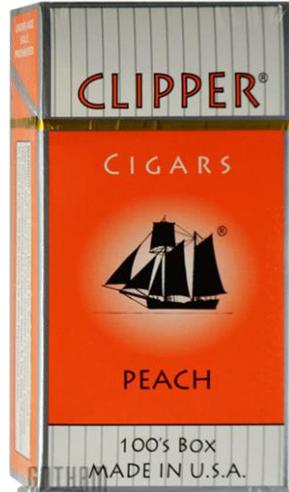
Young Brands



Proportionate Brands



Old Brands



When and where were T21 laws put into place?

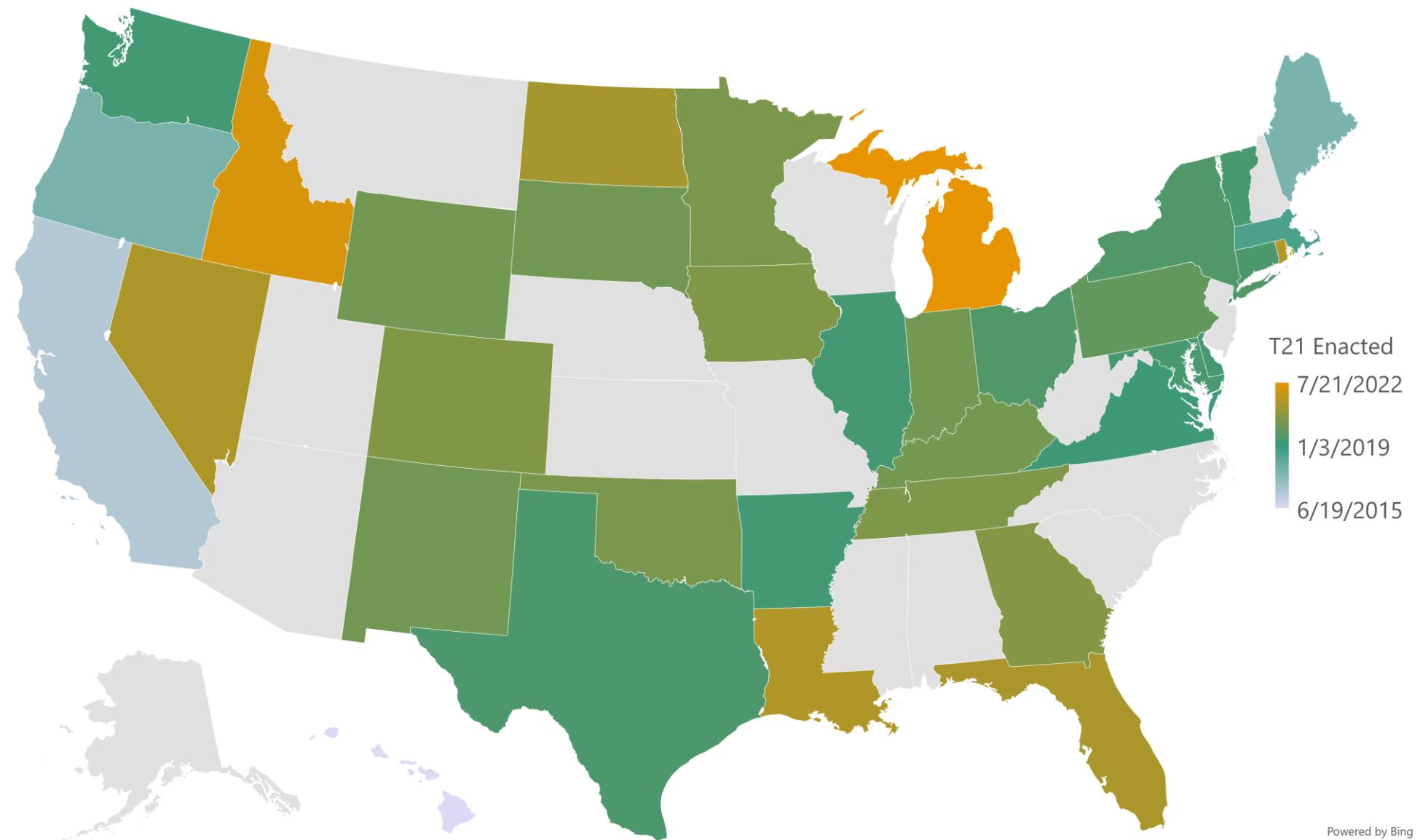
- Colston et. al, 2021¹, measuring substate T21 policy coverage from January 2015–December 2019
- CDC STATE database documenting state-level T21 enactment and implementation dates
 - Note grandfathering and pre-existing T19 policies
 - Documents post Federal T21 policy adoption
- Requires piecing together a complex policy implementation database

US Federalism Layer Cake

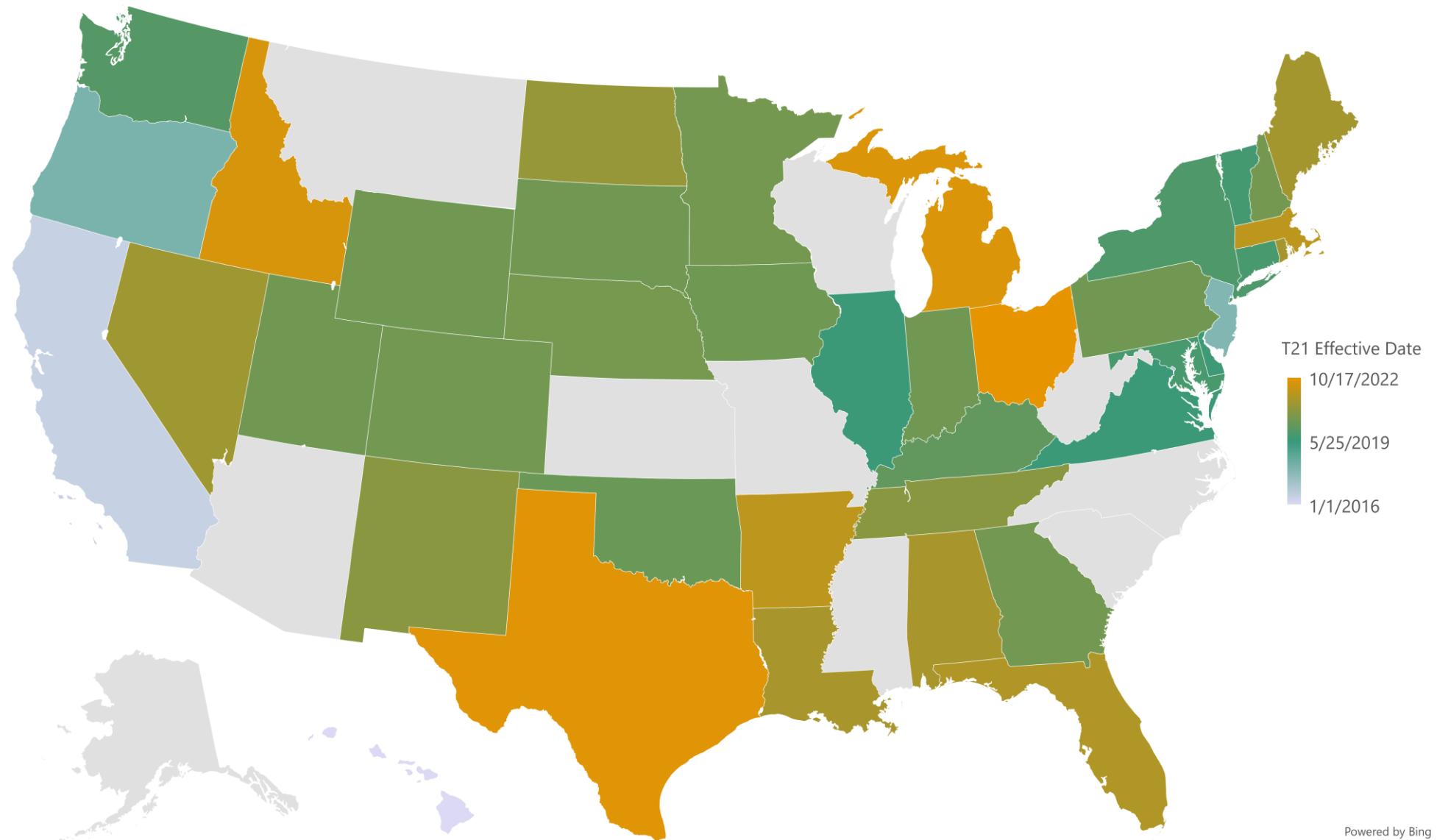
- T21 laws have been passed at federal, state, and local levels
- All have different enforcement powers, responsibilities, and funding



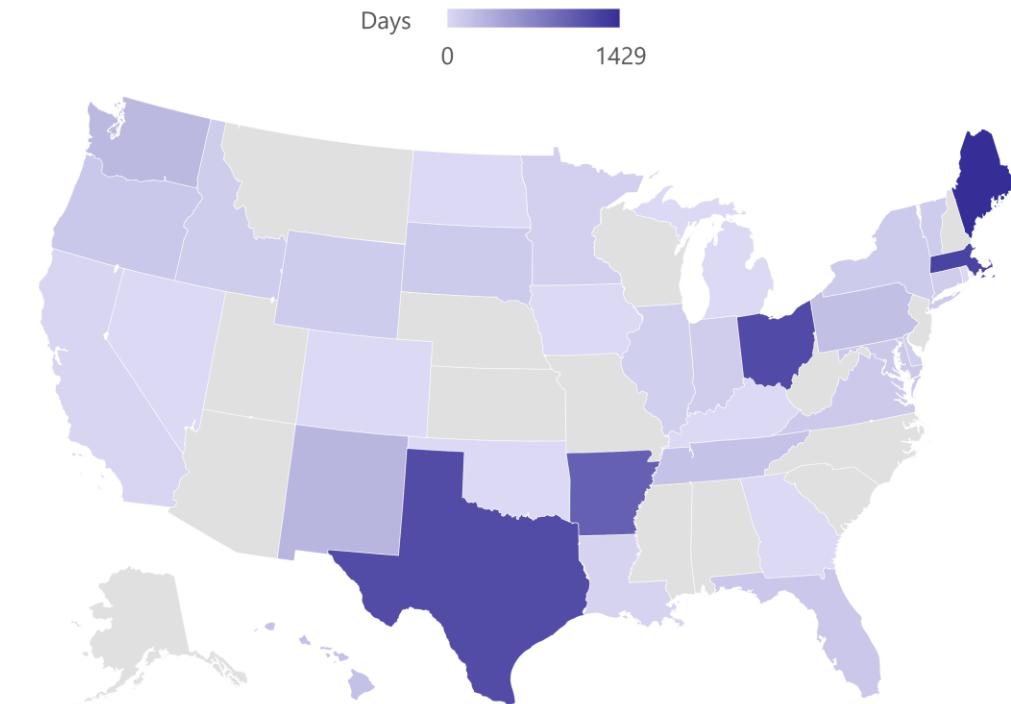
State Tobacco 21 Enactment Date



State Tobacco 21 Effective Date

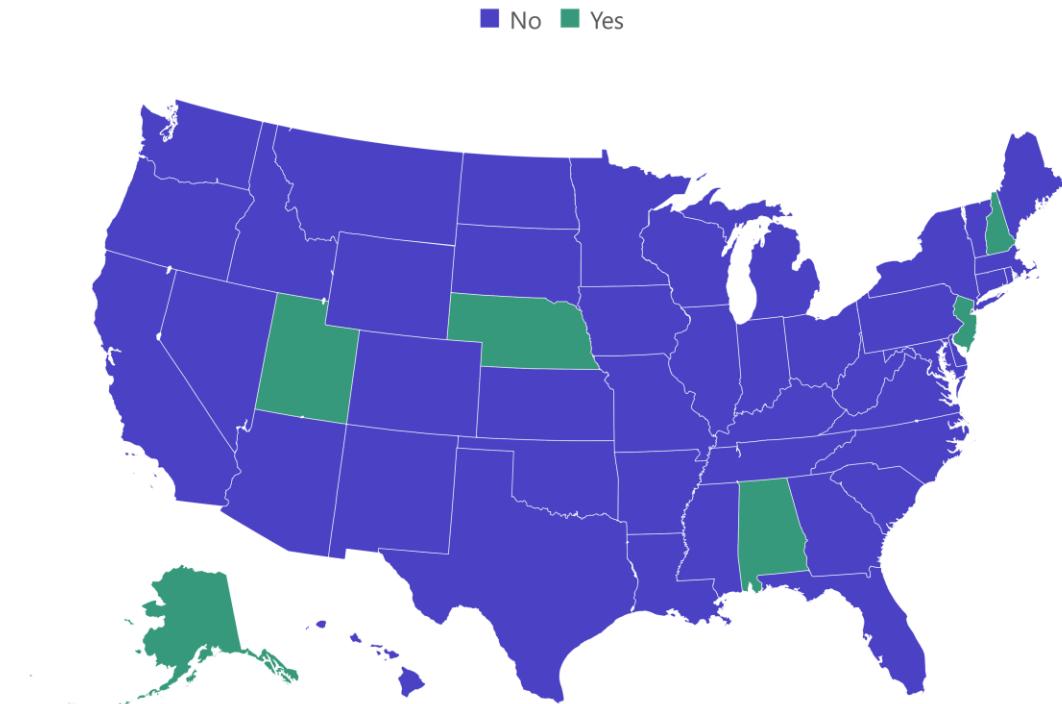


Enactment to Effective Gap



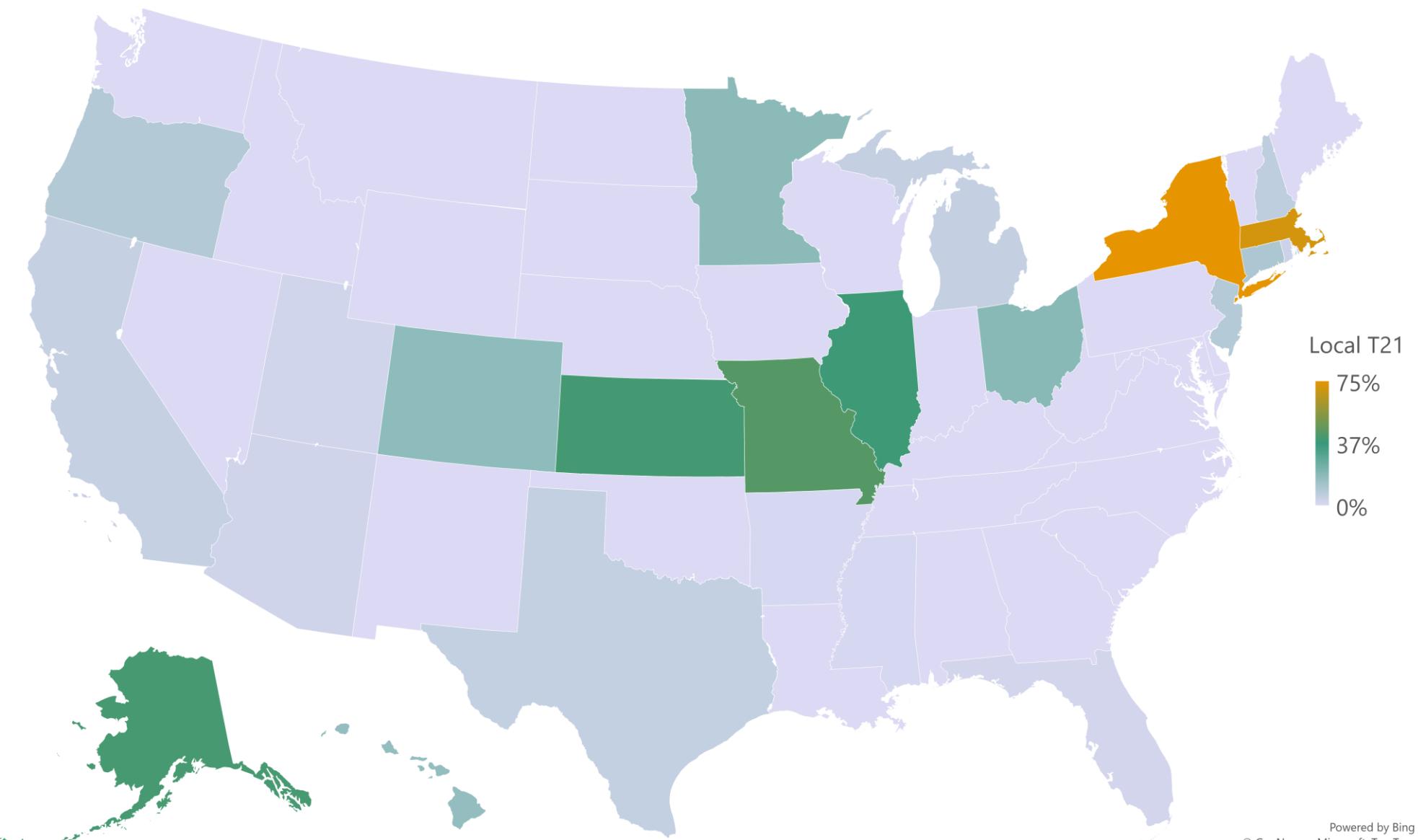
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Pre-existing T19 Law

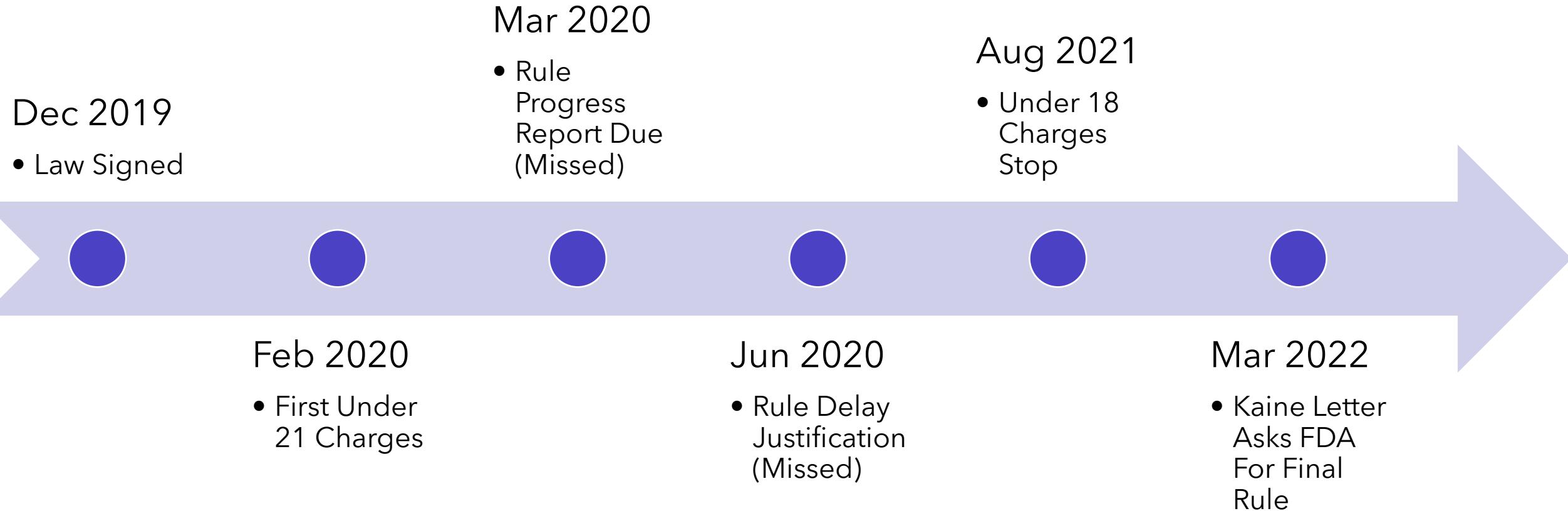


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Local T21 Population Coverage Before State Laws - Colston et al.



When Did Federal T21 Go Into Effect?



When Did Federal T21 Go Into Effect?

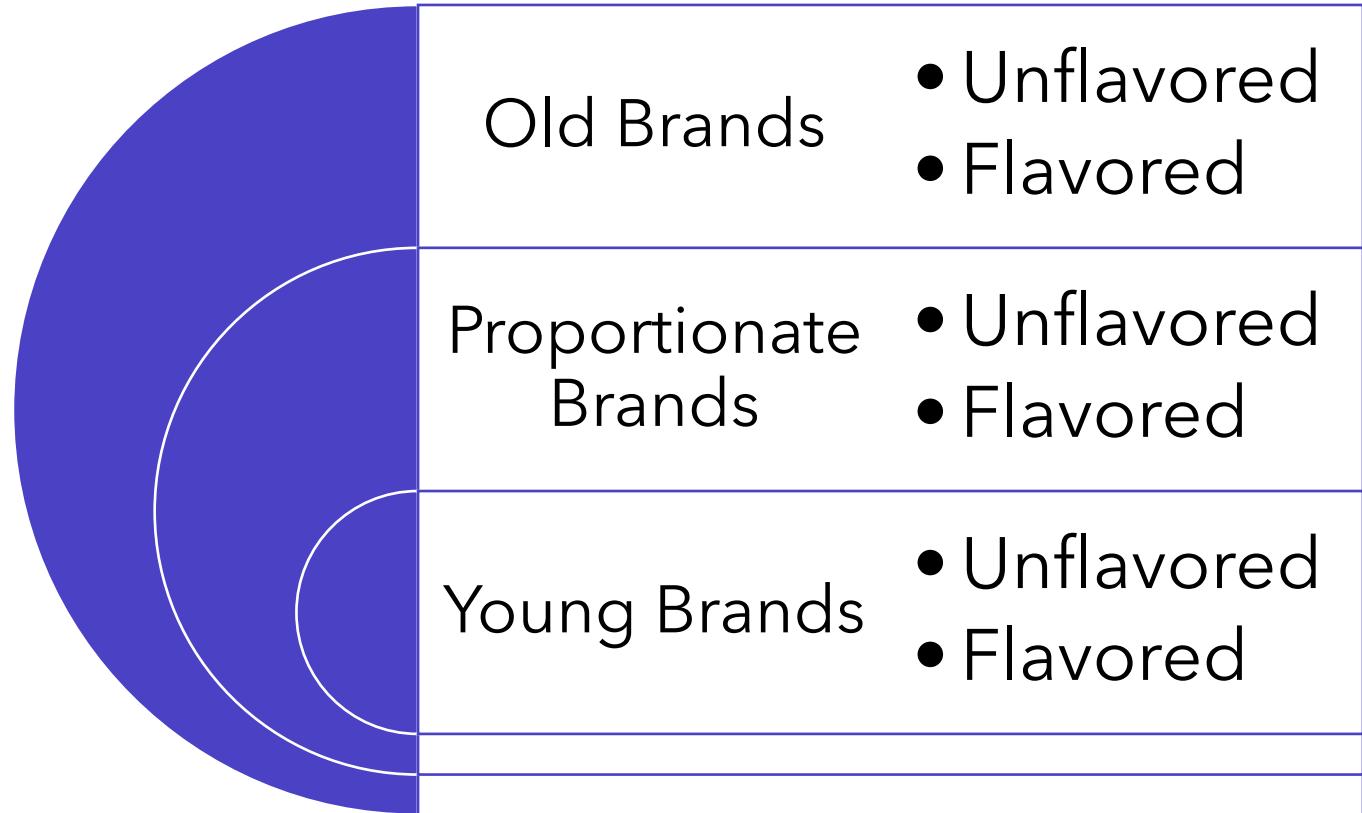


Specifying T21

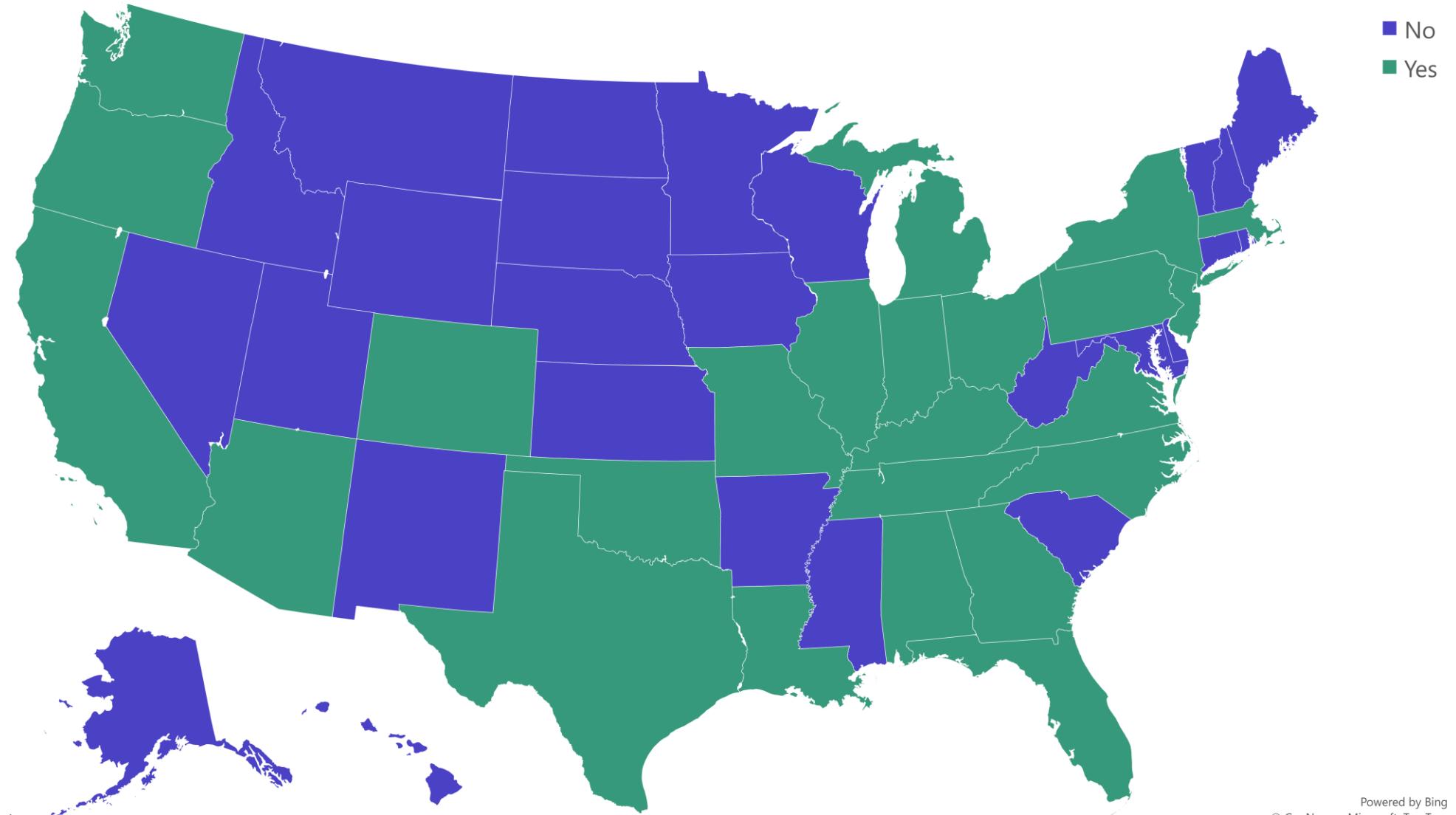
- State T21 Enforcement Date → Used for Event Study
- Local T21 Population Policy Coverage
- State T19 and T20 laws
- State T21 Enactment but not Enforcement
- Federal T21 → Equal to state population uncovered by state or local law
 - After Dec 2019 - Signed
 - After Jun 2020 - Rule
 - After Aug 2021 - Inspection

Nielsen Data

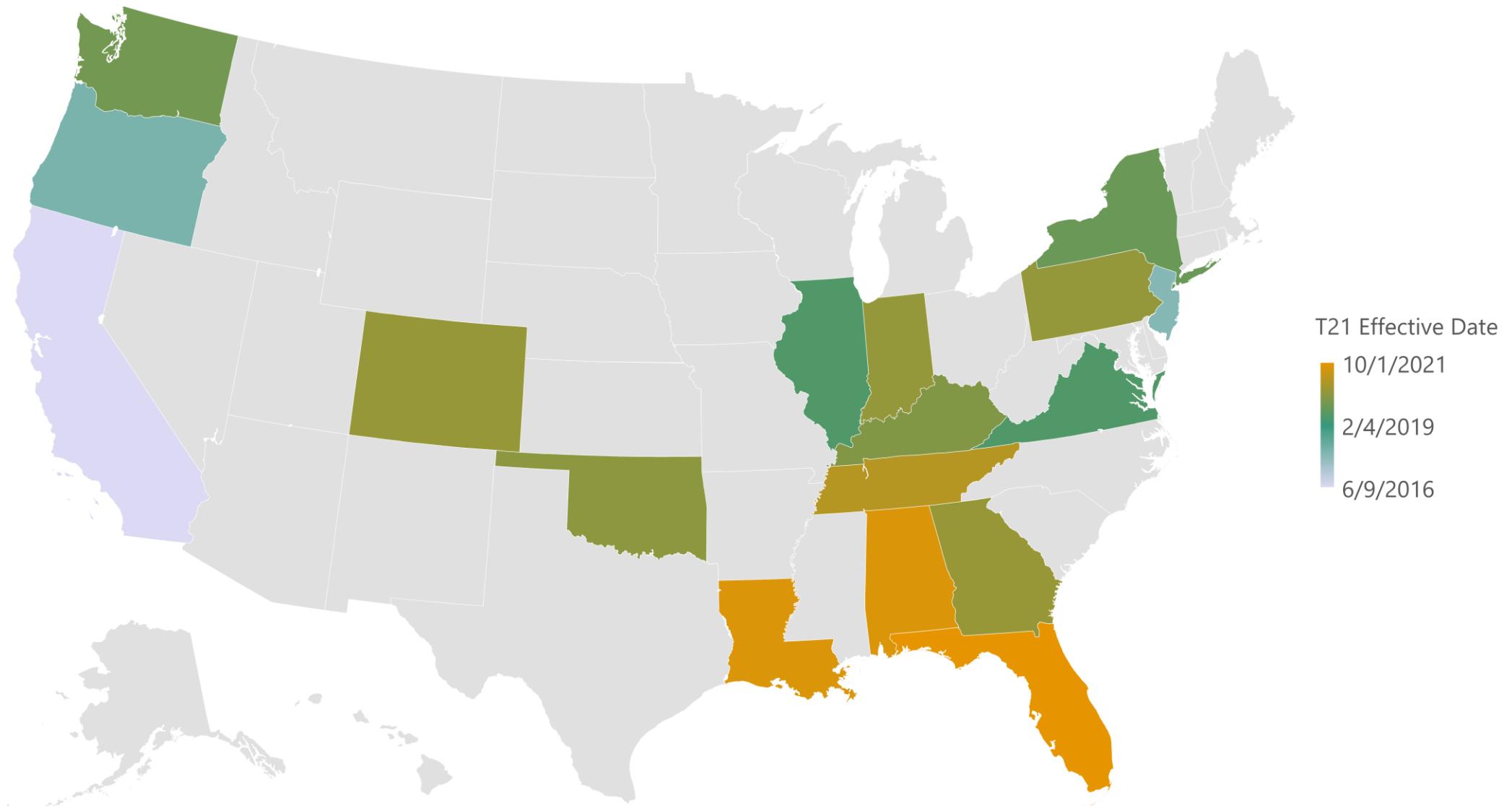
- Logged Per Capita Standard Unit sales of **cigars** in 24 US states: Jan 2017 - Nov 2021
- Nielsen Scantrack
 - Convenience, Food, and Drug
 - Excludes Online, Vape Shop, and Tobacconists



Nielsen ScanTrack Conv+xAOC States



Nielsen State T21 Laws in Study Period



Additional State Control Variables

Extra Tobacco Control

- Percent Covered by a ban on the sale of flavored cigars
- Cigarette excise taxes
 - (\$ per pack)
- Cigar excise taxes
 - (\$ per stick; % of price)
- ENDS excise taxes
 - (\$ per Juul pod standardized by Cotti et al., 2021)
- Percent covered by a workplace smoking ban

Policy and Environmental Variables

- Recreational Marijuana Sales Legal
- Medical Marijuana Sales Legal
- Unemployment Rate
- Heating Degree Days

Analytic Methods

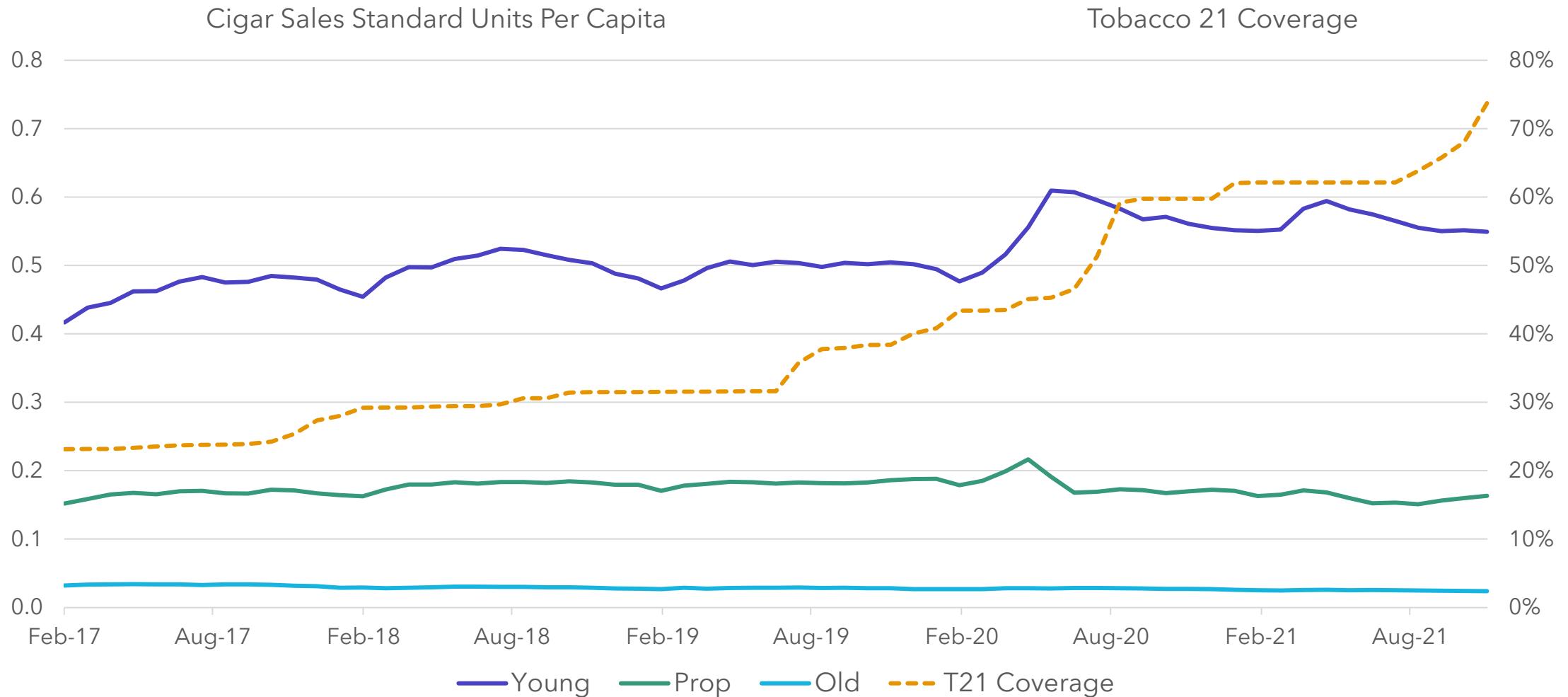
- Estimate Difference-in-Difference (DID) estimators
 - Multiple groups, staggered potentially non-binary treatments
 - Introduced in de Chaisemartin and D'Haultfoeuille, 2020
- Enables causal estimates if parallel trends are established
- Dependent Variable: Logged Per Capita Unit Sales
 - Split by Age Group (Young, Proportionate, Old)
 - Total and stratified by Flavor (Flavored, Unflavored)
- Stata Command `did_multiplegt_dyn`
 - 6 Placebos and 12 Treatments

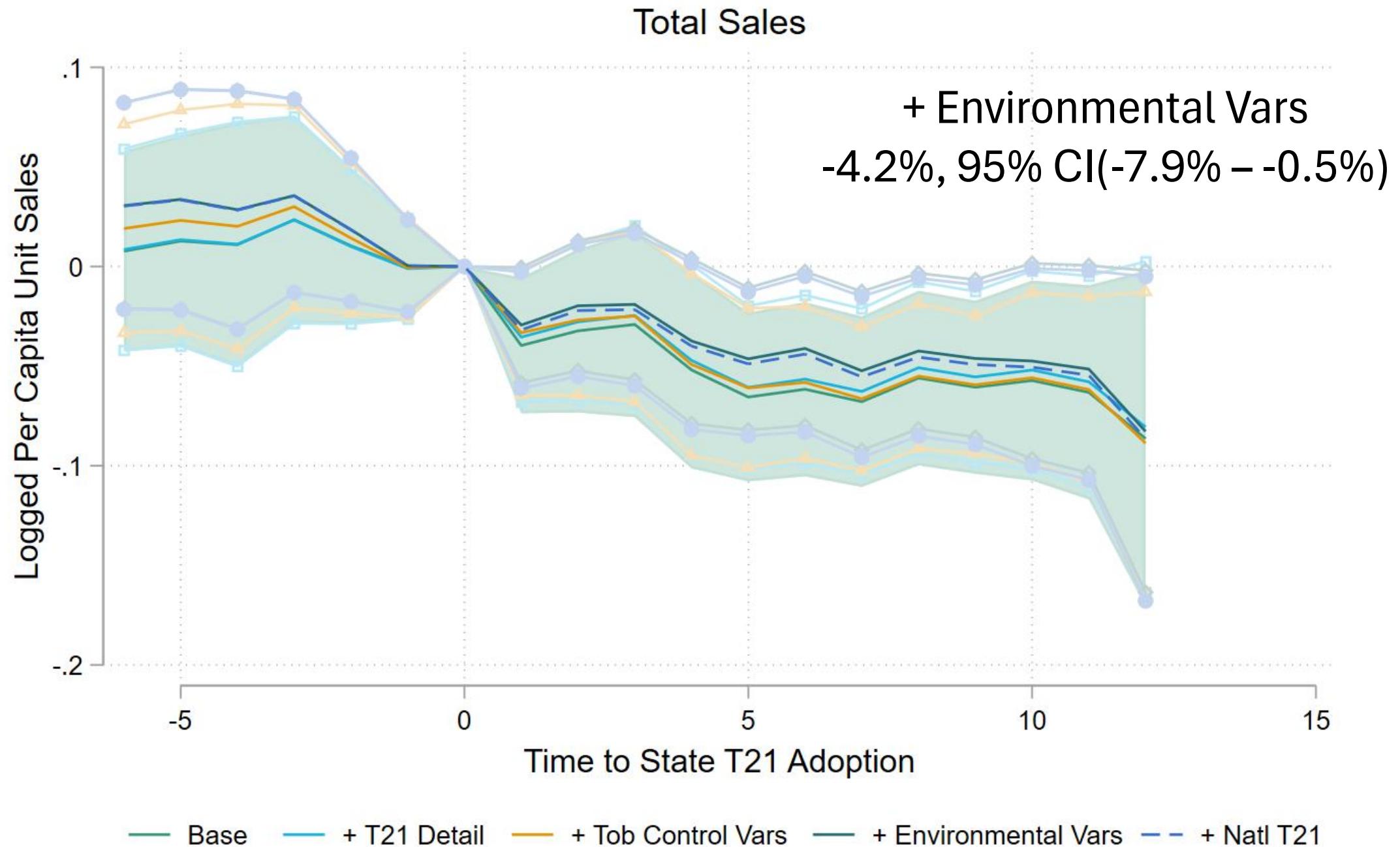
Question Break



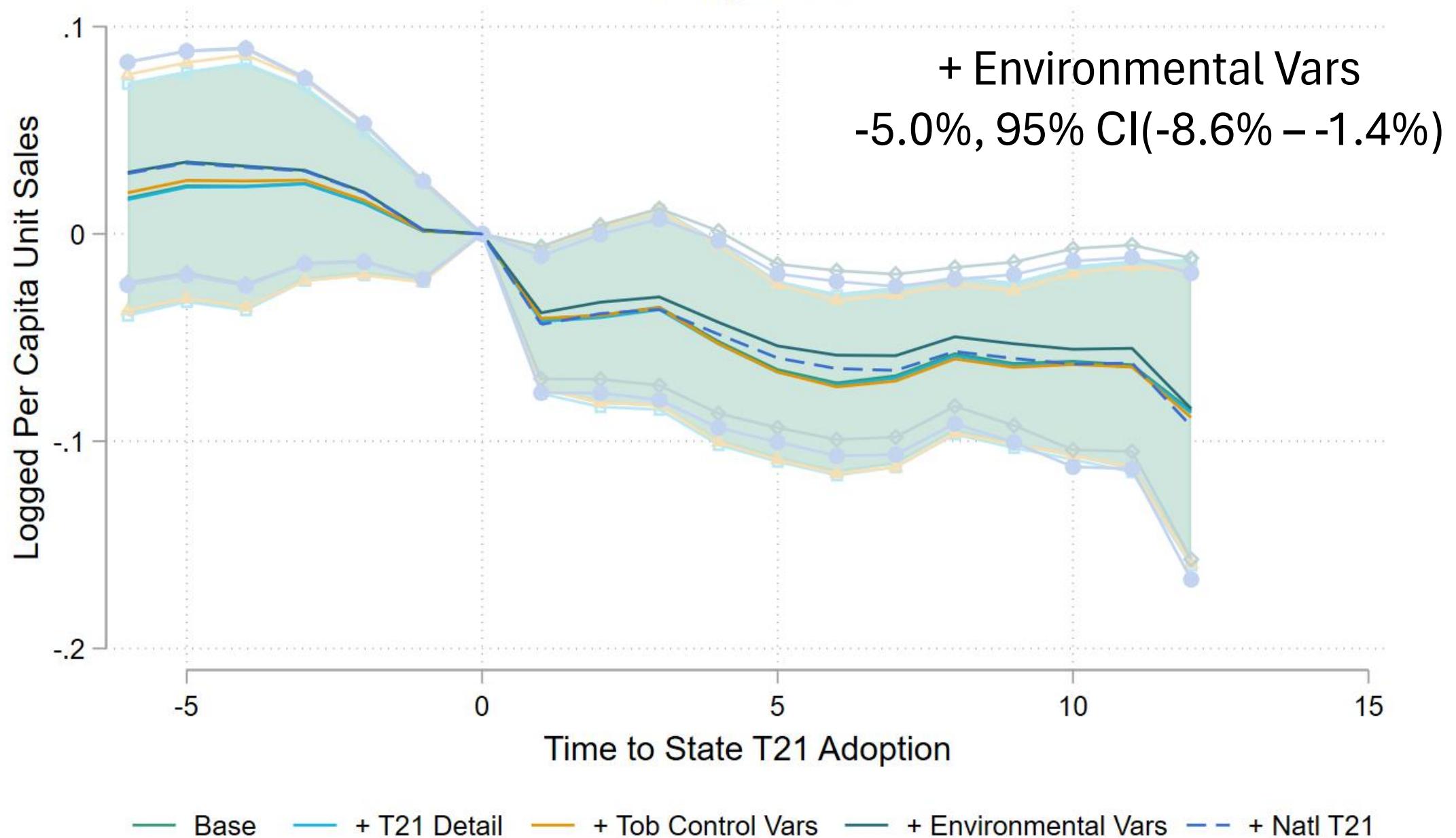
Results

Descriptive Statistics (Four Week Periods Ending 2/4/17 - 11/6/21)

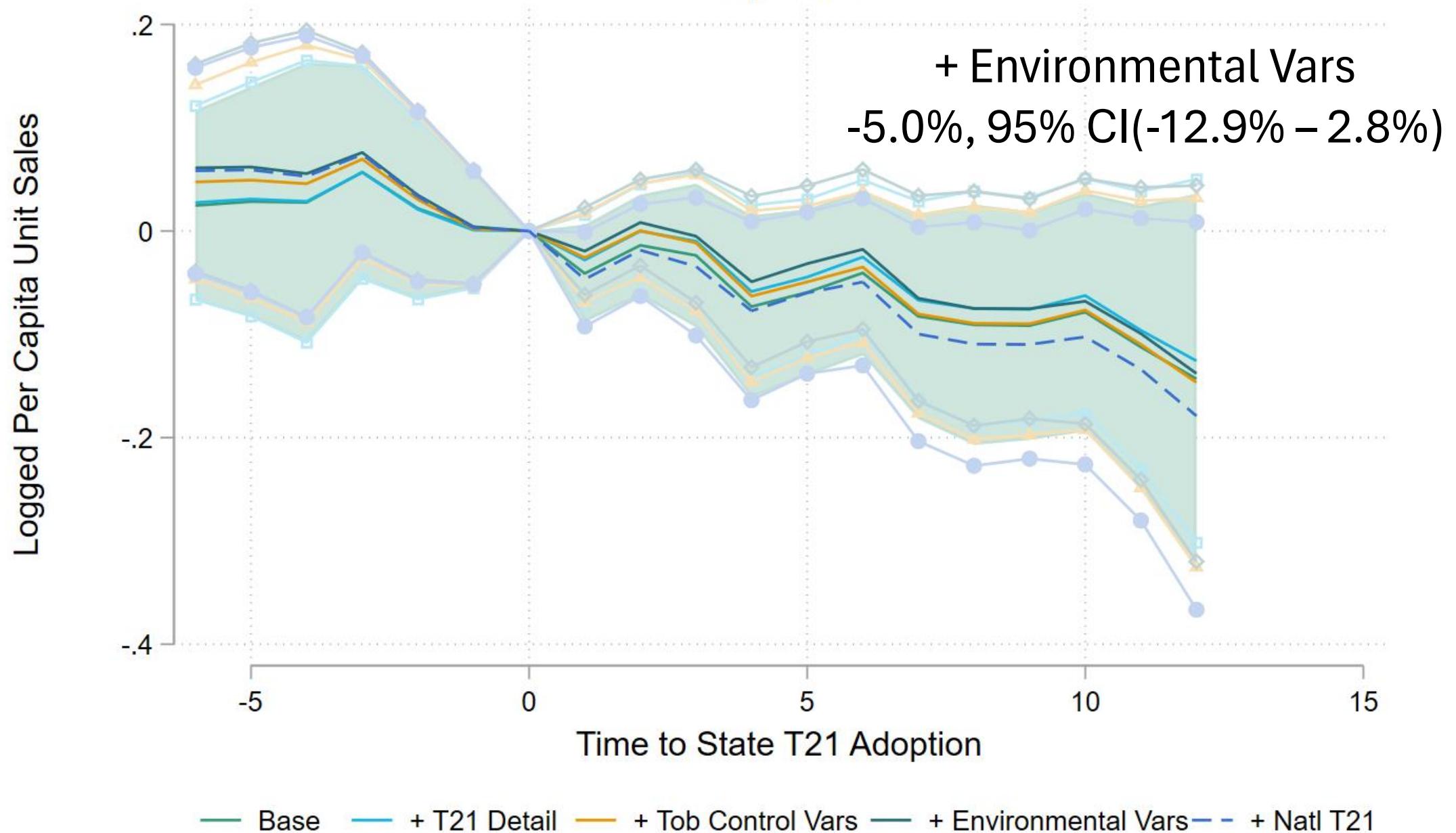


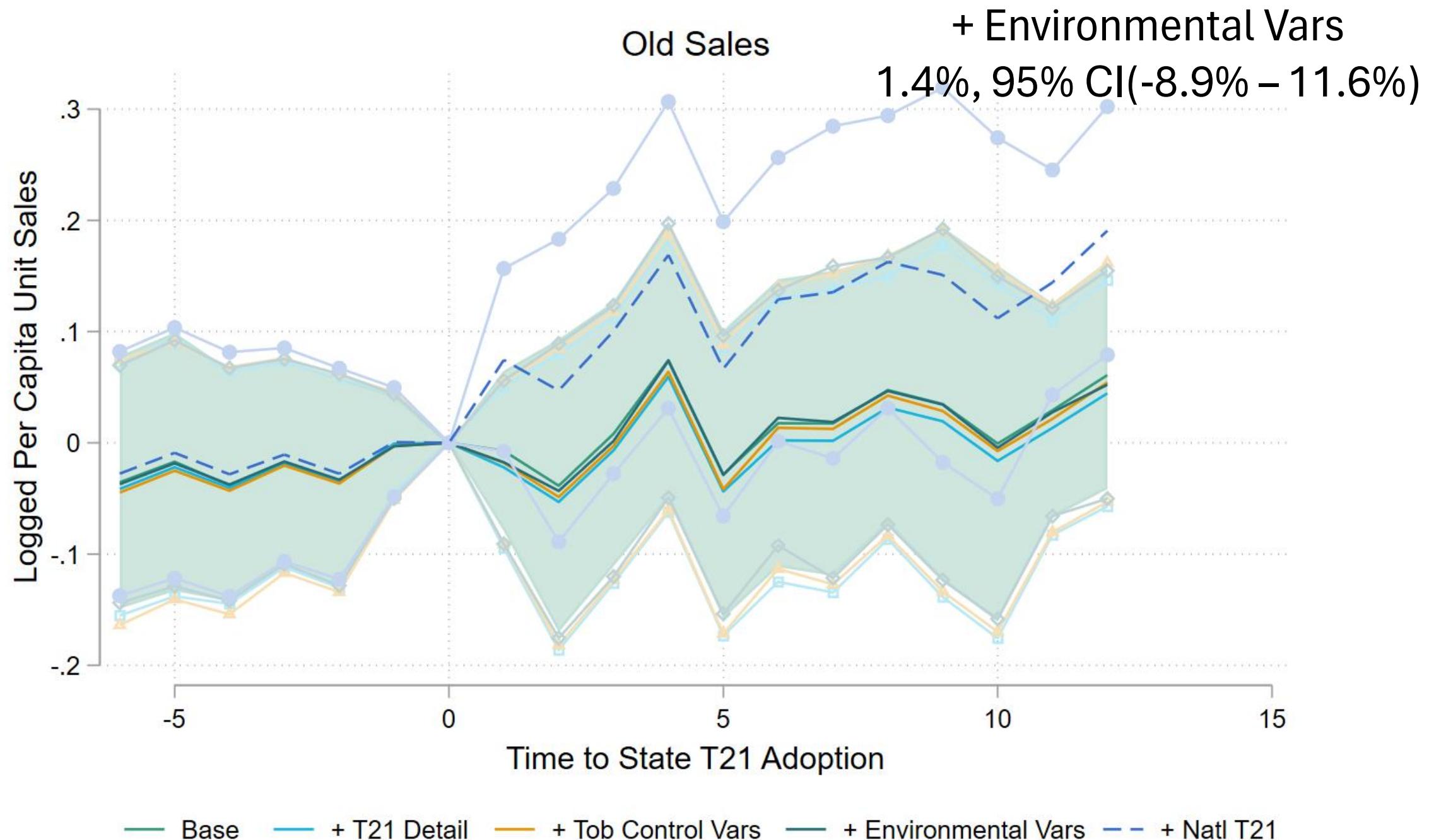


Young Sales

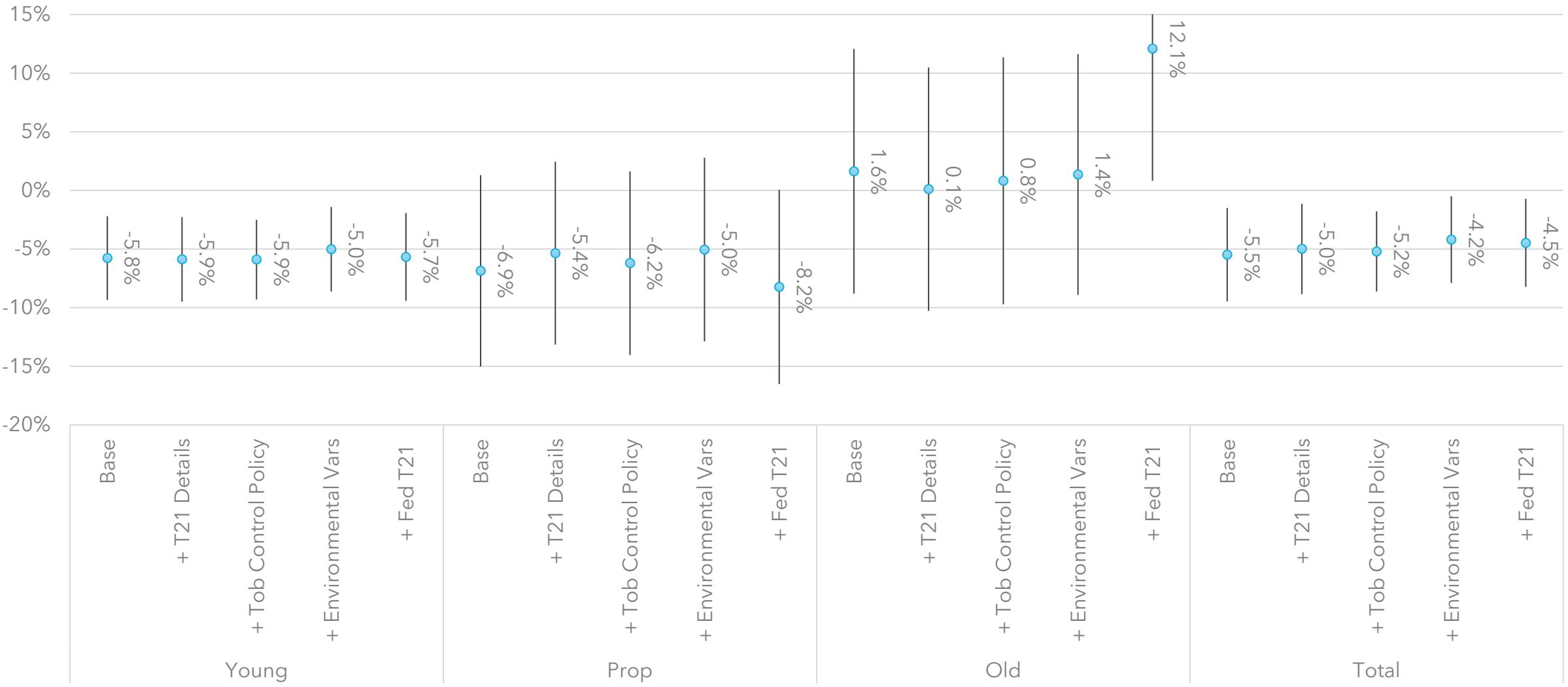


Prop Sales

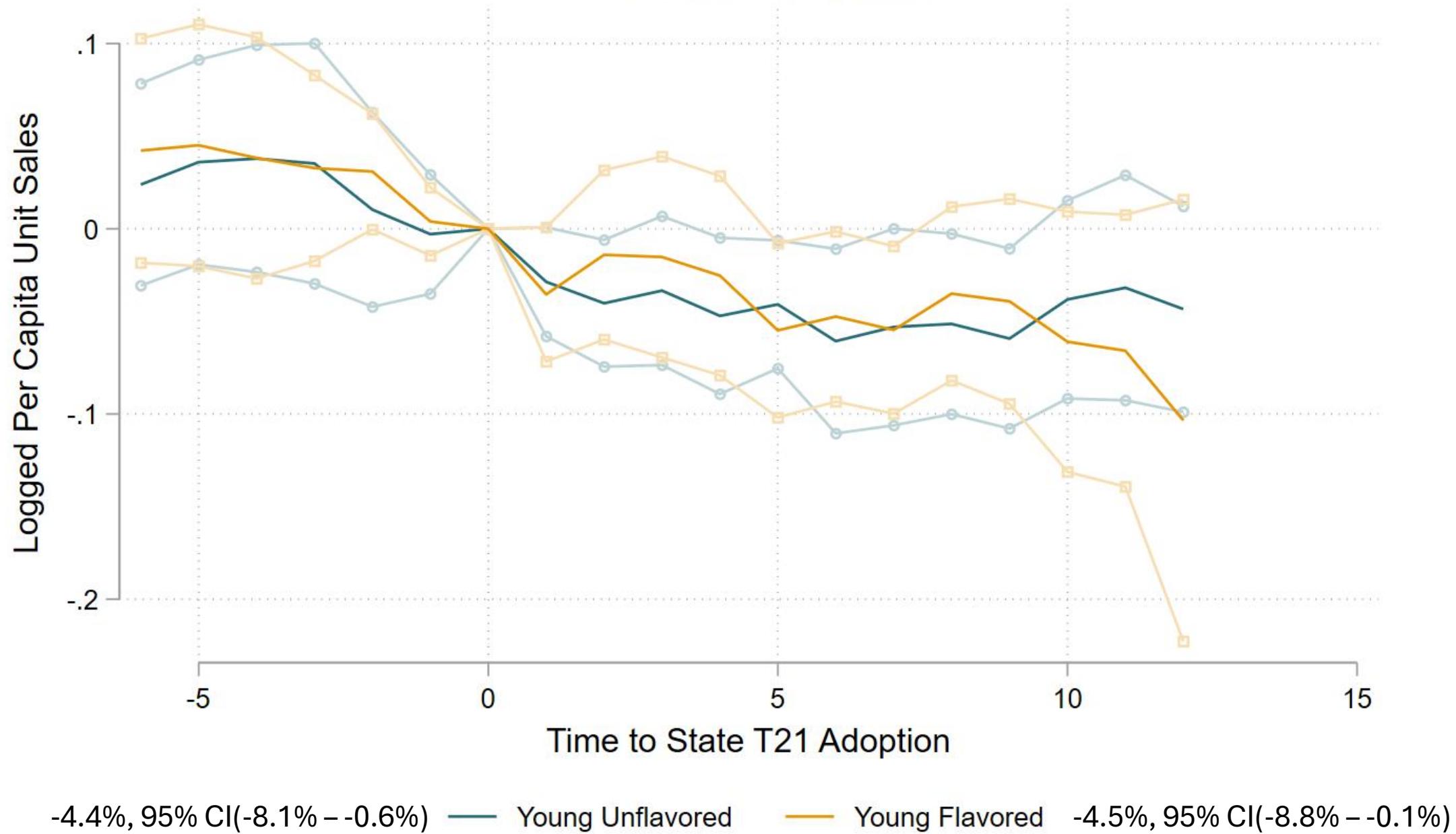




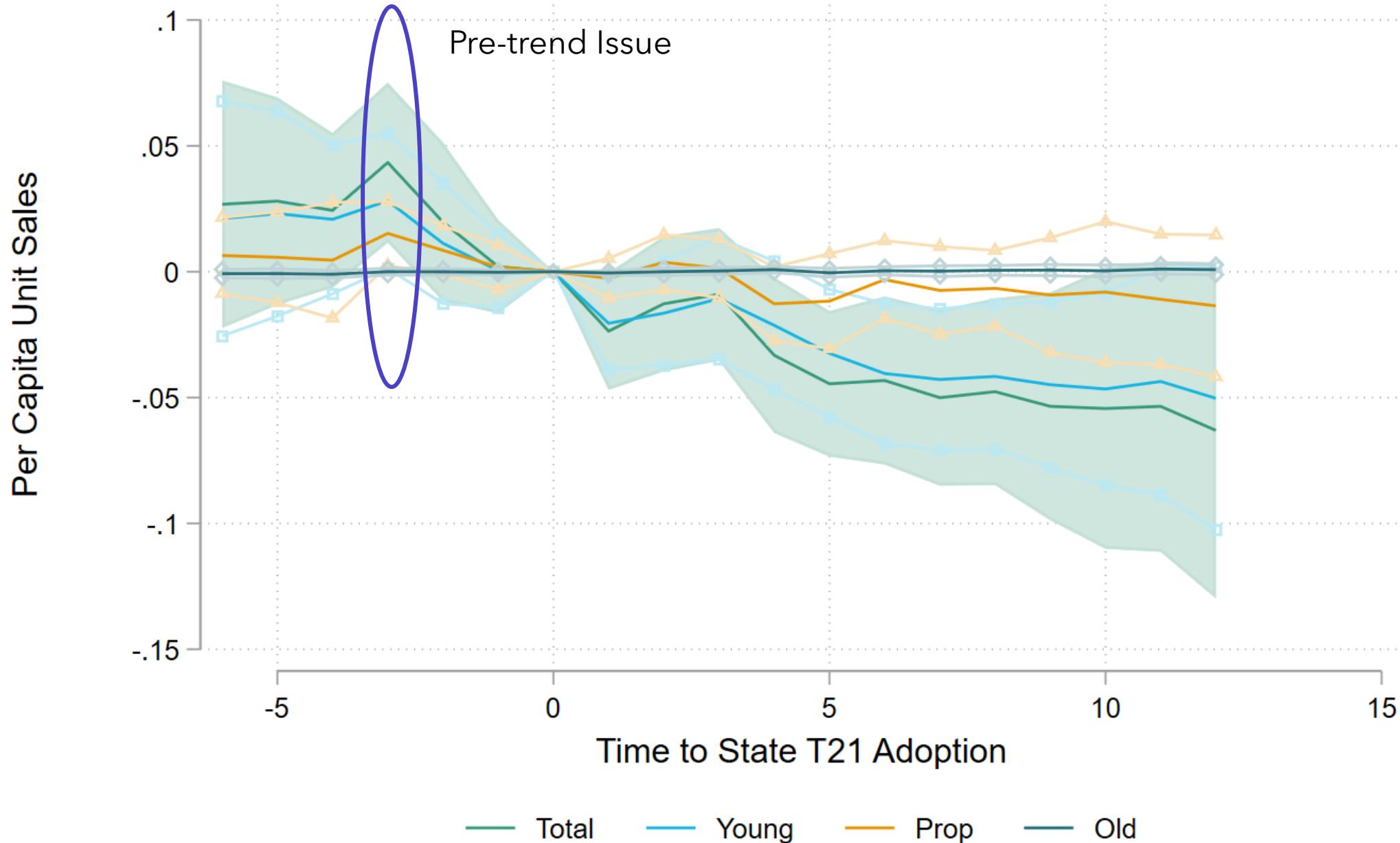
State T21 Average Policy Effects - Logged PC Standard Unit Sales



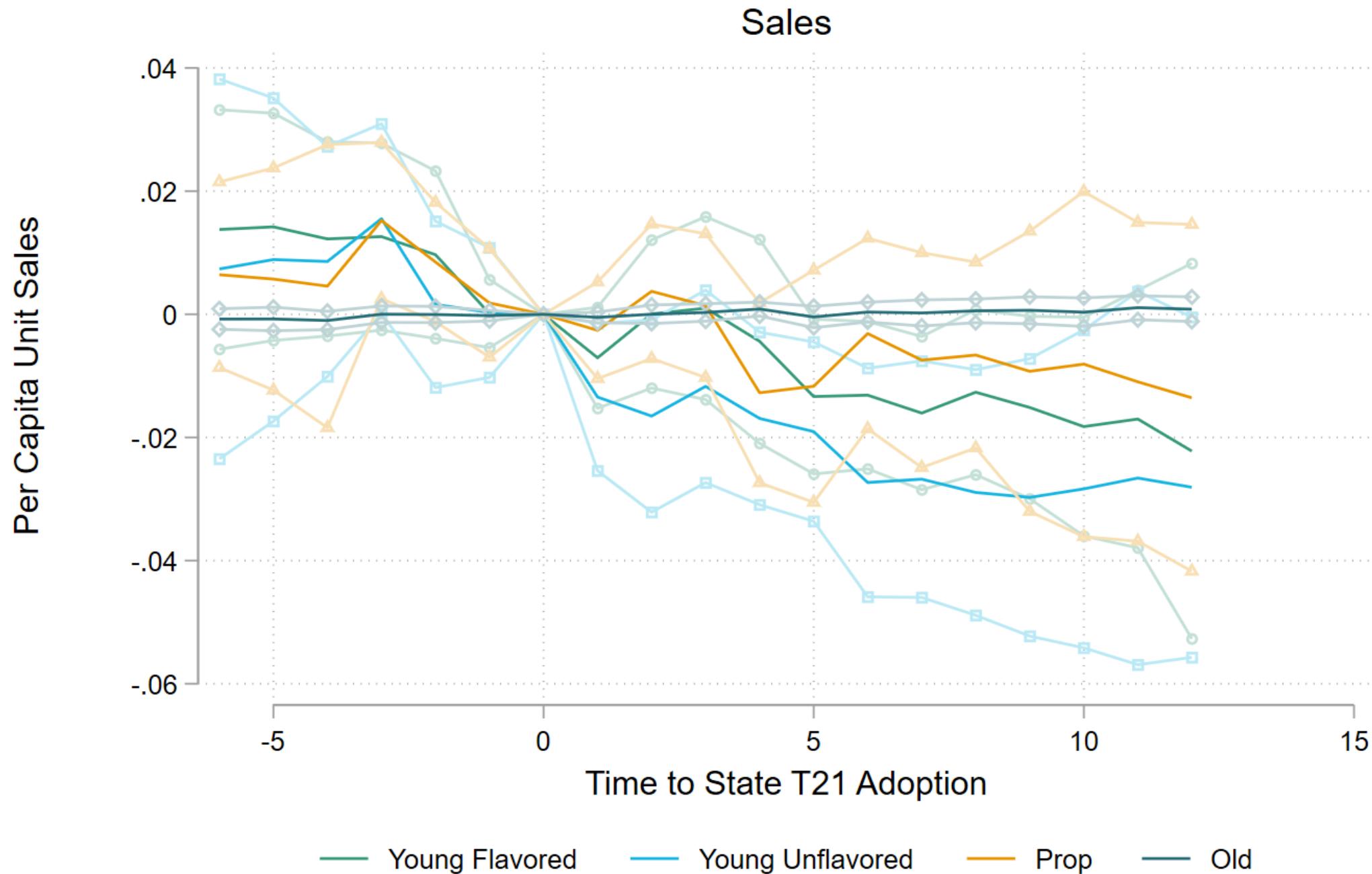
T21 and Sales Full Model



Sales

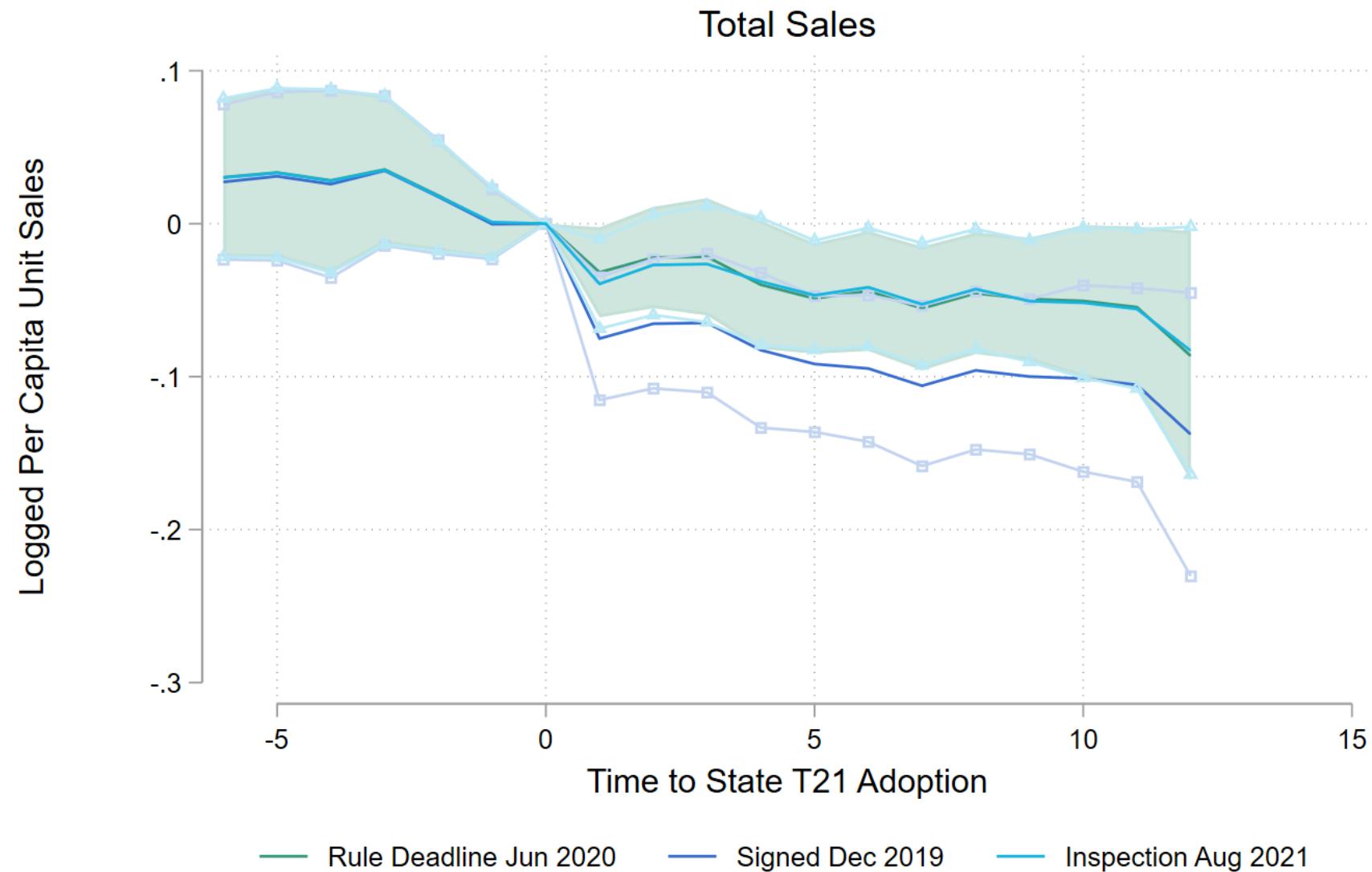


Sales

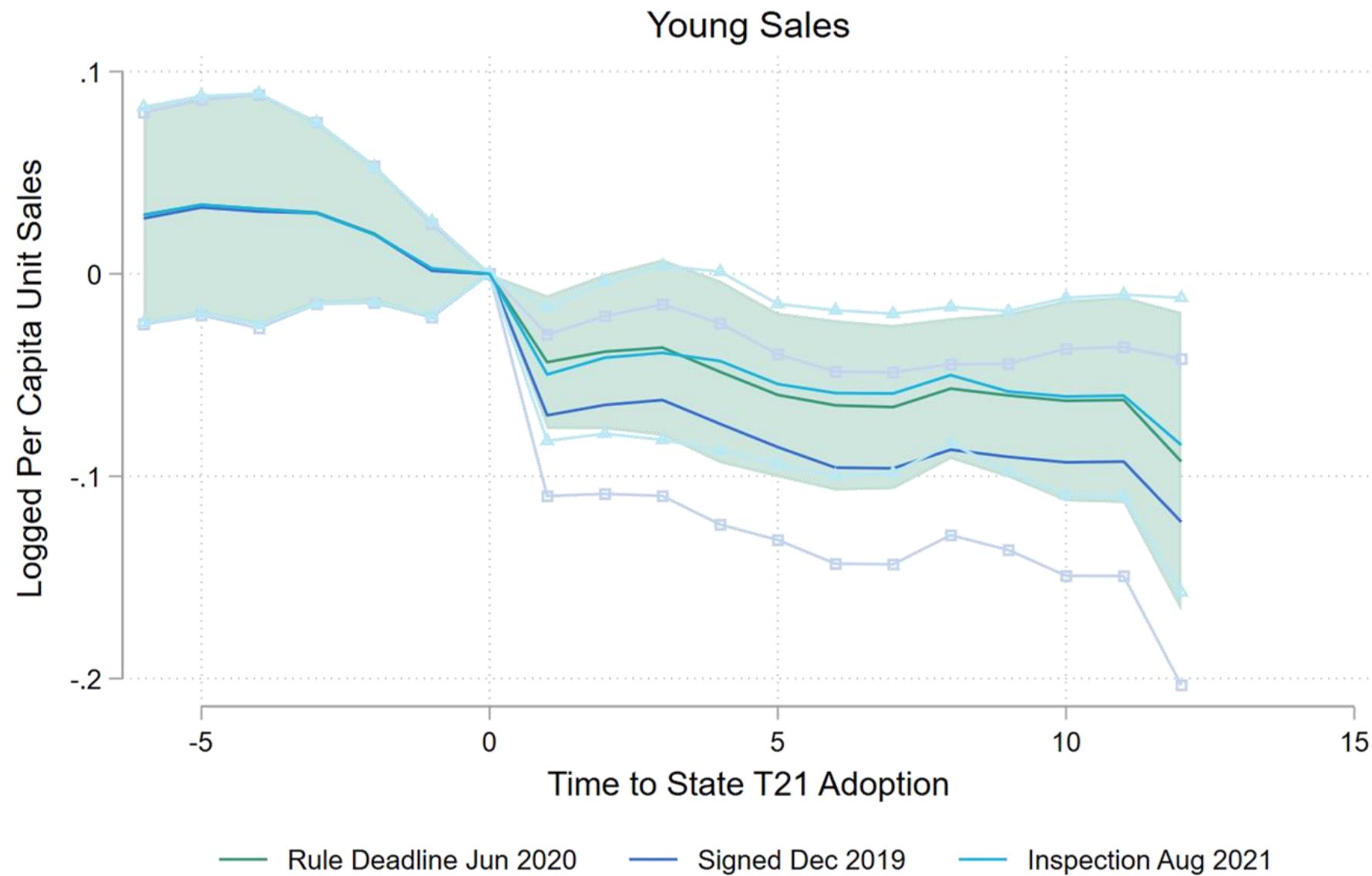


Sensitivity Checks

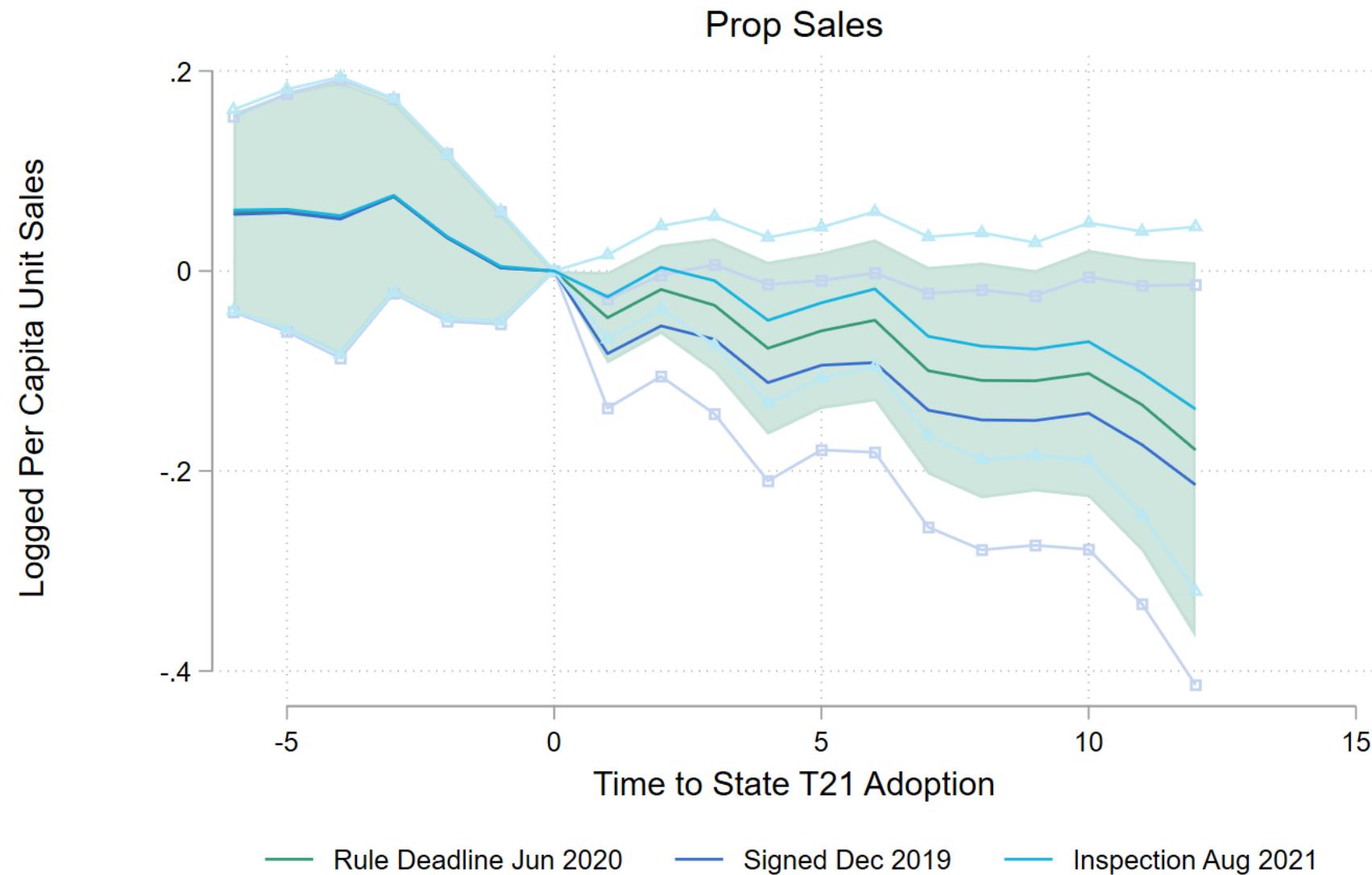
Sensitivity check: National T21 Dates and Total



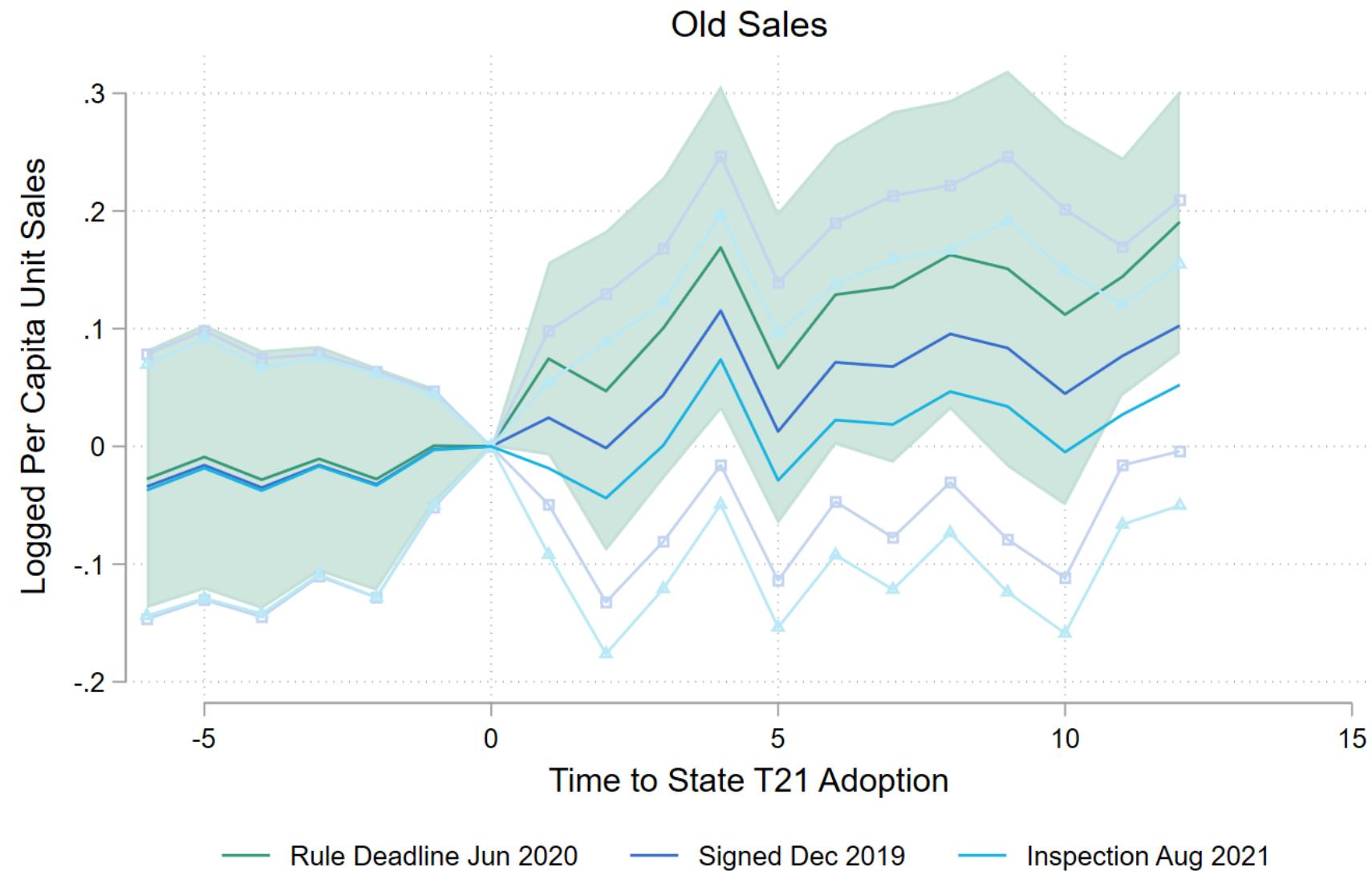
Sensitivity check: National T21 Dates and Young Brands



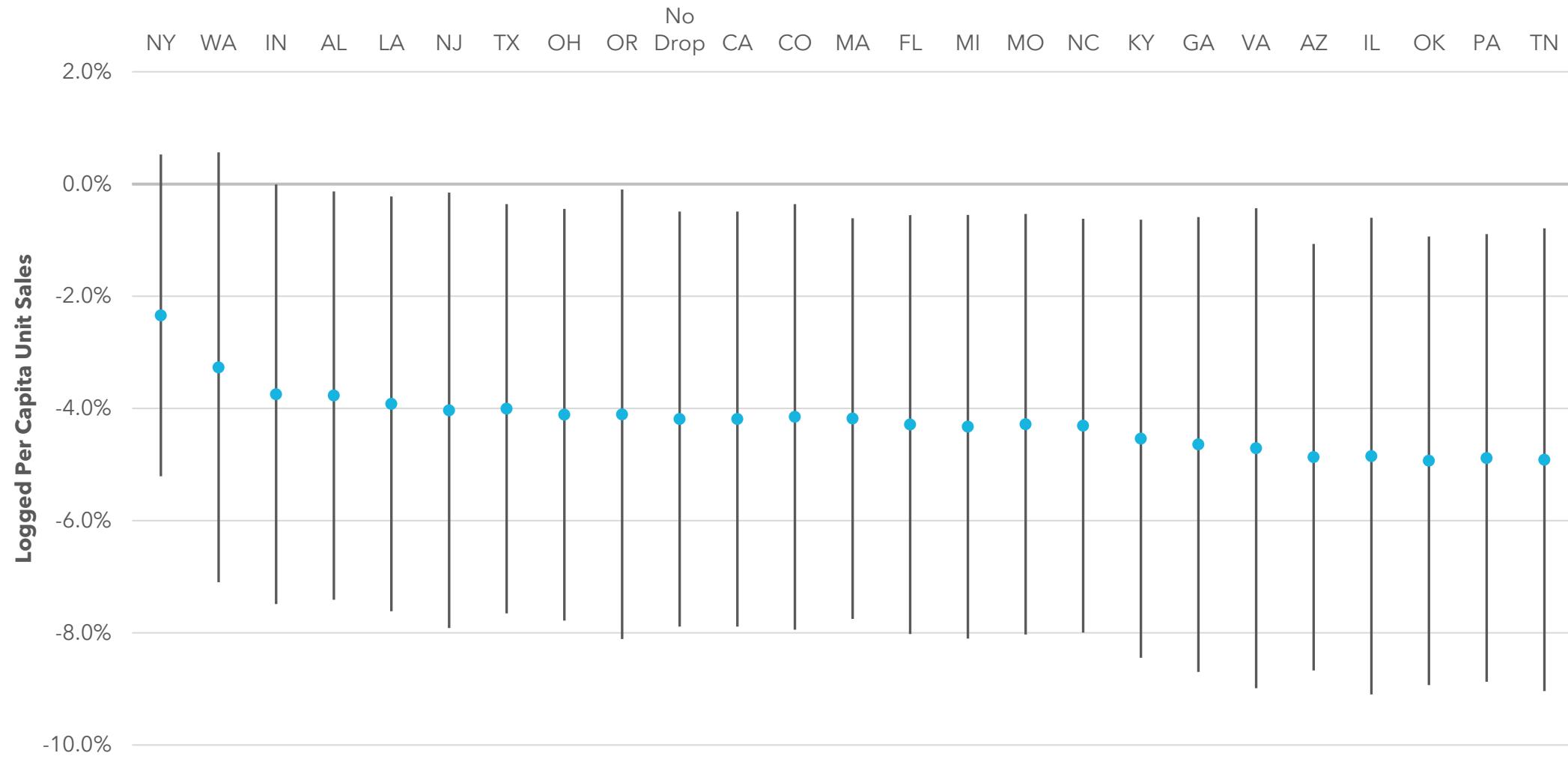
Sensitivity check: National T21 Dates and Proportionate Brands



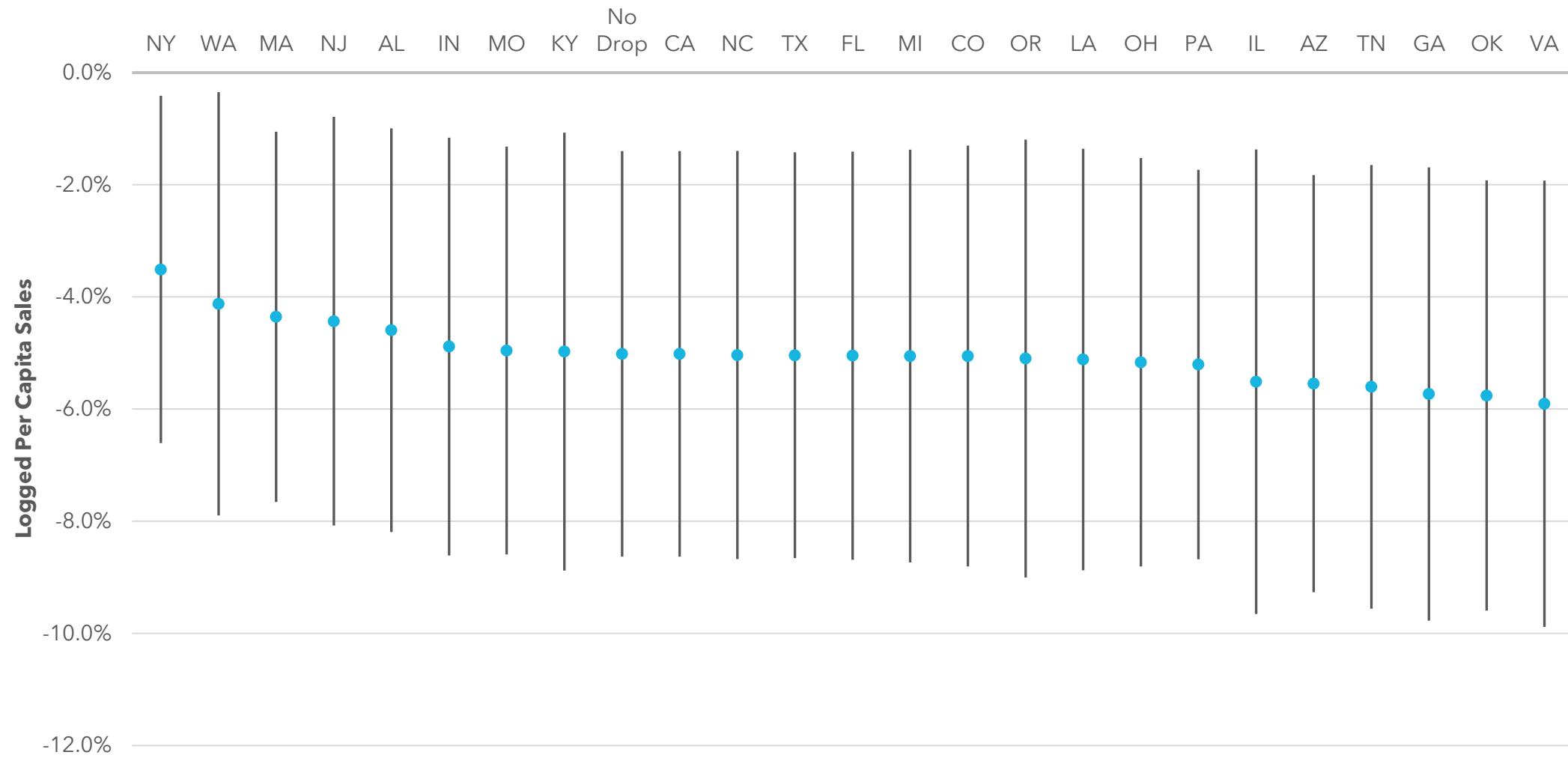
Sensitivity check: National T21 Dates and Old Brands



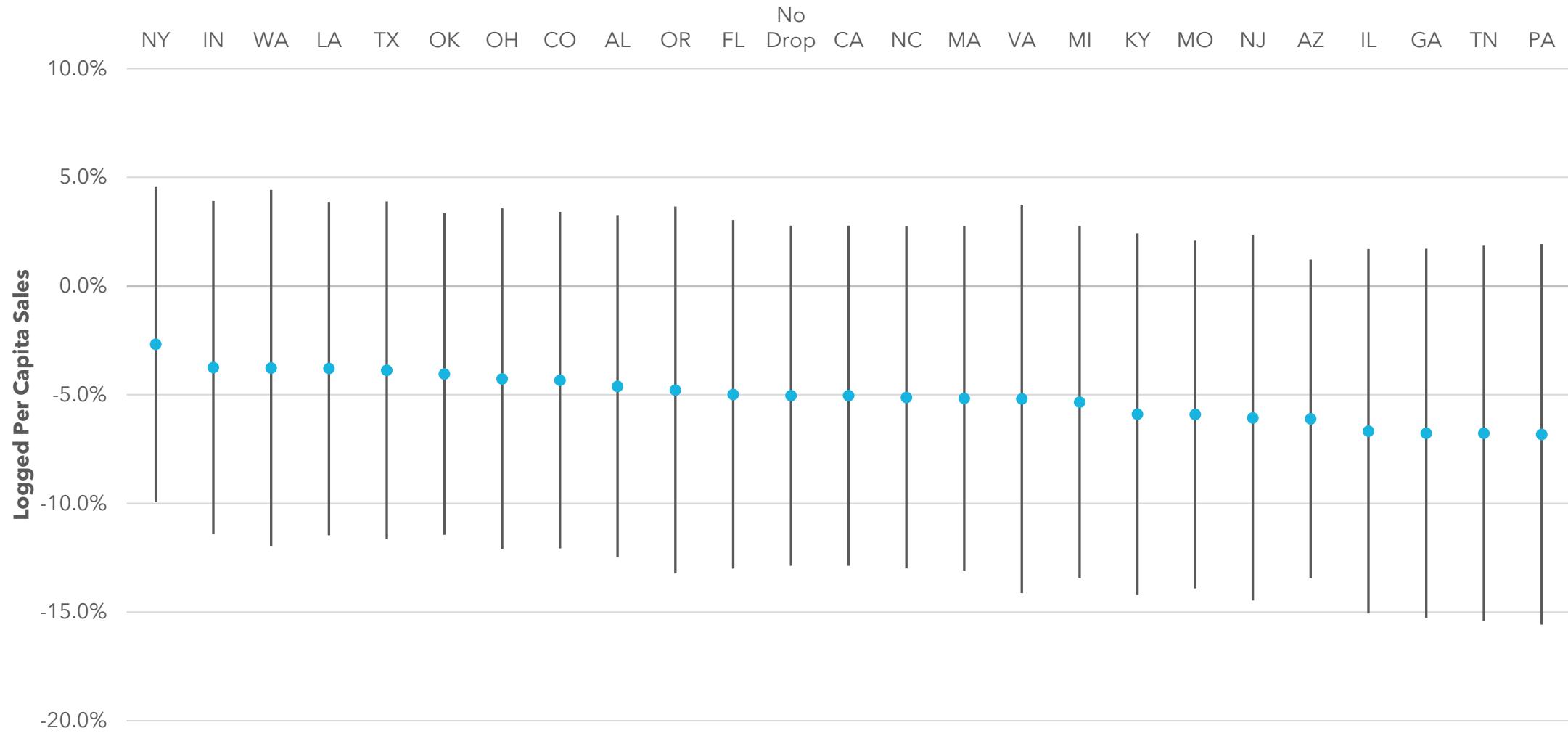
Sensitivity Check: Total Sales Full Model Drop One Tests



Sensitivity Check: Young Brand Sales Full Model Drop One Tests



Sensitivity Check: Prop Brand Sales Full Model Drop One Tests



Sensitivity Check: Old Brand Sales Full Model Drop One Tests



Discussion

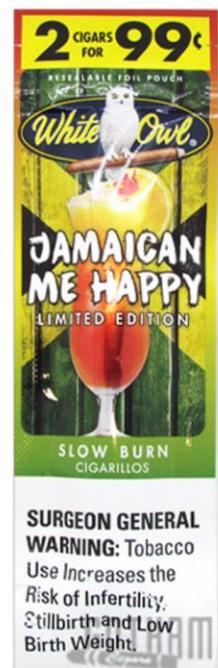
Discussion

- State Tobacco 21 likely decreased cigar sales by 4%
- Decline slightly concentrated among brands used by people under age 21
- Unexpectedly, unflavored products were affected most
 - Could point to substitution effects or uneven enforcement
- Further work must look into the mechanisms behind this change

Limitations

- 75% of the market was classified as youth disproportionate, limiting precision
- Unlogged sales pretend issue
- Local T21 enactment and enforcement information not available

Limitations - Limited Edition Caused Pretend?



Implications

Tobacco 21 seems to yield concentrated improvements in indicators important to the tobacco epidemic

Its use should continue to spread, with a focus on finding what version of T21 works best

Future Directions

Tobacco 21 policy details

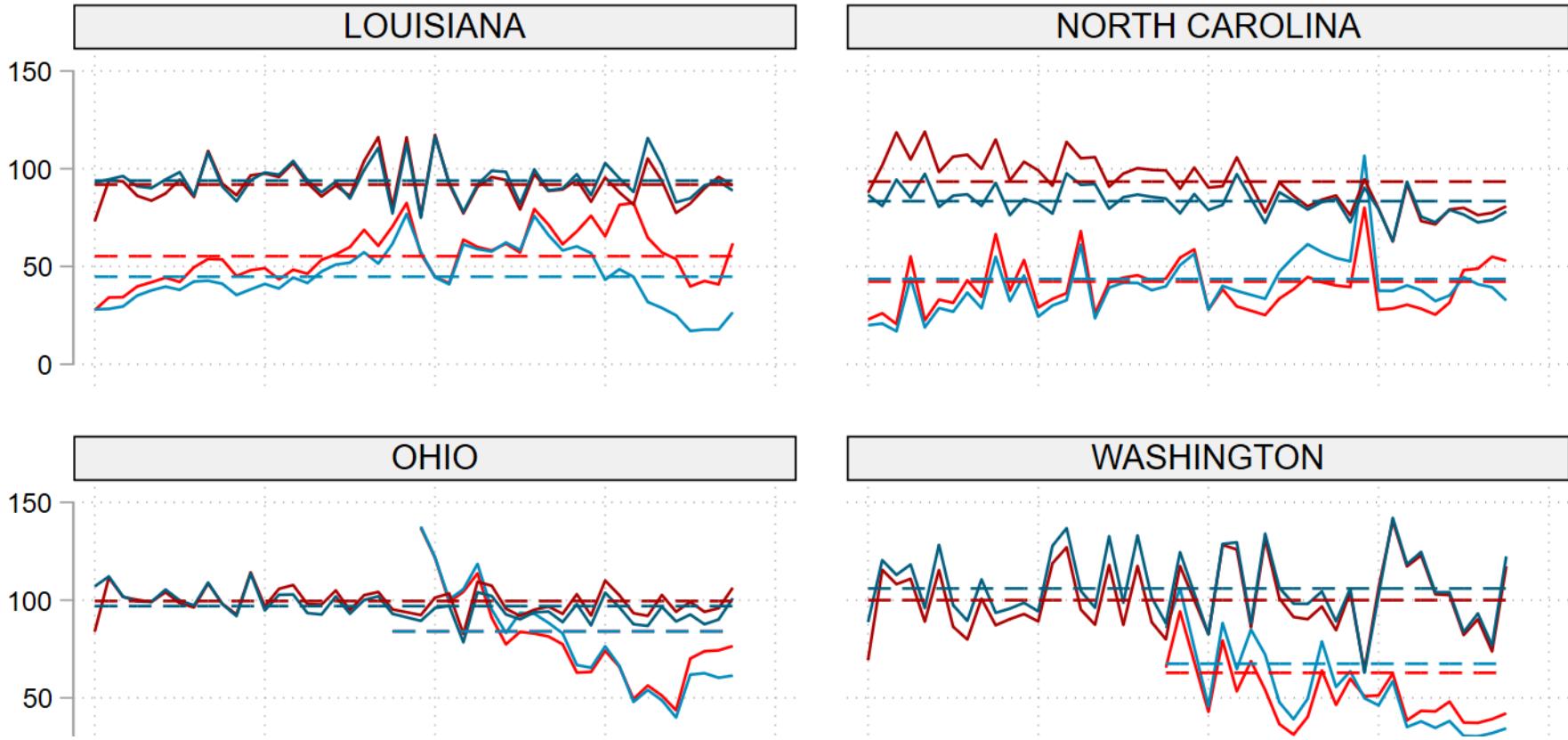
- Examining the role of bans on the purchase, use, and possession (PUP) of tobacco products by young people on tobacco sales

Tobacco 21 enforcement

- Examining the effect of state and local T21 adoption on FDA retailer inspection results

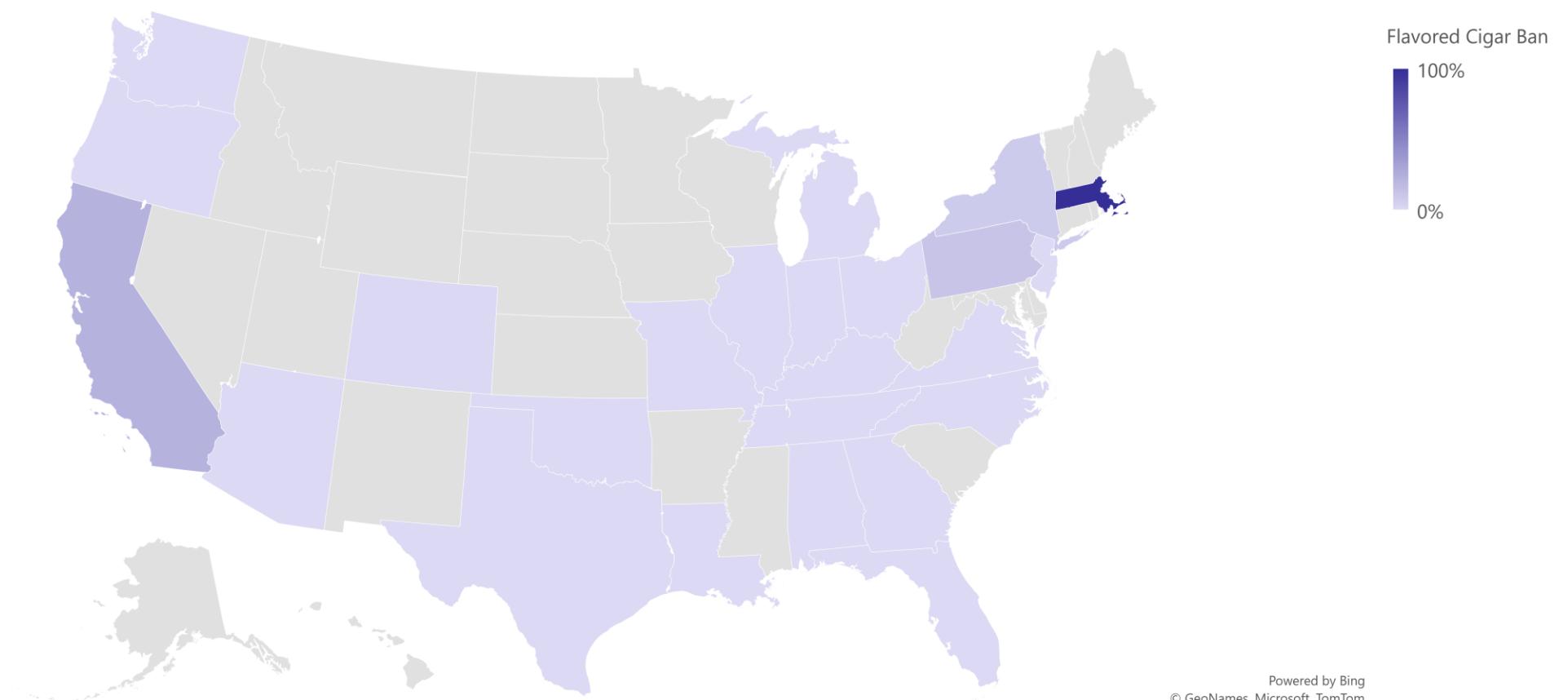
Sales Data Coverage of ENDS and Cigs

Volume Sales as a Percent of Monthly Excise Tax Collections

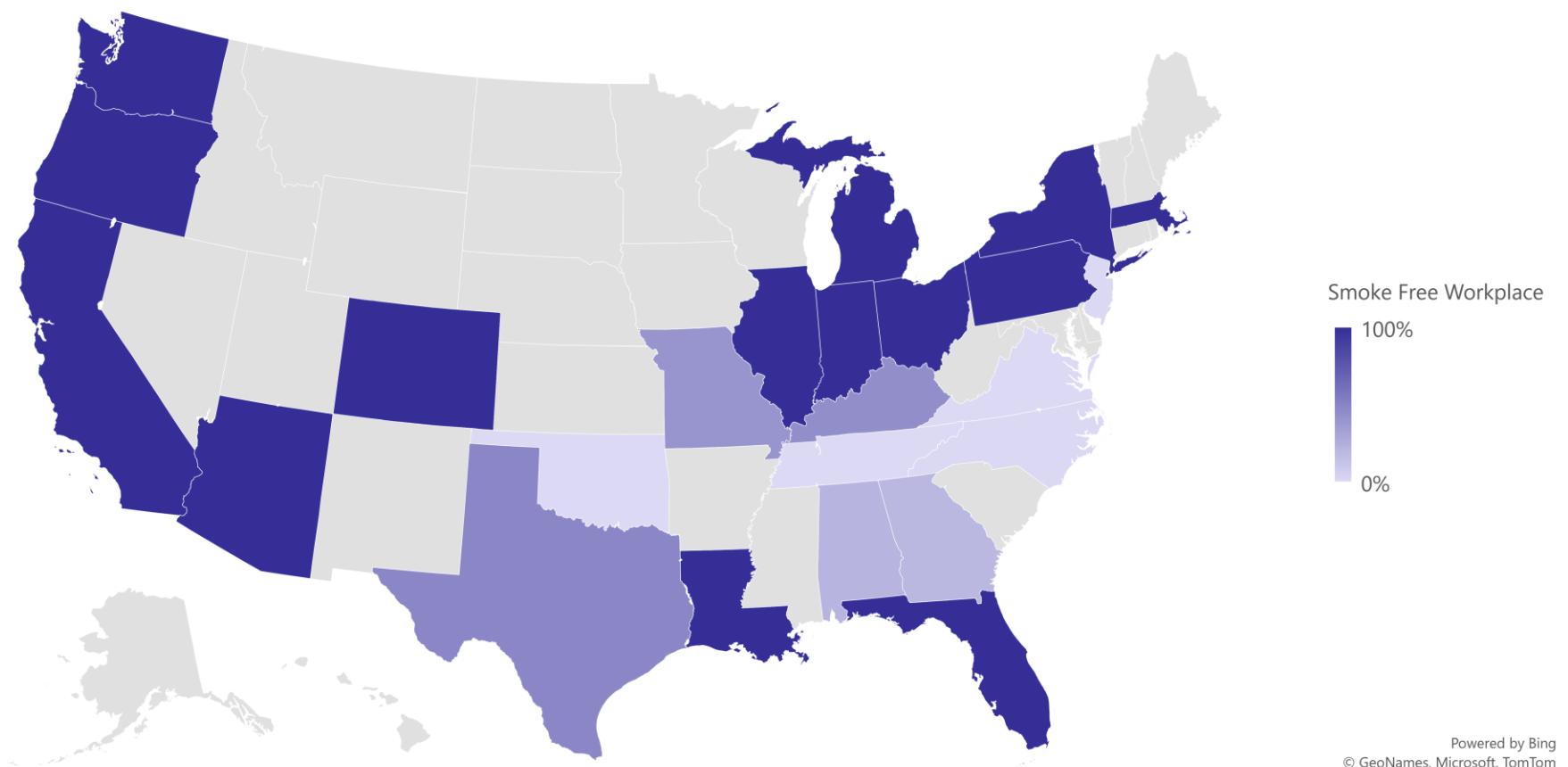


- It's not too bad (90%+ for cigs, 50%+ vol for ENDS)
- Cigars are even harder to test in this manner than ENDS

Flavored Cigar Ban Coverage in Nov 2021

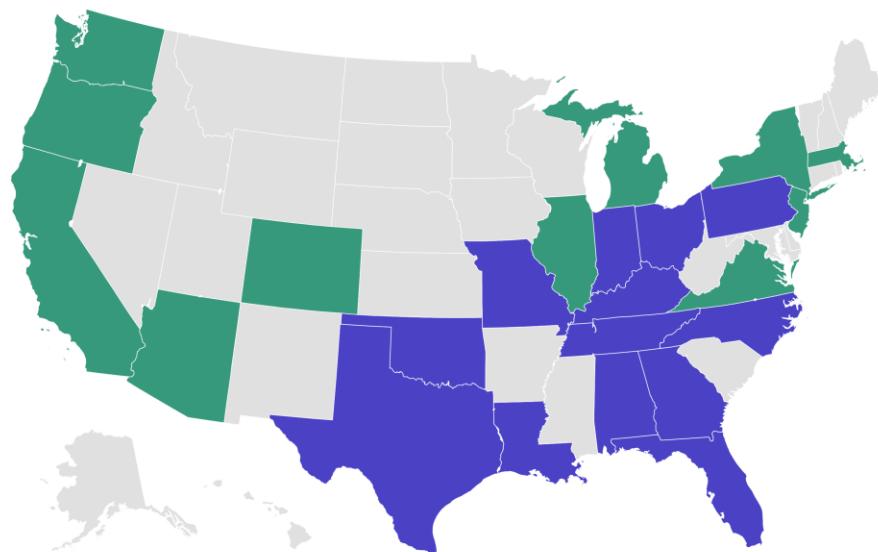


Smoke Free Workplace Coverage in Nov 2021



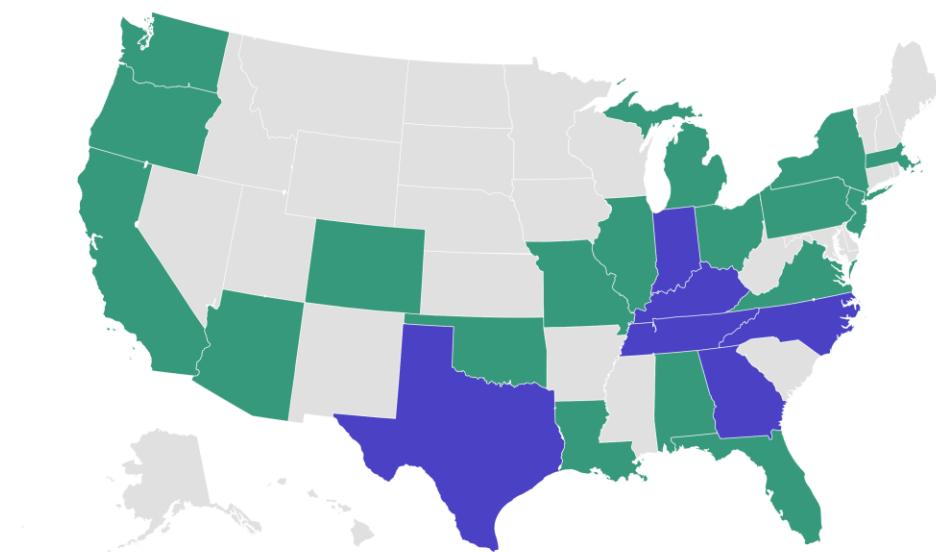
Cannabis Legality in Nov 2021

Recreational



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Medical



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Results of FDA Compliance Checks 2011-2022

