

## Effect of Flavored Nicotine Ban in Massachusetts: Myth vs. Reality

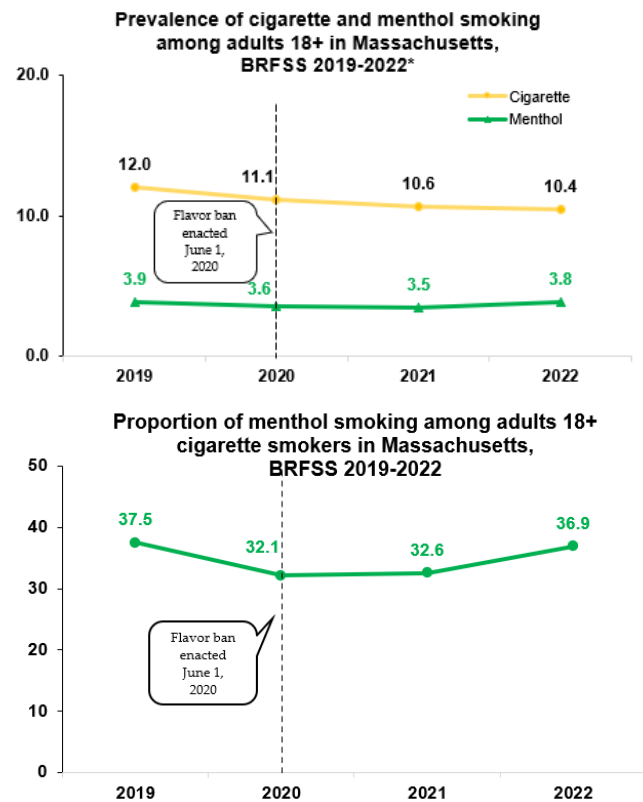
Effective June 1, 2020,<sup>1</sup> Massachusetts implemented a first in the nation ban on the sale of all flavored tobacco products. This initiative encompassed all forms of nicotine products including menthol cigarettes, flavored cigars, and flavored smokeless tobacco products. The stated aim of this ban was to reduce smoking prevalence and promote cessation by eliminating products with flavorings, which have been accused of appealing to youth.

This document presents a comprehensive analysis of the outcomes of the Massachusetts flavored tobacco ban by evaluating two population representative government datasets on product use behaviors: The Behavioral Risk Factor Surveillance System survey (BRFSS), and the National Survey on Drug Use and Health (NSDUH) Restricted Use data files (RUF)

Each year, the CDC conducts the BRFSS survey<sup>1</sup> across all 50 states and the District of Columbia. Individual states are responsible for administering the survey, which includes questions about tobacco use. Massachusetts has included a specific question about menthol cigarette use since 2019.

### BRFSS Key Findings:

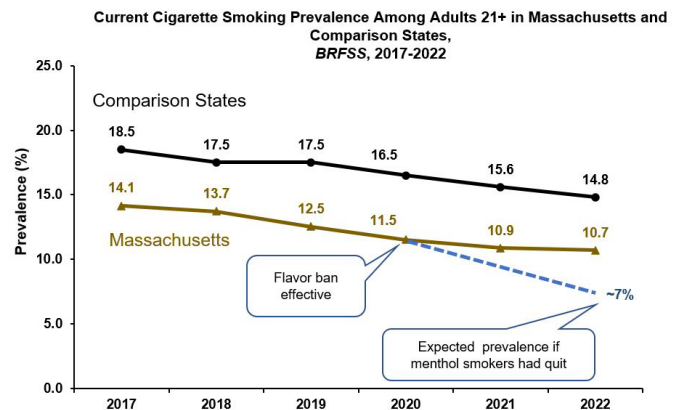
- No Significant Change in Menthol Cigarette Smoking Among Adults 18+ Post-Ban in Massachusetts.
  - In 2022, 36.9% of cigarette smokers used menthol compared to 37.5% in 2019 before the flavored tobacco ban.
  - Despite the ban, adults 18+ continue to use menthol cigarettes, thereby robbing the state of excise and sales tax revenue and challenging the claim that the state would realize savings from reduced usage.
  - In fact, the overall prevalence of cigarette smoking decreased by only 1.6 percentage points from 2019 to 2022.



<sup>1</sup> <https://www.mass.gov/info-details/impact-on-tobacco-use-behaviors-and-outcomes>

- MA Department of Public Health (DPH) Has Not Reported or Presented on the Consistent Menthol Cigarette Use in the Commonwealth Among Adults 18+ or 21+.
  - MA DPH BRFSS publicly available dashboard only provides data from 2019 – 2021<sup>2</sup>. Despite providing racial subgroup data for other products, it does not provide menthol cigarette racial subgroup data. By only providing data up to 2021, it inadvertently presents a misleading narrative of continued reduction.
- Massachusetts Has Not Experienced a Greater Reduction in Adult 21+Smoking Prevalence Compared to States Without a Flavor Ban.

- If all 21+ menthol smokers had quit, adult smoking prevalence would have been expected to be around 7% in 2022, instead it is 10.7%.<sup>3</sup>



Using the NSDUH RUF<sup>4</sup> spanning 2015 to 2022 (excluding 2020), we employed difference-in-difference (DiD) models to compare smoking behaviors in Massachusetts before and after the ban, with those in other states that do not have such bans.

### NSDUH Key Findings:

- Youth and Adult Smoking Behaviors Unchanged:
  - The Massachusetts flavored tobacco ban did not significantly alter the prevalence of cigarette smoking among underage individuals (ages 12-20) or adults aged 21 and older when compared to states without flavor bans. Despite the regulatory effort, smoking rates in these demographics remained stable.
- Minimal Impact on Smoking Cessation:
  - The ban showed negligible influence on overall smoking cessation rates<sup>5</sup> both among underage individuals and adults. The lack of a reduction in smokers suggests that the ban alone may not strongly incentivize quitting.
- Continued Appeal of Menthol Cigarettes:

<sup>2</sup> <https://www.mass.gov/info-details/impact-on-tobacco-use-behaviors-and-outcomes#adult-tobacco-use->

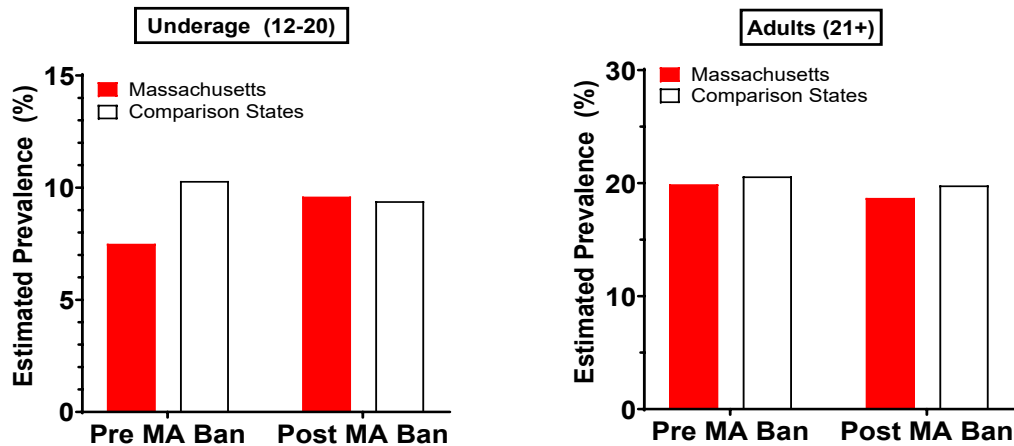
<sup>3</sup> Forthcoming, based on ALCS analysis of BRFSS 2017-2022.

<sup>4</sup> Forthcoming, based on ALCS analysis of NSDUH 2015-2022 (excluding 2020).

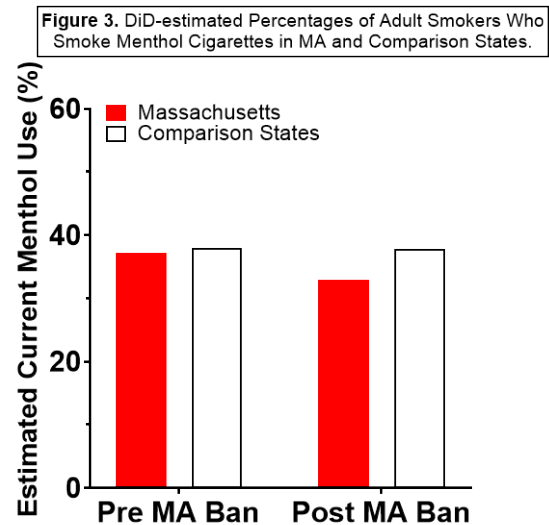
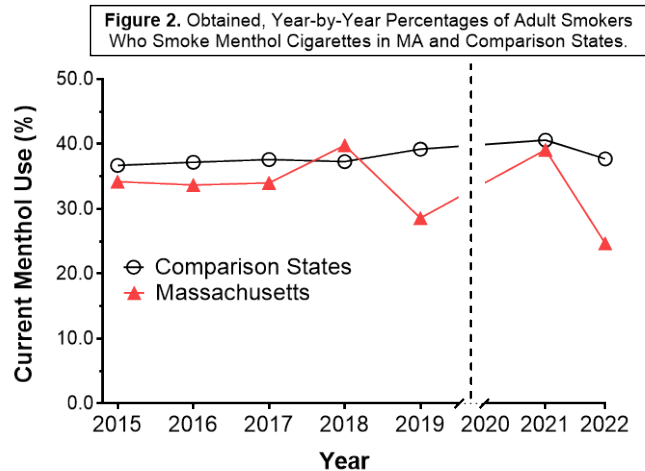
<sup>5</sup> Smoking cessation was defined by participants who reported smoking at least 100 cigarettes in their lifetime but reported not smoking in at least the past 30 days.

- Two years following the ban, approximately 25% of adult smokers in Massachusetts continued to access and consume menthol cigarettes. This persistence indicates alternative methods of acquiring banned products, possibly through illicit or cross-border means.
- Limited Effect on Menthol Smoking Rates:
  - The ban had minimal impact on reducing the rates of menthol cigarette use in adults aged 21 and over compared to states without flavor restrictions. The data suggests underlying demand and established smoking habits among adults remain resilient despite the ban.

**Figure 1. DiD-estimated Cigarette Smoking Prevalence Pre- & Post-Ban in MA & Comparison States.**

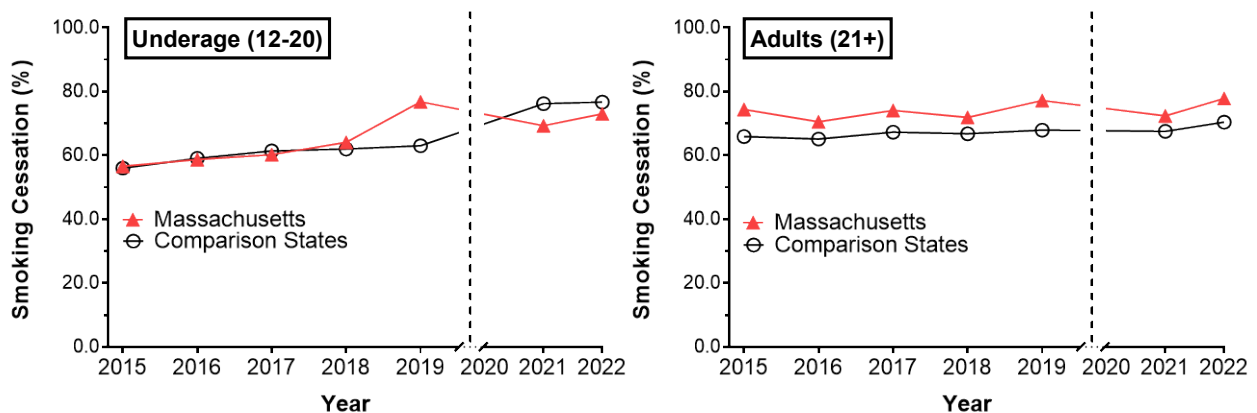


Estimated underage smoking prevalence increased post ban, while adult 21+ estimated smoking prevalence slightly decreased. These changes were clinically negligible, implying the ban had no influence on smoking rates (**Figure 1**).



There was no clinically significant decrease in menthol cigarette smoking among adults 21+ in Massachusetts post-ban (Figures 2, 3). There was little decrease in menthol cigarette smoking from pre- and post-ban, with 28.6% of smokers using menthol cigarettes in 2019 and 24.7% using menthol cigarettes in 2022 (Figure 2).

**Figure 4. Overall, Year-by-Year Smoking Cessation Rates for MA & Comparison States**



There was a negligible influence of the ban on past 30-day smoking cessation for underage and adult lifetime smokers in Massachusetts in the years following the ban (Figure 4).

## Conclusion and Implications for Policy:

Our analysis of the data suggests that the prohibition of menthol and other flavored tobacco products in Massachusetts has not effectively deterred cigarette demand among both underage and adult smokers. Persistent usage among adults, particularly of menthol cigarettes, and the unchanged smoking rates in underage individuals, highlight the challenges in altering smoking behaviors through product bans.

These menthol cigarette usage figures are supported by enduring data demonstrating cross-border sales realities, primarily from New Hampshire, due in part to both the significant excise tax differences between the two states and the availability of flavored tobacco products in New Hampshire. The most recent data, provided by the Tax Foundation, found that Massachusetts ranks 4<sup>th</sup> in inbound smuggling activity at 39.7%, which costs the Commonwealth an estimated \$224 million annually. Prior to the ban, in 2019, Massachusetts ranked 12<sup>th</sup> in inbound smuggling at 19.9%, which cost the state \$133 million. Conversely, New Hampshire ranks 3<sup>rd</sup> in outbound smuggling activity at 31.4%, which earns the state more than \$26 million per year.<sup>5</sup>

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### Sources and Notes for Figures Above:

In the Behavioral Risk Factor Surveillance System data analysis from 2017 and 2021, comparison states excluded CA, CO, FL, GA, IL, ME, MD, MN, NJ, NY, ND, OH, RI, UT, and DC due to survey gaps or existing local flavor bans. Difference-In-Difference models were used to evaluate the impact of flavor ban (pre- and post-ban: Jan 2015 – December 2019 and January 2021 – December 2022, (excluding the 2020 data set as to comply with the terms of data usage) amongst both underage (12-20) and adult 21+ individuals from the National Survey on Drug Use and Health Restricted Use data files. Analysis adjusted for sociodemographic characteristics (age, sex, race, education, employment, income) and year-fixed effects (survey year and quarter of the year in which survey was completed). CA, CO, GA, IL, ME, MD, MN, NJ, NY, ND, OH, RI, UT, and DC were not included in the analyses due to existing state or local level flavor bans. Data last accessed August 20, 2024.

<sup>4</sup> DiD  $\beta$  parameter estimates  $\leq 0.80$  or  $\geq 1.20$  (i.e.,  $\geq \pm 20\%$  change) were considered clinically significant based on recommended approaches in the extant literature. See Greenland S, Senn SJ, Rothman KJ, Carlin JB, Poole C, Goodman SN, Altman DG. Statistical tests, P values, confidence intervals, and power: a guide to misinterpretations. *Eur J Epidemiol.* 2016 Apr;31(4):337-50. doi: 10.1007/s10654-016-0149-3. Epub 2016 May 21. PMID: 27209009; PMCID: PMC4877414.

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<sup>5</sup> Cigarette Taxes and Cigarette Smuggling by State, 2022. Tax Foundation, <https://taxfoundation.org/data/all/state/cigarette-taxes-smuggling-state-2022/>