



The Nelson A. Rockefeller Center
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*The Center for Public Policy
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The Class of 1964 Policy Research Shop

Flavored Tobacco Ban in Vermont



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This report was written by undergraduate students at Dartmouth College under the direction of professors in the Rockefeller Center. Policy Research Shop (PRS) students produce non-partisan policy analyses and present their findings in a non-advocacy manner. The PRS is fully endowed by the Dartmouth Class of 1964 through a class gift in celebration of its 50th Anniversary given to the Center. This endowment ensures that the Policy Research Shop will continue to produce high-quality, non-partisan policy research for policymakers in New Hampshire and Vermont.





Introduction and Problem Statement

Policy Problem – Smoking risks the public health of Vermont:

- Leading preventable cause of disease and death in the U.S.¹
- 2018: U.S. Surgeon General reports youth e-cigarette "epidemic"²
- 2021: 16.1% of VT high school students currently use e-cigarettes³

Policy Trade-Offs – Benefits and costs:

- Public health impact: Vermonters who start smoking before age 18 are 1.5-2 times more likely to have a chronic illness⁴
- Business impact: 47 licensed cigarette and tobacco wholesalers in VT⁵
- Fiscal impact: Tax revenue loss of \$7.1-\$14.2 million a year million in FY25⁶



Vermont Senate Bill 18: An act relating to banning flavored tobacco products and e-liquids

- Would ban the retail sale of any flavored tobacco products in the state, except menthol
 - Menthol-flavored tobacco products may be prohibited on July 1, 2025, according to the recommendations of the Vermont Health Equity Advisory Commission





Preliminary Analysis

Federal Legislation Timeline:

- 2009: Family Smoking Prevention and Tobacco Control Act
- 2016: FDA gains authority over all tobacco products
- 2020: Flavored cartridges banned by FDA
- 2023: Final rules to ban menthol cigarettes
- **Lack of clarity remains**

State Legislation Timeline:

- 2019: MA becomes first state to ban all flavored tobacco
- More recently: CA, RI, NJ, NY
- 2023: S. 18 introduced, passes VT Senate
- **5 states already have bans, more considering**





Methodology

Case Studies

- Five states:
 - Massachusetts, California, New York, New Jersey, Rhode Island
- Health outcomes, revenue impacts, cross-border sales

Expert Interviews

- With academics, public health experts, Joint Fiscal Office
- Clarify conflicting research

Student Interviews

- Dartmouth student interviews to gain insight into youth tobacco use

Cost Benefit Analysis

- Consider effects with and without menthol cigarette ban
- Weigh costs and benefits using cost per QALY metric



National Trends: Youth Tobacco Use Rates

- Recent declines in cigarette and e-cigarette use
- Yet significant population still uses e-cigarettes

National Youth Risk Behavior Survey Trends						
The Percentage of High School Students Who:*	2011	2013	2015	2017	2019	2021
Currently smoked cigarettes	18.1	15.7	10.8	8.8	6.0	3.8
Currently smoked cigarettes daily	4.8	4.0	2.3	2.0	1.1	0.6
Currently used electronic vapor products†	-	-	24.1	13.2	32.7	18.0
Currently used electronic vapor products daily†	-	-	2.0	2.4	7.2	5.0

*Modified from complete wording of YRBS questions.

†Variable introduced in 2015.



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Case Studies: Massachusetts

Enactment: November 2019 – HB 4196⁷

- Permanent ban on all flavored nicotine products (including menthol)
- Implemented by June 1, 2020
- Also instituted 75% e-cigarette tax





Case Studies: MA Cont.

Impact:

- Declining youth vaping rates
 - Similar to national trends
- Significant decrease in sales⁸
 - Flavored e-cigarettes/cigars, menthol cigarettes: 95% decline
 - Tobacco flavored e-cigarettes: 81% decline
- Unclear effect on cross-border sales
 - If people can't buy in MA, they may go to its 5 border states
 - One estimate is increase of 7.21 million cigarette packs,⁹ another is .13 million¹⁰
- Increased monitoring and illicit activity
 - Increased number of tobacco inspections¹¹
 - 6.6% increase in smuggling immediately after ban¹²

Massachusetts Youth Risk Behavior Survey Trends

	Pre-Ban Period					Post-Ban
	2011	2013	2015	2017	2019	2021
The Percentage of High School Students Who:*						
Currently smoked cigarettes	14.0	10.7	7.7	6.4	5.0	3.5
Currently smoked cigarettes daily	4.0	3.2	1.7	0.8	0.4	0.5
Currently used electronic vapor products†	-	-	23.7	20.1	32.2	17.2
Currently used electronic vapor products daily†	-	-	1.8	2.1	8.2	3.0

*Modified from complete wording of YRBS questions.
†Variable introduced in 2015.



Case Studies: California

Enactment: August 2020 – SB 793

- Prohibits all flavored tobacco products except for those used in premium cigars, hookahs, or loose-leaf forms
- Referendum and court challenges brought by opponents delayed the bill's implementation until December 2022

Impact:

- Tax revenue: lost \$300 million from cigarettes¹³
- Tobacco use rates: 2023 levels relatively consistent with recent past
- Unintended consequences:
 - Loophole led to increased online purchases
 - No 2023 data on cross-border sales, but 47 million brought across the border in 2020¹⁴





Case Studies: New York, New Jersey, Rhode Island

New York: May 2020 Flavor Ban

- Legislation: all flavored tobacco products banned besides menthol
- Usage Rates: although overall e-cigarette purchases declined, tobacco-flavored e-cigarette purchases increased 83%¹⁵

New Jersey: January 2020 Flavor Ban

- Legislation: banned all flavored, electronic tobacco products besides menthol
- Usage Rates: 84% decline in e-cigarette sales, but 381% increase in flavored cigar sales¹⁶

Rhode Island: October 2019 Flavor Ban

- Legislation: banned all flavored e-cigarettes

Continue for youth usage rates



Case Studies: New York, New Jersey, Rhode Island

Youth Risk Behavior Survey: Tobacco Usage

- Current use decreased everywhere, daily use decreased everywhere but NJ, but similar to national trend and VT trend

Currently Used Electronic Vapor Products

State	Pre-Ban Period			Post-Ban
	2015	2017	2019	2021
Massachusetts	23.7	20.1	32.2	17.2
New York	21.7	14.5	22.4	15.7
New Jersey	--	--	27.6	21.6
Rhode Island	19.3	20.1	30.1	17.8
Vermont (no ban enacted)	15.3	12.0	26.4	16.1
United States (no national ban enacted)	24.1	13.2	32.7	18.0

Currently Used Electronic Vapor Products

State	Pre-Ban Period			Post-Ban
	2015	2017	2019	2021
Massachusetts	1.8	2.1	8.2	3.0
New York	2.8	1.5	4.6	2.7
New Jersey	--	--	3.7	4.5
Rhode Island	1.7	2.7	7.3	4.6
Vermont (no ban enacted)	1.4	1.8	8.1	4.9
United States (no national ban enacted)	2.0	2.4	7.2	5.0



Student Interview Findings

Theme #1: Illicit Markets

- Strong willingness to purchase from illegal markets following a ban

Theme #2: Cross-Border Sales

- Less willingness to travel cross-border as opposed to illegal markets

Theme #3: Repeated and Unsuccessful Attempts at Quitting

- Most users attempted to quit multiple times

Theme #4: High School Vaping Exposure

- Widespread exposure to e-cigarette use in high school

Theme #5: Strong Preference For Flavors, Especially Flavored E-Cigarettes

- More likely to turn to the illicit marketplace than use unflavored products



Cost Benefit Analysis: Revenue Impact

Determining Variable: Change in Legal, In-State Tobacco Sales

- Does not reflect illicit marketplace, out-of-state purchases

Impact on Vermont State Revenue

- E-cigarette ban: \$2.4 million a year
- All flavored products ban: \$7.1-\$14.2 million a year

Impact on Local Businesses

- E-cigarette ban: \$2.6 million a year
- All flavored products ban: \$8-\$18 million a year



Cost Benefit Analysis: Healthcare Impact

Determining Variable: Change in Tobacco Usage

- Based on case studies, estimate 9% quit rate
- Some people switching products or buying from illicit marketplace

Impact on Healthcare Outcomes

- Overall positive impact on healthcare outcomes
- Tobacco use is extremely harmful; e-cigarettes are generally considered less harmful than cigarettes

Impact on Healthcare Costs

- Vermont spends around \$350 million annually on treating tobacco caused illnesses
- Look at whether policies are cost-effective relative to their healthcare outcomes
- Vermont has the 6th highest healthcare costs per smoker of any state



Cost Benefit Analysis: Cost Per QALY

Cost Per QALY Metric:

- Cost in tax revenue per quality-adjusted life year saved
 - Lower cost per QALY is more cost effective; <\$50,000 threshold
- Looked at expected loss in tax revenue over next 25 years

Costs Per QALY By Potential Decrease in Tobacco Usage

Costs Per QALY By Quit Rate and Ban Scope			
Quit Rate	Cost per QALY From General Flavor Ban	Cost per QALY From E-Cigarette Ban Only	Cost Effectiveness
15%	\$8,140	\$2,567	Cost Effective
9%	\$13,567	\$4,278	
5%	\$24,420	\$7,670	
1%	\$122,090	\$38,499	Not Cost Effective

Quit rate to meet cost-efficient threshold: 2.4% for total ban, 0.8% for e-cigarette



Cost Benefit Analysis: Intangible Concerns

- Public health vs economic perspective
 - Consumer choice and consumer surplus
 - Restriction on liberty
- Disproportionate to intended purpose; limits more than just youth use
 - Youth use is already banned
- Mixed messages with legalization of marijuana and banning of tobacco products





Limitations

Tobacco Research Generally

- Addictive substances are hard to predict
- Health consequences are hard to isolate, predict, quantify
- Depends on level of enforcement (which would have costs)

Cost Benefit Analysis

- Did not separate data by gender, race, etc
- Did not account for secondhand smoke exposure
- Did not weigh costs to businesses against healthcare savings
- Did not account for tobacco use prevention





Policy Alternatives

Proscriptive Policy

1. Taxation
2. Limited bans
3. Nicotine caps
4. Increasing fines/enforcement

Prescriptive Policy

1. Funding tobacco prevention and cessation programs
2. Incentivizing e-cigarette usage over cigarette usage
3. Research funding





Conclusion

Unintended Consequences

- Increase in out-of-state purchases
- Potential switching to traditional cigarettes

Costs and Benefits

- Cost-effective using cost per QALY standard
- More cost-effective to ban only e-cigarettes vs all flavored tobacco products

Variables Affecting Impact

- Lack of research/data
- Menthol cigarette ban
- Enforcement





References

1. “Tobacco | Vermont Department of Health,” accessed October 31, 2023, <https://www.healthvermont.gov/wellness/tobacco>.
2. Teresa W. Wang, “Tobacco Product Use and Associated Factors Among Middle and High School Students — United States, 2019,” *MMWR. Surveillance Summaries* 68 (2019), <https://doi.org/10.15585/mmwr.ss6812a1>.
3. “The Toll of Tobacco in Vermont,” Campaign for Tobacco-Free Kids, accessed October 31, 2023, <https://www.tobaccofreekids.org/problem/toll-us/vermont>.
4. “Tobacco Use in Vermont.” Vermont Department of Health, October 2021. https://www.healthvermont.gov/sites/default/files/documents/pdf/HS_Tobacco_BRFSS_Brief_2019_2021_11.pdf.
5. Vermont Department of Taxes. “Licensed Cigarette and Tobacco Dealers,” 2021. <https://tax.vermont.gov/content/licensed-cigarette-and-tobacco-dealers>.
6. Ted Barnett, “Fiscal Note: S.18 – An act relating to banning flavored tobacco products and eliquids, As recommended by the House Committee on Human Services,” Vermont Legislative Joint Fiscal Office, 2024, https://ljfo.vermont.gov/assets/Publications/2023-2024-SenateBills/3c59ffdd30/GENERAL-369249-v2A-S_18_Fiscal_Note-HHS.pdf.
7. “Illegal Tobacco Task Force Annual Report 2023” (Multi-Agency Illegal Tobacco Task Force, February 28, 2023), <https://www.mass.gov/doc/task-force-fy23-annual-report/download>.
8. Tyra Satchell et al., “The Impact of Two State-Level Approaches to Restricting the Sale of Flavored Tobacco Products,” *BMC Public Health* 22, no. 1 (September 22, 2022): 1799, <https://doi.org/10.1186/s12889-022-14172-y>.
9. Jacob James Rich, “Estimates of Cross-Border Menthol Cigarette Sales Following the Comprehensive Tobacco Flavor Ban in Massachusetts” (medRxiv, April 27, 2022), <https://doi.org/10.1101/2022.04.24.22274236>.
10. Samuel Asare et al., “Spatial Analysis of Changes in Cigarette Sales in Massachusetts and Bordering States Following the Massachusetts Menthol Flavor Ban,” *JAMA Network Open* 5, no. 9 (September 15, 2022): e2232103, <https://doi.org/10.1001/jamanetworkopen.2022.32103>.
11. “Illegal Tobacco Task Force Annual Report 2023” (Multi-Agency Illegal Tobacco Task Force, February 28, 2023), <https://www.mass.gov/doc/task-force-fy23-annual-report/download>.



References

12. Adam Hoffer, "Vermont Tobacco Flavor Ban Would Cost Nearly \$16 Million Per Year," *Tax Foundation* (blog), March 22, 2023, <https://taxfoundation.org/blog/vermont-tobacco-flavor-ban/>.
13. Adam Hoffer, "California Flavored Tobacco Ban May Cost More than \$300 Million in First Year," Tax Foundation (blog), February 25, 2023, <https://taxfoundation.org/blog/californiaflavored-tobacco-ban-revenue/>.
14. Ibid.
15. Barbara Schillo et al., "Early Evidence of Flavored Tobacco Product Restrictions in Massachusetts and New York State," *Tobacco Induced Diseases* 21 (October 24, 2023): 140, <https://doi.org/10.18332/tid/172000>.
16. Tyra Satchell et al., "The Impact of Two State-Level Approaches to Restricting the Sale of Flavored Tobacco Products," *BMC Public Health* 22, no. 1 (September 22, 2022): 1799, <https://doi.org/10.1186/s12889-022-14172-y>.