

THE CLASS OF 1964 POLICY RESEARCH SHOP **BANNING FLAVORED TOBACCO PRODUCTS IN VERMONT**



PRESENTED TO VT HOUSE HUMAN SERVICES COMMITTEE

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EXECUTIVE SUMMARY

This study explores the public health and financial impacts of a ban on the retail sale of flavored tobacco products in Vermont, including flavored e-cigarettes except for menthol, which is dependent on the results of Vermont's health equity advisory commission.¹ In January 2023, this policy was introduced in Senate Bill 18 "An Act Relating to Banning Flavored Tobacco Products and E-Liquids." Three methodologies are utilized in this report to address the ban's effectiveness in reducing tobacco usage rates, especially among youth. First, case studies of the results from five states (Massachusetts, California, New York, New Jersey, and Rhode Island) that have passed similar legislation provide evidence of the costs and benefits that can be applied to Vermont. Student interviews provide further insight into how Vermont citizens might respond to this legislation. Finally, a series of expert interviews with researchers and Vermont policymakers yield information on complex topics in health and economics as well as policy alternatives. We aim to provide the House Human Services Committee with information about how this ban would affect the health and revenue of Vermont. Our findings suggest that the ban may have many unintended consequences, such as an increase in illegal tobacco smuggling, out of state purchases, and switching to economic substitutes with similar if not worse health consequences.

1 INTRODUCTION

The use of tobacco products by young people poses a significant public health challenge. In 2014, e-cigarettes, often known as "vapes," surpassed traditional cigarettes as the most used tobacco product among U.S. youth just seven years after entering the market.² Prompted by an increase in youth e-cigarette use of 77.8 percent among high school students and 48.5 percent among middle school students from 2017 to 2018, in December 2018, the U.S. Surgeon General issued an advisory urging the importance of preventing early nicotine addiction and its lifetime health risks amidst a youth e-cigarette "epidemic."³ The results from the 2019 National Youth Tobacco Survey underscored the extent of this issue, finding that e-cigarettes were currently used by 27.5 percent of high school students (4.1 million) and 10.5 percent of middle school students (1.2 million) across America.⁴

The appeal of flavors, including menthol, was one of the most commonly cited reasons by youth on why they used e-cigarettes.⁵ More than 80 percent of youth who have used a tobacco product report that they began with flavors, and 97 percent of youth who vape use flavored products.⁶ One study found that over three-quarters of young people who use e-cigarettes report they would no longer use e-cigarettes if they were not flavored.⁷ Federal, state, and local policymakers have adopted different approaches to restricting flavored tobacco products. As of June 2023, two states (Massachusetts, California) have prohibited the sale of all flavored tobacco products; three states (New York, New Jersey, Rhode Island) have banned all flavored e-cigarettes; and two states (Maryland, Utah) have restricted the sale of some flavored e-cigarettes.⁸ In addition, over 360 local jurisdictions⁸ have also enacted laws that restrict the sale of flavored e-cigarettes.⁹

The Vermont State Senate has introduced and passed Senate Bill 18 (S. 18) in 2023 and it can be enacted during the 2024 session. S. 18 would ban the retail sale of any flavored tobacco products in the state, except for menthol. Based on the final reading of the House Committee on Human Services, menthol-flavored tobacco products may be prohibited on July 1, 2025,

according to the recommendations of the Vermont Health Equity Advisory Commission.¹⁰ Vermont already limits purchases to those 21 and older consistent with federal Tobacco 21 legislation, taxes e-cigarettes at 92 percent of the wholesale price at the second-highest rate in the nation, bans the online sale and shipment of tobacco products, and prohibits second-hand smoke and aerosols in many indoor contexts.¹¹

2 PROBLEM STATEMENT

Smoking is the leading preventable cause of disease and death in the United States.¹² Every year, cigarette smoking prematurely kills 1,000 in Vermont and over 480,000 in the United States.¹³ These deaths and illnesses have financial consequences as well. In Vermont, taxpayers pay an average of \$1,037 per household through smoking-related state and federal tax expenditures. Tobacco-related illness and death is a problem for adult Vermonters, but nicotine addiction can start with Vermont's young people. Flavored tobacco products such as e-cigarettes are especially appealing to young people and largely responsible for getting them initially addicted. According to the 2021 Youth Risk Behavior Survey, 16.2 percent of high school students in Vermont currently use a tobacco product (including e-cigarettes, cigarettes, cigars, and smokeless tobacco), with 16.1 percent reporting currently smoking e-cigarettes and 5.4 percent currently smoking cigarettes.¹⁴ Overall, reduced tobacco product usage can limit the range of adverse financial and health effects described above.

However, a retail ban on flavored cigarettes could negatively impact Vermont businesses, state tax revenue, and consumer choice for Vermont adults. Licensed cigarette and tobacco wholesalers would be impacted by a retail ban, in addition to many smaller retailers who are licensed to sell tobacco products. The Vermont Legislative Joint Fiscal Office predicts that the ban proposed in Bill S. 18 would result in a total revenue loss of between \$7.2 and \$13.5 million in fiscal year 2026, including a loss to the Education Fund of up to \$1.5 million.¹⁵ Furthermore, the rate of tobacco product usage in 2020 was 13.3 percent in Vermont and 15.5 percent nationally, so the potential costs of this ban must be weighed against the potential benefits for the public health and preventing youth nicotine addiction at the point of sale. This trade-off leads to our research questions: How would banning the sale of flavored tobacco products impact the health of Vermont citizens and the revenue of Vermont's government and local businesses? Would a ban have its intended effects of reducing tobacco usage (particularly among youth)?

3 PRELIMINARY ANALYSIS

3.1 Federal Policy Landscape

The federal government's first official action on tobacco products occurred in 1964, when the surgeon general published a report on the negative health consequences of smoking.¹⁶ In the following decades, federal smoking policy continued to focus on regulating information. Rather than enforcing firm restrictions on products, the federal government issued health advisories and regulated tobacco advertising. However, a major change came in 2009, when the Family Smoking Prevention and Tobacco Control Act granted the FDA regulatory authority over tobacco products.¹⁷ This act also banned the sale of flavored cigarettes but did not apply to menthol and e-cigarettes.¹⁸ In fact, the FDA did not have power to regulate e-cigarettes until it

issued a final rule in 2016 that gave it oversight authority over these newer tobacco products.¹⁹ Shortly after, another major policy change occurred when Congress amended the Federal Food, Drug, and Cosmetic Act in 2019, raising the federal minimum age for purchase of tobacco products from 18 to 21.²⁰

With its greater authority, the FDA has been more active in regulating tobacco products over recent years, but there still has been much fluctuation around policies being proposed and withdrawn. For example, in 2019, the EVALI outbreak, an acronym for e-cigarette or vaping product use-associated lung injury, garnered significant media attention for causing over 2800 hospitalizations and 68 deaths.²¹ Although the Trump Administration responded by announcing that the federal government would clear the market of all flavored e-cigarettes, the FDA released guidance in 2020 that enabled the majority of these products to stay on the market.²² Similarly, despite banning the popular e-cigarette Juul in 2022, the FDA placed the ban on hold just a few days later.²³ This means that Juul products can still be sold until the FDA makes a final decision. Overall, there is currently a gap between the stated policies of the federal government and the reality of the e-cigarette product market. Technically, the FDA banned all cartridge-based e-cigarette products in fruit flavors that typically appeal to younger customers, yet they remain readily available for sale.²⁴

Additionally, in October 2023, the FDA sent its final rules for a plan to ban menthol cigarettes to the White House Office of Management and Budget.²⁵ The FDA has been considering a menthol ban since it officially began researching the idea in 2013, but the momentum of the policy has fluctuated over the past decade. The FDA has also already missed its own published deadline of attempting to ban menthol cigarettes by August 2023.²⁶ Even now that an end appears near if the final rules are approved, tobacco companies are expected to slow down the implementation of the rules by challenging them in court.²⁷ Given that all of these developments are still in progress, the tobacco regulation landscape is currently evolving quickly at the federal level. It is unclear how heavily restrictions on unauthorized tobacco products will be enforced in the future. This leaves an opportunity for individual state legislatures to establish clear guidelines on tobacco products within their states.

3.2 State Policy Context

Currently, Vermont's tobacco policies are largely on par with other states but there are a few ways in which Vermont has imposed stricter rules. Vermont was one of the few states to raise the tobacco purchase age to 21 before it was federally required.²⁸ Additionally, Vermont's cigarette tax of \$3.08 per pack is higher than the national average of \$1.78 per pack.²⁹ Vermont also has a special tax for e-cigarettes of 92 percent; this is one of the highest rates in the nation and many states do not have any distinct tax for these products.³⁰ Finally, Vermont does not allow consumers to buy cigarettes, e-cigarettes, and other tobacco products online. Through these policies, it appears that Vermont may be seeking to position itself among the states that limit tobacco usage the most.³¹

With respect to flavored tobacco products specifically, there are multiple states that have imposed stricter rules than Vermont so far. Massachusetts and California have prohibited the sale of all flavored tobacco products. New York, New Jersey, and Rhode Island have banned all flavored e-cigarettes while Maryland and Utah have banned some flavored e-cigarettes.

Other states including Oregon, Hawaii, New Mexico, and Indiana have introduced legislation to ban flavored tobacco in 2023, so it appears that Vermont is not alone in potentially joining the trend of prohibiting these substances. Just as many changes are occurring at the

federal level, the coming years should bring new developments in tobacco regulation at the state level as well.³²

4 METHODOLOGY

To investigate the potential health and financial impacts of the proposed ban, we utilized mixed methods including case studies, student interviews, and expert interviews. In terms of health, we were interested in how tobacco usage rates would be affected, especially for youth. Given these projected changes, we investigated whether the illnesses linked to tobacco would be reduced. We provided estimates to quantify the benefits of these health impacts through cost-benefit analysis. On the other hand, the negative financial consequences included lost income for vendors as well as lost tax revenue for the state. By combining mixed methods, we gathered a mix of qualitative and quantitative data to inform legislators on key aspects of the flavored tobacco ban.

4.1 Case Studies

Case studies of states that have enacted similar legislation were a central part of our research. We investigated how these bans have impacted smoking rates, local tobacco product sales, and government tax revenues within the states. It was important to consider whether tobacco product sales changed in neighboring states or illicit markets, as we wanted to determine whether tobacco users would be drawn to these methods of purchase. Additionally, we provided context on the individual legislative histories of these policies.

The case studies traced the development and consequences of these policies on a state-by-state basis. They were largely qualitative summaries, but they also included secondary data that quantified the impacts of tobacco bans. The case studies follow this general form:

1. State-level context:
 - a. What led to the ban of flavored tobacco products in this state? We examined the stated motivations for the policies and consider how they may correspond to public opinion or demographic characteristics of the local populations.
 - b. How does this context compare to Vermont? We noted how this state's political environment, socioeconomic conditions, geographic location, and other factors compare to Vermont. The states that are similar to Vermont would be better sources for projecting what would happen if this policy was enacted in Vermont.
2. Health Impacts:
 - a. Did tobacco product usage change in this state after the ban? We broke this analysis down by groups of interest. For example, we were especially interested in whether young people stopped using tobacco products. We were also interested in how different ethnic groups compare. For instance, African-Americans are currently more likely to use menthol cigarettes, raising concerns about health equity.³³
 - b. Did the prevalence of tobacco-related illnesses or accidents change in this state? It is too early to tell with many long-term health conditions, but there were still some short-term conditions linked to tobacco use that we were able to examine.
 - c. Did usage of different tobacco products change relative to one another? If use of flavored tobacco products like e-cigarettes decreased but use of unflavored

cigarettes rose, it may reflect that an unintended consequence of switching from one tobacco product to another.

- d. Did flavored tobacco purchases increase in neighboring areas? Did illegal tobacco purchases increase? In the case where there is no data available on exactly how tobacco usage changed within the state, these methods of purchasing tobacco showed us whether people simply found new ways to use the same products.
3. Financial Impacts
 - a. How much revenue did local businesses lose? We examined how severe the negative impacts were for wholesalers that focus on tobacco products as well as shops like convenience stores that sell smaller quantities.
 - b. How much tax revenue was lost? We investigated how much state and local governments were affected by the reduction in tobacco tax revenue.

4.2 Student In-Depth Interviews

Conducting college student interviews enabled us to hear firsthand perspectives on how users of flavored tobacco products may be affected by the proposed legislation. Student interviews allowed us to gather qualitative information on how young adults think and behave that could not be found in broader statistics about the population. It is crucial to note that we were primarily interested in our interviewees' insight as young adults who could share about their recent high school experiences, not in their status as college students.

We were highly interested in leading discussions with young current users of flavored tobacco products. A desire to stop the youth vaping epidemic has been central to this legislation, so we need to understand whether banning flavored tobacco products will have this intended effect. We asked young tobacco users how they would respond to such legislation. We also asked about topics such as their likelihood of quitting, switching to unflavored tobacco products, finding other means of purchasing flavored tobacco, and their thoughts on other policy alternatives. These questions helped us develop an estimate for the potential reduction of youth vaping and understand where there may be specific gaps in the legislation.

To reach these individuals, we sampled current undergraduate students at Dartmouth College. Since it was logistically difficult to reach groups below age eighteen, we decided to recruit college students as they were a more accessible group with similar behaviors. Many of our interviewees had used flavored tobacco products when they were in high school, which was recent, and oftentimes during a period in which the products were banned. We believe that Dartmouth's location in Hanover, NH--on the border of Vermont and New Hampshire – provides a similar policy landscape to that of Vermont.

Eleven participants—six tobacco product users (“smokers”) and five non-tobacco users (“non-smokers”)—were recruited through snowball sampling. Upon sign-up, participants were informed that the goal was to hear their thoughts on legislation concerning a proposed ban on flavored tobacco products, and that their responses and experiences with tobacco usage would be kept confidential. Furthermore, by leveraging the unique student-to-student nature of the interviews, efforts were undertaken to reduce social desirability bias. All participants, whether they identified as current or former smokers or non-smokers, were asked the same set of questions. Smokers were asked an additional set of questions on their personal smoking habits and experiences.

We acknowledge that there are potential limitations of interviewing only Dartmouth students. One limitation is that Dartmouth students and their tobacco habits may not be representative of the general Vermont population. Most Dartmouth students are from outside New Hampshire or Vermont and many purchase their tobacco products in their home states. Although we recognize that we cannot generalize the interview results to the general Vermont population, we can still glean important insights into youth tobacco usage.

4.3 Expert Interviews

We conducted interviews that aided our understanding of the potential effects of a flavored tobacco ban in Vermont. To clarify conflicting findings in our case study on Massachusetts, we interviewed academic and government experts who have researched the Massachusetts ban. To learn more about the specific policy context of Vermont, we interviewed fiscal researchers to provide insight on the estimated impacts of Vermont's proposed ban. In particular, the Vermont Legislative Joint Fiscal Office, which is tasked with providing nonpartisan fiscal analysis for the Legislature, provided more insight into the costs of flavored tobacco usage and the potential loss in tax revenue, which was helpful in our cost-benefit analysis of the policy.

Conducting interviews with academic, public health, and fiscal policy experts who have researched the impacts of Massachusetts flavored tobacco policies, including taxation and the ban, helped us better understand which impacts may be generalizable to Vermont. There are conflicting studies on the cross-state effects of Massachusetts' ban on flavored e-cigarettes, so interviews with people who conducted research on the topic provided clarity in our case study research.

4.4 Cost-Benefit Analysis

Informed by our case studies, student interviews, and expert interviews, we sought out to estimate the costs and benefits of S. 18 to the extent that it is possible. We gathered existing literature on tobacco policies and healthcare costs and tried to adjust these estimates based on Vermont's context. Our cost analysis was divided into the costs to businesses and cost to the government in tax revenue. Our benefit analysis focused on the healthcare savings in the long term from a reduction in tobacco sales. For each category, we compared the effects of the bill, including a menthol ban. We assessed whether the ban would be considered cost effective from a cost per quality-adjusted life year (QALY) perspective depending on projected decreases in tobacco consumption. We decided to use cost per QALY because it is a standard healthcare measure, used commonly in academic research and in some countries' public health departments that weighs costs against benefits.³⁴ Finally, we outlined several policy alternatives to a complete ban.

5 CASE STUDIES

5.1 Massachusetts

As a nearby New England state with a similar scope of legislation, Massachusetts serves as a substantive comparison to Vermont. The following analysis of approximately four years of data investigates the statewide flavor ban's impacts on the public health, business activity, and government tax revenues of Massachusetts. Due to these legislative and geographic similarities, observed effects in Massachusetts may be comparable to what may happen under S. 18.

Enactment of Temporary E-Cigarette and Vaping Product Ban

On September 24, 2019, Governor Charlie Baker declared a statewide public health emergency in response to the youth e-cigarette use epidemic and multistate outbreaks of severe lung disease in adults and youth.³⁵ This disease was known as E-Cigarette, or Vaping Product, Use Associated Lung Injury (EVALI), since these outbreaks were all linked to a history of e-cigarette use.³⁶ At the time, the mysterious affliction resulted in 2,300 illnesses and 47 deaths.³⁷ The outbreak has been strongly linked to vitamin E acetate, a cutting agent in illegal marijuana vaping products, but investigations were ongoing.³⁸

In accordance with the Governor's emergency declaration and with the aim of protecting the public health of adult and young residents, in 2019, Massachusetts was the first state to fully ban the sale of all e-cigarettes and vaping products, prohibiting both flavored and non-flavored products.³⁹ This temporary ban was planned to last four months (September 24, 2019 – January 25, 2020), and affected the manufacture, distribution, and in-store and online sales of all electric nicotine delivery systems (ENDS products), except for medically prescribed marijuana products.⁴⁰ The executive order prohibited any seller of ENDS products in the US from selling online to Massachusetts consumers, but sellers located in Massachusetts were permitted to sell online to consumers in other states.⁴¹

The four-month ban was designed to give Massachusetts and other states time to investigate the specific cause of the EVALI illness.⁴² However, some public health experts feared that the temporary ban could inadvertently harm the health of nicotine-dependent people, saying that the ban could negatively affect adult smokers who were using e-cigarettes as a less harmful alternative to traditional cigarettes, or push dependent young people who could no longer access e-cigarettes to turn to conventional cigarettes.⁴³

The Department of Public Health required that all e-cigarette and vaping products be taken off the shelves immediately, but due to the ban's temporary nature, did not expect product to be destroyed.⁴⁴

Enactment of Permanent Flavor Ban

On November 27, 2019, House Bill No. 4196 codified a permanent flavor ban, including menthol.⁴⁵ This comprehensive ban prohibited the retail sale of flavored vapes and e-cigarettes beginning on December 11, 2019, when the state's Public Health Council (PHC) approved new regulations.⁴⁶ HB 4196 set forth the following requirements to take effect immediately: 1) Licensed retail stores are restricted to the sale of non-flavored nicotine products with a nicotine content of no more than 35 milligrams per milliliter, 2) The sale of such qualifying nicotine vaping products is restricted to licensed, adult-only retail tobacco stores and smoking bars, and 3) The

sale and consumption of all flavored nicotine vaping products may only occur within licensed smoking bars.⁴⁷

In contrast to current law, the temporary executive order prohibited all ENDS products, both flavored and non-flavored. With the PHC’s approval on December 11th, the Governor’s temporary ban on the sale of e-cigarettes and vape products in place since September ended.⁴⁸

Other rules from HB 4196 were set to take effect in June. Beginning June 1, 2020, the sale of flavored combustible cigarettes and other tobacco products, including menthol cigarettes and flavored chewing tobacco, would be restricted to licensed smoking bars to be sold only for on-site consumption.⁴⁹ Also taking effect on June 1st was the addition of a 75 percent excise tax on the wholesale price of e-cigarettes on top of the state’s 6.25 percent sales tax.⁵⁰

Changes in Tobacco Product Usage and Sales

Table 5.1.1: Massachusetts Youth Risk Behavior Survey (YRBS) Trends

Massachusetts Youth Risk Behavior Survey Trends						
	Pre-Ban Period – Prior to September 24, 2019					Post-Ban
The Percentage of High School Students Who:*	2011	2013	2015	2017	2019	2021
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.

Table 5.1.2: National YRBS Trends

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.

To understand the effect of the ban on young people's tobacco product usage, data from the Centers for Disease Control and Prevention's High School Youth Risk Behavior Survey (YRBS) was reviewed. The national survey is administered biannually, so Massachusetts data from 2011-2019 (before the ban) to 2021 (after the ban) is summarized in Table 5.1.1.⁵¹ The trends show a reduction of current youth vaping rates by about half and a reduction of daily youth vaping rates by more than half. The YRBS defines current usage of electronic vapor products as using a product “including e-cigarettes, vapes, vape pens, e-cigars, e-hookahs, hookah pens, and mods, such as JUUL, SMOK, Suorin, Vuse, and blu, on at least 1 day during the 30 days before the survey.”⁵²

As seen in Table 5.1.2, national trends displayed the same pattern of reducing current youth vaping rates by about half from 2019 to 2021. This finding suggests the influence of external factors other than the flavor ban that decreased youth vaping rates in Massachusetts, such as the impact of the COVID-19 pandemic. However, the decrease in daily youth vaping rates was more than half in Massachusetts, while nationally, the decrease in daily youth vaping rates was less than half. Updated results from the 2023 YRBS, 2025 YRBS, and onward will help determine whether youth vaping rates in Massachusetts diverge from national trends in the long term.

Previous research suggests that flavor bans can lead to decreases in youth use one to two years post implementation.⁵³ In a study comparing Massachusetts municipalities with and without flavored tobacco restrictions, one to two years after being implemented, municipalities with restrictions curbed increases in youth tobacco use.⁵⁴ In addition, students in adopting municipalities were less likely to report they knew someone who would buy tobacco and had reduced awareness of tobacco prices and brands.⁵⁵

Studies point toward a significant decrease in sales across all flavored tobacco products in Massachusetts as a result of the ban.⁵⁶ Massachusetts saw significant sales decreases of over 95 percent in most flavored e-cigarettes, menthol cigarettes, and flavored cigars, in addition to a decrease of 81 percent in sales of tobacco flavored e-cigarettes.⁵⁷ These results point toward the importance of comprehensive statewide tobacco flavor sales prohibitions, which appear more effective than partial restrictions and help avoid product substitution.⁵⁸ Furthermore, a study on

the effects of the 75 percent e-cigarette excise tax investigated whether the tax was consistent with past research that found that e-cigarettes and cigarettes are economic substitutes.⁵⁹ The study found that the excise tax did not significantly alter purchasing habits, although news of the EVALI outbreak and the ban did significantly alter e-cigarette purchasing in the Boston area.⁶⁰ Instead, the tax prompted more survey respondents to make trips “out of state for the primary purpose of purchasing e-cigarettes,”⁶¹

Changes in Tobacco-Related Illnesses

Due to its relatively recent implementation on June 1, 2020, there is limited research on the long-term health impacts of the Massachusetts flavor ban. One study evaluating the impact of the ban on consumers of flavored tobacco products and the resulting health inequities from the targeting of menthol products to Black Americans found that a slight majority of survey respondents believed the ban made it more difficult to access menthol products, and two-thirds of all respondents regardless of race reported accessing menthol products in another state.⁶² However, the study revealed increases in cessation rates, as one-third of respondents believed the law made it easier to quit, and one-third completely quit in the past year.⁶³

Changes in Cross-Border Sales

The February 2023 Annual Report of the Massachusetts’ Multi-Agency Illegal Tobacco Task Force identified the cross-border smuggling of untaxed flavored ENDS products, cigars, and menthol cigarettes as the “primary challenge for tobacco enforcement in the Commonwealth.”⁶⁴ The report notes routine noncompliance: “Inspectors and investigators are routinely encountering or seizing menthol cigarettes, originally purchased in surrounding states, and flavored ENDS products and cigars purchased from unlicensed distributors operating both within and outside the Commonwealth.”⁶⁵ However, the 2024 report notes that, during FY23, 94 percent of licensees inspected by the DOR fully complied with Massachusetts tobacco laws.

The 2023 report also references the “significant increase in tobacco revenue” in several neighboring states, including New Hampshire and Rhode Island, in the year after the adoption of HB 4196.⁶⁶ However, during FY22, approximately two years after the flavor ban, tobacco revenue decreases in neighboring states “could indicate the stabilization of the cross-border smuggling market.”⁶⁷ Based on trends in Massachusetts, it is possible that Vermont may also experience an initial increase and subsequent stabilization of cross-border sales.

Studies produce conflicting results as to whether flavored tobacco product purchases increased in neighboring areas. One study found that the law had no statistically significant impact on cross-border sales of menthol, non-flavored, and overall cigarettes in neighboring states, even after controlling for the COVID-19 pandemic, sociodemographic factors, and product prices.⁶⁸ Another study examining product sales in bordering states to assess whether Massachusetts residents traveled out of state to purchase tobacco products found that total sales in New Hampshire and New York decreased by 1.8 percent the year after the ban’s implementation.⁶⁹ However, small increases in sales were observed in Vermont and Rhode Island.⁷⁰ The study concluded that retailer compliance with the law in Massachusetts was high, and that surrounding states did not experience substantial increases in sales.⁷¹ Furthermore, another study employing spatial analysis found that total monthly cigarette sales declined in Massachusetts by approximately 2.45 million packs and increased in bordering states by approximately 0.13 million packs, for a net decrease of 2.32 million packs.⁷²

However, other studies found an increase in cross-border sales. One analysis on cross-border menthol cigarette sales following the flavor ban expanded the spatial analysis study's procedures to include all five of Massachusetts' bordering states.⁷³ This analysis found a net increase in sales of 7.21 million additional cigarette packs following the ban, in a 1.27 percent increase from the prior year.⁷⁴

Changes in Illicit Sales

The Tax Foundation reports that Massachusetts experienced a 6.6 percent increase in net inbound smuggling in 2020, with the flavor ban in place for only half the year.⁷⁵

According to the February 2023 Annual Report of the Massachusetts' Multi-Agency Illegal Tobacco Task Force, the first full year of tobacco seizure data in FY22 saw increases in seizures of certain untaxed tobacco products but a decline in smuggling activity involving Other Tobacco Products (OTP), particularly with smokeless tobacco, in alignment with the national trend in declining smokeless tobacco sales.⁷⁶ For example, between FY21 and FY22, the Task Force (the State Police and Department of Revenue's (DOR) seizures combined) seized 13,106 more packs of cigarettes and 362,942 more cigars, but 35,029 less ENDS products.⁷⁷

The Task Force's report also noted an increase in the DOR's tobacco inspections by around 43 percent and the Local Boards of Health's (LBOH) inspections by 121 percent since FY20.⁷⁸ However, these increased seizure activities resulted in a strain on the Task Force's storage capacity that prompted the lease of additional tobacco storage facilities for continued increased enforcement.⁷⁹ The Task Force's 2024 Report again notes that "DOR's storage capacity has not kept pace with the increase in seizures," and that these new storage facilities are expected to be operational in FY25.⁸⁰

The Task Force also documented criminal investigations against large-scale smugglers for violations of the tobacco tax laws, concluding in their 2023 Report that "despite these notable successes [trials of smugglers], the illegal tobacco market continues to operate, depriving the Commonwealth of millions of dollars in tobacco excise tax revenue."⁸¹

Effects on Local Retailers

Studies show that new local retailer license applications decreased as a result of the ban. One study that investigated the changes in retail licensure between the pre-ban and post-ban periods found that new licenses decreased by 52.9 percent because of the ban.⁸² These new retailers were more likely to be located in areas with a higher male and Hispanic population.⁸³

According to 2024 DOR records, there are currently 6,758 tobacco retailers and 146 tobacco distributors in Massachusetts, up from 6,372 tobacco retailers and 111 tobacco distributors in the 2023 report.^{84,85} During FY23, a strong majority, 94%, of licensees inspected by the DOR were fully compliant with the ban.⁸⁶

Effects on Massachusetts Tax Revenue

According to the February 2023 Annual Report of the Massachusetts' Multi-Agency Illegal Tobacco Task Force, cigarette excise tax collections in FY22 decreased \$6.7 million from the prior fiscal year, excluding sales tax.⁸⁷ The 2024 Report showed that cigarette tax collections in FY23 decreased \$25.2 million from the prior fiscal year.⁸⁸ These decreases are consistent with overall trends, as the percentage of adult Massachusetts smokers has declined as well as smokeless tobacco sales nationwide.⁸⁹ Beyond these trends, the Task Force considered additional possible explanations for a significant overall drop in tobacco excise tax revenue of 22.6 percent between FY20 [there is only one month of data available for ENDS excise tax revenue during FY 2020]

and FY22, as in addition to the gradual decrease in tobacco use in Massachusetts, suspected smuggling of untaxed tobacco products into Massachusetts may have also factored into the decline in revenue.⁹⁰

Regarding e-cigarette and vaping product taxes in relation to the 75 percent state excise tax, the 2024 Report notes: “After ENDS excise revenue initially increased \$3 million (22.5%) between FY21 and FY22, ENDS revenue in FY23 declined \$2.4 million (15%) from the prior fiscal year. The reason for the decline in ENDS revenue is not yet clear and will require further research.”⁹¹ The report continues: “State data indicates that the percentage of Massachusetts adults who currently use ENDS products remains unchanged (5.6%) between 2021 and 2022, but there is a 46 percent increase in monthly ENDS sales nationwide between 2020 and 2022. Another conflicting data point is that the number of youth (middle and high school) nationwide who currently use ENDS declined between 2022 and 2023.”⁹²

5.1.1 Summary

Even though Massachusetts’ flavored tobacco ban has now been in place for over three years, it is still too early to determine the long-term health and financial impacts of the policy. Thus, we cannot yet fully evaluate whether this ban has achieved its intended public health benefits such as reducing lung disease in the population of Massachusetts. However, studies point toward significant decreases in the sales of all flavored tobacco products, reductions in youth smoking rates (consistent with national trends) and increases in smoking cessation rates, and high retailer compliance following policy implementation in Massachusetts. Other studies found conflicting results on cross-border sales but show increases in illicit market activity, strains on enforcement capacity, an overall drop in tobacco and ENDS excise tax revenues, and decreases in licensure for local tobacco retailers.

5.2 California

California is another state that has chosen to ban flavored tobacco products. In August 2020, the California legislature passed Senate Bill 793, prohibiting the sale of flavored tobacco products except for those used in premium cigars, hookahs, or loose-leaf forms.⁹³ The prohibited products include flavored e-cigarettes, menthol cigarettes, flavored smokeless tobacco products, and other similar forms of tobacco.⁹⁴ However, the law did not come into effect immediately, as opponents of the ban (supported by significant funding from tobacco companies like RJ Reynolds and Phillip Morris) called for a referendum on the law. Their efforts failed, as California voters chose to uphold the flavored tobacco ban through the referendum. The law finally took effect on December 21st, 2022.⁹⁵ Despite previous failures, the tobacco industry has continued to attempt to repeal the law. In January 2024, the U.S. Supreme Court declined to hear R.J. Reynolds’ appeal regarding lower courts’ decisions to uphold the California ban.⁹⁶

Because the California law has been in effect for over a year, California’s data can inform Vermont’s deliberations on whether to follow California’s example. Although California differs from Vermont in many relevant ways--such as state demographics and proximity to other state borders--the following case study can still be a helpful illustration of the pros and cons of prohibiting flavored tobacco products statewide.

Revenue Impacts

Early numbers from California allow us to estimate how much revenue is no longer being collected by local businesses (and thus the state government through taxation) as a result of the flavored products ban. In the first month after the ban was implemented in 2023, cigarette sales dropped 17.3 percent in California.⁹⁷ Extrapolating this trend to the entire year, the Tax Foundation estimates that the state of California will forgo more than \$300 million in annual tax revenue compared to the recent past.⁹⁸ This statistic solely accounts for menthol cigarettes and other flavored cigarettes prohibited by the legislation – it does not capture the additional lost sales of e-cigarettes and other flavored products. This figure is small relative to the annual spending of California of around \$225.9 billion annually, representing 0.132802 percent of their annual spending.⁹⁹ However, the distribution of the loss in tax revenue may impact specific programs. The California Department of Tax and Fee Administration has not yet released total revenue numbers for 2023, but these early numbers indicate that the state’s tobacco tax revenue will be millions of dollars lower now that the ban is in place. The decline of this revenue source has already impacted social programs that are specifically funded by tobacco tax revenue. For instance, by 2026, the First 5 California programs – which support early childhood services – expect to receive almost 30 percent less from tobacco tax compared to 2021.¹⁰⁰

Health Impacts

Despite the negative effects of receiving less funding for social programs, this loss of tobacco tax revenue was an intended (and inevitable) consequence of the California ban. The legislation may still be viewed as an overall benefit if it achieves its aims of reducing tobacco consumption to promote the public health. After all, even if California loses revenue from tobacco sales, there are substantial financial benefits to having a healthier population that puts less strain on the healthcare system.

To assess the California ban’s effectiveness in this regard, we can turn to recent data on adult and youth tobacco use rates in the state. It is too soon after the enactment of the ban to determine how disease incidence may change, but we can already compare current usage of tobacco products to the rates of previous years. The most recent California Adult Tobacco Survey was published in early 2024 and draws on surveys conducted after the ban took effect in 2023.¹⁰¹ According to this survey, in 2023, 22.1 percent of Californians reported using any kind of tobacco product in the last 30 days. The most popular products were vapes (used by 14.4% of people) and cigarettes (used by 7.1% of people). This data does not reflect a decrease in tobacco use as compared to the California Adult Tobacco Survey of 2022.¹⁰² In 2022, 19.1 percent of Californians reported using any tobacco product in the past 30 days. Vapes (used by 11.8% of people) and cigarettes (6.6%) were the most popular tobacco products in 2022 as well. Although we do not have access to responses to the same questions in prior years, previous surveys did record overall levels of tobacco use. In 2019, 12 percent of Californian adults reported being current tobacco users.¹⁰³ In 2016, 15 percent of adults used cigarettes in the past 30 days while 6 percent used e-cigarettes.

The data above does not indicate that tobacco use dropped substantially in 2023 after the ban was implemented. It is too early to definitively describe the long-term trends in tobacco use post-ban, but if anything, it appears that overall tobacco use may now be higher in California than it was in recent years.

Nevertheless, the California legislators who enacted this ban were most focused on minimizing tobacco use among youths, not the population as a whole. Thus, it will be important for researchers to investigate the trends affecting younger Californians once age-specific information on tobacco use is available for 2023. The 2022 California Youth Tobacco Survey states that 20.3 percent of California high school respondents had ever used any tobacco product while 6.6 percent used tobacco in the past 30 days.¹⁰⁴ Vapes were most popular for them, as 5.6 percent of high school students reported currently using vapes while 1.2 percent were current cigarette smokers. If the ban works as intended, it should become much more difficult for them to get the vapes that stand as their primary methods for using tobacco.

Unintended Consequences

The impacts (or potential future impacts) outlined above represent the more obvious costs and benefits of a tobacco ban. The California legislators recognized that their goals would require tradeoffs: to stop people from using tobacco (and suffering the medical consequences), the state would need to sacrifice significant tax revenue. However, in addition to these financial and health-related effects of the ban, it is also worth outlining some of the unexpected aspects of the way the California ban has played out. Due to factors such as loopholes within the legislation, the effects of this ban have been more varied than the simple cost-benefit calculation described above.

First, one notable characteristic of the California tobacco legislation is that the state does not ban online sales of flavored tobacco products. Consequently, Californians can go online and easily order many of the same products that no longer can be bought in retail stores. In some cases, they can even order tobacco products without any proof of their identity as long as they claim to be 21.¹⁰⁵ Many Californians appear to have noticed the convenience of getting banned products online, as the number of internet searches for both cigarettes and e-cigarettes in 2023 was over 160 percent higher than it was in past years.¹⁰⁶

California also has had to deal with many tobacco products being transported into the state from across state lines. It has the second highest smuggling rate in the country as well as plenty of legal cross-border transport of these products – for example, in 2020, 47 million packs of cigarettes consumed in California were either smuggled across the border or purchased in another state.¹⁰⁷ This high rate is likely due to the large border area that California shares with other states and Mexico. Although this trend was not a new result of the ban, this flow of products certainly would render a ban on in-state purchases less effective.

Finally, recent reporting has argued that enforcement of the ban in retail stores has been relatively weak.¹⁰⁸ When investigative reporters traveled to different stores and requested flavored tobacco products, most store owners were willing to sell these illegal products and claimed that the state had not sent them information about the new rules. Enforcement of the ban was largely left to local police departments who did not have the capacity for these responsibilities given that they also had other priorities.

5.2.1 Summary

Overall, at this stage, it does not seem that California has experienced major benefits from its ban on flavored tobacco products. The state has foregone millions of dollars of tax revenue without seeing evidence that people are using tobacco less frequently, though this loss in tax revenue is not enormous relative to the state's total tax revenue. Factors such as online

shopping, the cross-border flow of tobacco products, and weak enforcement mechanisms indicate that the ban has not been implemented as effectively as possible. Nevertheless, it is essential that researchers continue to analyze new data, specifically about youth tobacco consumption, to gain a more accurate picture of the long-term trends that may emerge.

5.3 New York, New Jersey, Rhode Island

New York, New Jersey, and Rhode Island are states on the East Coast that have enacted tobacco legislation similar to Bill S 18 and present potential for comparison to Vermont. These three states are notable in that they have banned flavored e-cigarettes but not flavored cigarettes. It's worth considering each state's banning of flavored tobacco products in the context of other legislation involving tobacco products, such as cigarette and e-cigarette taxation, to provide additional context in examining policy outcomes.

State-Level Context

New York state implemented several important pieces of tobacco legislation around 2020.¹⁰⁹ Some of this legislation involves a flavored tobacco product ban while other pieces have tobacco policy that may confound results from that time period, or suggest policies that may accompany a ban in Vermont. In December of 2019, New York began requiring anyone selling vapor products to receive registration from the Department of Taxation and Finance, as tobacco retailers had to do before. In May 2020, New York banned the sale of all flavored tobacco products other than tobacco or menthol flavored cigarettes: "According to this law, retailers may only sell tobacco products that are unflavored or are tobacco, menthol, mint or wintergreen flavored. Also, retailers may only sell e-cigarettes, e-liquids or liquid nicotine that are tobacco flavored or unflavored."¹¹⁰ This law separates e-cigarettes from other tobacco products. Also in May, New York banned pharmacies from selling tobacco products. In July, New York banned any discounts on tobacco and vapor products, as well as the public display of tobacco product advertisements near schools. Finally, in July, New York also increased the penalties for illegally selling tobacco to underage purchasers. New York's tax on tobacco products includes a 20 percent supplemental sales tax is imposed on retail sales of vapor products and 75 percent of the wholesale price on cigars and tobacco products.^{111,112} As of September 2023, New York had the highest state cigarette tax in the country, but their tax on vapor products is on the lower end.

New Jersey was the first state in the US to impose a permanent ban on flavored vapor products.¹¹³ In January of 2020, the state banned the sale and distribution of smoke or vapor products with "characterizing flavor[s]", which includes all flavors other than menthol/mint. At the same time, New Jersey banned price rebates, coupons, and price reductions on tobacco products.¹¹⁴

In October 2019, Rhode Island issued an emergency health regulation, banning the sale of flavored e-cigarettes in the midst of an "epidemic" of youth vaping.¹¹⁵ This ban did not include other flavored tobacco products, such as menthol cigarettes. Before the ban expired, the Rhode Island Department of Health submitted non-emergency regulations that made this ban permanent.¹¹⁶ Rhode Island also neighbors Connecticut, which has not enacted a flavor ban yet, making it similar to Vermont in the sense that it is a border state where residents can cross to still purchase banned tobacco products.¹¹⁷ Rhode Island, unlike other states that have banned flavored tobacco products, does not have an additional sales tax on e-cigarettes, while its tax on cigarettes is one of the highest in the nation at \$4.25 per 20 pack.^{118,119}

The three states are similar in that they all enacted bans on flavored e-cigarettes around the end of 2019 or beginning of 2020 but differ in their taxes on e-cigarettes and other tobacco products.

Changes in Tobacco Product Usage and Sales

The biannual Youth Risk Behavior Survey data on electronic vapor product use provides a way to compare the effects of state bans on flavored tobacco products with national trends. At the national level and in states with and without flavor bans, cigarette usage decreased from 2011 to 2021, and e-cigarette usage fluctuated since data started being collected in 2015. The following 3 tables display the year-by-year changes in tobacco use in Rhode Island, New Jersey, and New York. After these 3 tables, the next 2 tables compare these results to trends in Massachusetts, Vermont, and the entire U.S.

Table 5.3.1: Rhode Island YRBS Trends

Rhode Island Youth Risk Behavior Survey Trends						
	Pre-Ban Period – Prior to October, 2019					Post-Ban
The Percentage of High School Students Who:*	2011	2013	2015	2017	2019	2021
Currently smoked cigarettes	11.4	8.0	4.8	6.1	4.2	3.0
Currently smoked cigarettes daily	3.2	2.3	1.1	1.2	1.6	1.1
Currently used electronic vapor products†	-	-	19.3	20.1	30.1	17.8
Currently used electronic vapor products daily†	-	-	1.7	2.7	7.3	4.6

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

Table 5.3.2: New Jersey YRBS Trends

New Jersey Youth Risk Behavior Survey Trends						
	Pre-Ban Period – Prior to January, 2020					Post-Ban
The Percentage of High School Students Who:*	2011	2013	2015	2017	2019	2021
Currently smoked cigarettes	16.1	12.9	--	--	3.8	3.7
Currently smoked cigarettes daily	3.8	3.6	--	--	0.7	0.6
Currently used electronic vapor products†	-	-	--	--	27.6	21.6
Currently used electronic vapor products daily†	-	-	--	--	3.7	4.5

*Modified from complete wording of YRBS questions.

†Variable introduced in 2015.

Table 5.3.3: New York YRBS Trends

New York Youth Risk Behavior Survey Trends						
	Pre-Ban Period – Prior to December, 2019					Post-Ban
The Percentage of High School Students Who:*	2011	2013	2015	2017	2019	2021
Currently smoked cigarettes	12.5	10.6	8.8	5.5	4.2	5.0
Currently smoked cigarettes daily	4.5	3.8	1.8	0.7	0.6	0.7
Currently used electronic vapor products†	-	-	21.7	14.5	22.4	15.7
Currently used electronic vapor products daily†	-	-	2.8	1.5	4.6	2.7

*Modified from complete wording of YRBS questions.

†Variable introduced in 2015.

Table 5.3.4: YRBS Trends: Currently Used Electronic Vapor Products

Youth Risk Behavior Survey Trends: 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

Table 5.3.5: YRBS Trends: Currently Used Electronic Vapor Products Daily

Youth Risk Behavior Survey Trends: Current Daily Electronic Vapor Product Use

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

Following the flavor ban, e-cigarette sales in New York state decreased, with the exception of tobacco flavored e-cigarettes, which increased by 83.4 percent.¹²⁰ Legal sales data showed that the rise in tobacco flavored e-cigarettes did not completely replace the sales of other flavors, nor was there any increase in cigarette sales, meaning the policy may have reduced overall tobacco usage.¹²¹ New York saw a significant increase in the sales of disposable e-cigarette usage, which pose higher health risks than other e-cigarettes.¹²²

Legal sales data may not accurately represent tobacco usage as many tobacco users purchase their products from illegal sources. Following New York's flavored tobacco ban, while

overall e-cigarette usage amongst youth decreased significantly from 20 percent to 11 percent, “over 95 percent of vapers still reported using a non-tobacco-flavored e-cigarette following the restriction.”¹²³ This indicates that New York’s enforcement of the ban has not been effective and hence has not had its intended policy outcome of reducing youth e-cigarette usage.

New York convenience stores stand in opposition to a further ban on menthol cigarettes. New York Association of Convenience Stores President Kent Sopris stated in a news article that tobacco makes up one-third of a convenience store’s business.¹²⁴

Following their ban on flavored e-cigarettes, New Jersey experienced a statistically significant decline of 83.8 percent in menthol flavored e-cigarette sales but a 380.6 percent increase in flavored cigar sales.¹²⁵ This result indicates that flavored e-cigarette users switched from e-cigarettes to flavored cigars, which is an undesired consequence of the legislation.

The results of the 2019 and 2021 Rhode Island Youth Risk Behavior Survey showed a significant decrease in the number of e-cigarette users, from 30 percent to 18 percent, following the ban.¹²⁶ Rhode Island also saw a decrease in youth cigarette usage, from 4.2 percent to 3 percent, as shown in Table 5.3.1. Similarly, New Jersey saw a decrease in current e-cigarette users in their Youth Risk Behavior Survey from 27.6 percent in 2019 to 21.6 percent, and a slight decrease in cigarette usage from 3.8 percent to 3.7 percent.¹²⁷ In the same period, New York’s regular e-cigarette user percentage decreased from 22.4 percent to 15.7 percent, while cigarette usage increased from 4.2 percent to 5 percent.¹²⁸ However, electronic e-cigarette usage amongst youth also decreased both in Vermont, which did not enact a ban, and nationally, over the same time period, as shown in Table 5.3.4. Similarly, as shown in Table 5.3.5, all states examined except New Jersey and the country as a whole saw declines in daily e-cigarette usage from 2019 to 2021. This indicates that the decrease in youth e-cigarette usage may not be completely attributable to the bans and may be explained by other factors.

An analysis of the flavor bans in Washington (which had a temporary flavor ban from late 2019 to early 2020), New Jersey, and New York found that after their flavor bans, 8.1 percent of survey respondents—¹²⁹ The percentage of respondents who used banned flavors declined from 74.4 percent before the ban to 50.8 percent, which, while a decrease, still indicates that the majority of flavored tobacco users may continue using banned products. Low retailer compliance with the bans meant that, of those using banned flavors, 45.1 percent purchased them from an in-state store.

Changes in Cross-Border Sales

The tri-state analysis of Washington, New Jersey, and New York found that of those who continued using banned tobacco products, 31.2 percent of them obtained them from out of state stores. Rhode Island borders Massachusetts and Connecticut, of which Massachusetts has a ban on flavored tobacco products and Connecticut does not. After Rhode Island’s ban on flavored e-cigarettes, non-border counties in Connecticut experienced a decrease in e-cigarette sales while bordering counties experienced a 39 percent increase in menthol e-cigarette sales and an 18 percent increase in other flavors.¹³⁰

5.3.1 Summary

The partial flavor bans in New York, New Jersey, and Rhode Island appeared to significantly increase border county purchases of banned products and in-state purchases of traditional cigarettes. The overall effects of these policies on actual tobacco usage are unclear given

it is difficult to represent with sales data. While youth e-cigarette usage did decline in most states that enacted bans, that result was also seen in states that did not enact any new policy over the same time period. These examples of partial bans can inform Vermont in anticipating the impact of S. 18 if the menthol cigarette ban is not enacted, and would likely predict the impacts in the first six months of the ban when only e-cigarette sales would be impacted.

6 STUDENT INTERVIEW FINDINGS

6.1 Perspectives of Tobacco Product Users

Six tobacco product users (hereafter referred to as “smokers,” although the term is meant to encompass all non-smoke tobacco products as well) were interviewed. Smokers generally fell into three categories: former smokers, current but infrequent smokers, and current and frequent smokers. New smokers and long-term smokers exhibited differences in their responses.

Current Tobacco Usage and Motivations

Across all interviews with smokers, respondents preferred e-cigarettes above other tobacco products. Specifically, flavored e-cigarettes were their product of choice, with traditional cigarettes in second place. Half of the smokers preferred menthol-flavored e-cigarettes and traditional cigarettes, with fruit flavors as the next most popular flavor option. However, new and infrequent smokers were more likely to have no specific flavor preference and report being satisfied using whatever was available.

Some of the current users began in high school, while others began in college. Most respondents said they grew up in a non-smoking household. For those who started in college, some reported having little to no direct exposure to smokers in high school. When they then became exposed to increased usage in college, especially during parties, it was easier to access products and begin smoking.

However, those who smoked frequently were more likely to have started smoking in high school. Frequent smokers recalled noticing many people in their high school using tobacco products during breaks and in the bathrooms. Their usage habits then stayed the same or increased from high school to college, when during college, some users recalled making smoking into a habit due to increased stress.

When asked what their reasons were for starting to use tobacco products, responses again differed between those who had started smoking in high school and in college. For those who began in high school, curiosity was a common factor. One former user, who began smoking in high school and currently used flavored vapes every day, said they started out of curiosity and interest because it “seemed fun.” Another current user said they started in high school because they wanted to learn “vape tricks.” Most respondents who began in college cited infrequent use during social occasions. One new user recalled sharing vapes with other people during parties to try to prolong the high of drinking, which led to them wanting a product of their own.

The social circles of respondents generally reflected their own tobacco product usage habits. A majority of current users reported that many of their friends also smoked and preferred flavored vapes; one said menthol was a common favorite. Newer users were more likely to share

that most of their college friends did not use tobacco products regularly, and if they did, it would usually happen during a weekend party where they would share vapes.

Obtaining Tobacco Products

Many smokers said they purchased e-cigarettes from their friends. Peer networks thus comprised the most common mode to access tobacco products for those under 21. Some of these sources were secondary, so these sources would in turn buy their own products from other sources who bought in bulk. Some users reported being the source themselves, having purchased in bulk for their friends from a nearby convenience store in their home state and then bringing the products to campus.

Most respondents said their friends bought tobacco products from nearby shops in Vermont. If they wanted to buy products themselves, some respondents possessed fake identifications and said they would know how to purchase from stores themselves. Some smokers highlighted the importance of knowing whether a smoke shop was lenient with identification or did not ask for verification and was therefore safe to purchase from.

If nearby stores could no longer sell tobacco products due to a retail ban, many smokers said they would just try to continue purchasing products illegally or order products online. However, many users did not want to travel further than surrounding towns to obtain products. Most current users, both new and frequent, were not willing to go out of the state to purchase flavored tobacco products in the hypothetical presence of a ban, despite the relative ease of crossing the NH-VT border into White River Junction.

Perceptions of Tobacco Product Health Risks

All current users believed that vaping is less harmful than smoking traditional cigarettes. Many frequent users were concerned that smoking would impact their health, regarding noticeable effects on their shortness of breath, athletic abilities, or their voice. Other users reported not considering the health risks of tobacco too much.

Policy Effects of a Flavor Ban

When asked what they thought of a flavor ban in their home state, many users had mixed thoughts. They felt simultaneously that smoking would be reduced, and that people would find alternative ways to access products “no matter what.” Some users said they were already purchasing products illegally, so they would not be directly affected by a ban. They would try to “figure out a way” or simply continue purchasing from other students. However, it is important to consider whether their peer supply chain might be affected, since many respondents said their friends purchased from stores in Vermont.

When asked what they thought of a flavor ban specifically in Vermont, many respondents could understand the intent of the ban but were skeptical of its implementation. One common concern was personal choice. Some users felt it was a personal, not the government’s, decision to restrict access to tobacco products, even if that choice had negative consequences. Another concern was the welfare of those reliant on vaping products as a way to quit traditional cigarettes.

Current users expressed differing opinions on whether an increased tax on tobacco products would influence their personal smoking habits. Some thought an increased tax would probably not affect their usage and they would “probably pay no matter what,” while others said it could decrease their usage if the tax was raised to a high enough threshold. As a policy alternative, some users preferred an increased tax over a ban. One respondent said, if increased, the tax revenue

should go toward a useful purpose, such as paying for public health education programs or resources for quitting. In contrast, some users who bought from friends said their friends' prices were higher already, so in their mind, they were already paying a premium and would not mind having to pay a little more. By purchasing from others, they also did not feel that they were paying the tax directly.

When asked what they thought of raising the tax on flavored tobacco products in Vermont in lieu of a ban, current users also expressed ambivalence. Users thought the tax could help people quit by disincentivizing purchases, but also were concerned over whether raising the tax could incentivize people to buy flavored tobacco products through illegal means. Another concern was how an increased tax could disproportionately affect low-income users.

Many smokers thought that a ban on flavored tobacco products would produce mixed messaging in contrast to the increasing legalization of cannabis. Many felt that the ban was extreme and would be “counterintuitive” or progress “backwards” with the current trends of decriminalization of different drugs. Some felt it conflicted with the notion of personal choice that increasing cannabis legalization seemed to recognize. Some were skeptical of bans as policy options in general, with two users drawing a parallel with the Prohibition era.

As a policy alternative, one user referenced the 2 percent nicotine concentration regulation in the European Union's Tobacco Products Directive that went into effect in 2016.¹³¹ They believed that the legal option to buy things would always be the easiest, so under an enforced 2 percent nicotine concentration rule, they believed that most users would purchase legal products and that the concentration limit would make it easier for smokers to quit.

6.2 Perspectives of Non-Tobacco Users

Five non-tobacco users (“non-smokers”) were interviewed. Non-smokers were defined as those who had never smoked and those who smoked once or twice in the past, but not habitually. Non-smokers were asked about their motivations for not using tobacco, their perceptions of the risks of tobacco usage, and how these ideas may translate into policy effects of a flavor ban.

Motivations for Not Using Tobacco

Non-smokers commonly referenced concerns about health risks and addiction when asked what went into their decisions to abstain from using tobacco products.

Some non-smokers had little exposure to smoking in high school, while others observed a widespread use of vaping products even during class. Some said that vaping was viewed as a status symbol in high school, or a “romanticized” way to show off smoke tricks. Some respondents said that vaping and cannabis were both quite popular in their high school. One respondent felt that their high school was too lenient with those who got caught with vapes, where teachers would only confiscate the product or issue a warning to the student.

All non-smokers acknowledged the increased ease of access to tobacco products and other drugs in college. However, citing their original motivations for abstaining from tobacco products, respondents continued not to partake.

Non-tobacco users' social circles generally reflected the choice of respondents themselves, like frequent smokers. A slight majority reported that most of their friends did not smoke. For others, most reported their friends vaping only in social situations. One respondent said they observed a friend purchasing e-cigarettes in bulk from nearby smoke shops in Vermont. Another respondent said their home state friends all vaped, but not their college friends.

Perceptions of Tobacco Product Health Risks

Perceived health risks comprised respondents' top motivation to not smoke. One user recalled the imagery of tobacco education campaigns, such as *The Real Cost*, as being especially impactful on their awareness of the health risks of tobacco products.

Policy Effects of a Flavor Ban

Half of the non-smokers were in favor of a flavor ban, while the other half were not. Supporters of the ban referenced targeted advertising efforts of flavored tobacco products toward youth, as well as the belief that the public health benefits of the ban would extend to everyone, from preventing addiction to improving overall productivity.

When asked what they thought of a flavor ban in their home state or Vermont, some respondents said they would support the ban because it would increase barriers to access and therefore disincentivize purchases. Others thought the ban was a good idea for public health in theory but were worried about the negative consequences of enforcement and economic effects on businesses. Common concerns included illicit markets and government intervention. One respondent said the ban would give more power to authorities and institutions to punish and incriminate, especially targeting groups at risk and reinforcing systemic issues. These racial equity issues are especially pertinent to menthol cigarettes. Another respondent suggested improved education programs in health classes and other ways to improve youth understanding of tobacco health risks in lieu of a ban.

Non-smokers generally did not approve of increased taxation as a policy alternative to a flavor ban. One user felt that increased taxation would hurt those who are already addicted. Another user who supported increased taxation said it could collect revenue that could be put toward improving education programs, although they preferred a comprehensive ban overall.

Not as many non-smokers as smokers thought that a ban on flavored tobacco products would produce mixed messaging with the increasing legalization of cannabis. More non-smokers than smokers drew distinctions between cannabis and vaping, as they felt that the health effects and racial and age demographics of users were not the same. Respondents also compared the medical purposes of cannabis with the negative health consequences of smoking, although e-cigarettes can also be used as an alternative to traditional cigarettes.

6.3 Commonalities Between Tobacco Product Users and Non-Users

The eleven respondents were generally skeptical about a ban on the retail sale of flavored tobacco products in Vermont. However, new smokers said they would be more likely to be encouraged by a flavor ban to quit smoking. This could be significant for the ban's effect on youth smoking because many frequent current smokers began in high school.

Although many respondents acknowledged that the ban could help some smokers quit, they felt that others would continue to obtain products through illegal means. On the contrary, regarding cross-border sales, many smokers were not willing to travel further than neighboring towns to purchase products themselves. The five themes below provide further conclusions.

Theme #1: Illicit Markets

When asked what they thought of a statewide ban on the sale of flavored tobacco products, many respondents considered that people would find an alternative way to purchase products

through illegal means or cross-border sales or said that they themselves would purchase from an illicit market. Some respondents believed a ban or an increased tax would encourage more people to switch over to illicit products, believing that legal products on the market should be safer because they are regulated. According to one respondent, states might as well make it safer and more regulated because people will “always find a way.”

Theme #2: Cross-Border Sales

Many current smokers obtained tobacco products from their friends, who typically bought from nearby stores in Vermont. Under a statewide ban, some respondents said they would continue to buy from their home state and bring products to campus. Other respondents said going out of the state to obtain products was too high of a burden to undertake themselves but thought that most other people would try to go out of state to circumvent a ban, creating a paradox between perceived and actual willpower for out-of-state sales, but not for illicit markets.

Theme #3: Repeated and Unsuccessful Attempts at Quitting

Many current and frequent smokers had tried multiple times to quit but were unsuccessful. Of these smokers, some tried nicotine replacement products, such as nicotine patches or gum, but did not find them effective. One user tried to quit cold turkey unsuccessfully. Another current user had tried quitting several times, but the withdrawal effects were too severe. One current user realized that their occasional smoking habit in social settings from high school had become an addiction in college. Since then, they began trying to quit on and off again unsuccessfully. They tried other nicotine products, such as nicotine gum, but found that they were equally as difficult to access as cigarettes. They concluded that this burden was not worth it simply to obtain nicotine gum and are still trying to quit smoking.

In contrast, most new smokers felt like they were in control of their usage. They said they were trying not to become frequent users by limiting their usage to social settings. These new users felt it would not be too difficult to quit if they felt they were using it alone or sober, or if vaping was affecting their mental state. They also planned to quit after college. It is notable that some of the current smokers' habits started out this way too.

One former smoker successfully quit in college. Their motivations for quitting included the cost and health effects of vaping every day that they felt negatively affected their athletic performance.

Theme #4: High School Vaping Exposure

Interviewees came from a variety of states and public and private high schools of varying sizes, demographic compositions, and resources. Most non-smokers and smokers indicated that their first exposure to e-cigarette use occurred in high school or as early as middle school, seen in staircases and classrooms or during breaks in bathrooms. According to most narratives, high school bathrooms were an especially common place where smoking would occur. Respondents from more privileged high schools generally experienced less exposure to smoking.

Some respondents exposed to vaping in high school reported knowing who sold the products and keeping this information private. One current smoker was the source themselves in high school, having bought tobacco products and sold them to other students.

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

When asked whether they would switch to unflavored tobacco products in the presence of a flavor ban, most current smokers said they would turn to illicit markets to continue smoking flavored e-cigarettes as opposed to using unflavored e-cigarettes. Flavored vapes thus appeared as a necessity, as all smokers would not want to switch to unflavored vapes. Under a ban, respondents who already smoked unflavored cigarettes said they would simply continue using those products and stop vaping if they could not get flavored vapes. One user said they would rather smoke regular cigarettes than switch to unflavored e-cigarettes.

Menthol and fruit flavors were the most popular flavors among respondents. According to one smoker, flavors made smoking “much more palatable.”

6.4 Summary

Qualitative data analysis of interview findings revealed five overarching themes. These themes included (1) willingness to purchase from illicit markets after a flavor ban, (2) concern over cross-border sales but less willingness to travel for products after a flavor ban, (3) repeated unsuccessful attempts by smokers at quitting vaping, (4) widespread exposure to e-cigarette use in high school, and (5) a strong preference for flavors, especially flavored e-cigarettes, where a flavor ban would most likely incentivize purchasing flavored products from illicit markets but not result in product substitution with traditional cigarettes.

7 COST BENEFIT ANALYSIS

The potential impact of banning flavored tobacco products comes down to a trade-off between Vermont’s finances and the health of its citizens. In order to predict the costs and benefits of Bill S. 18, we must first examine its expected impact on two variables:

- I. Impact on legal, in-state tobacco purchases
- II. Impact on tobacco use generally

The first variable will almost certainly decrease from the ban and will impact Vermont state tax revenue and business revenue. The second component may or may not decrease substantially, and may affect the healthcare outcomes of the Vermont tobacco-using population. Both of these variables partially depend on the extent to which flavored tobacco products and unflavored products are considered substitutes. Estimates will include multiple scenarios for a ban that includes menthol cigarettes and one that does not.

7.1 Impact on Business and Tax Revenue

We seek to understand the projected revenue losses for businesses and the government. In order to estimate the projected revenue losses, we must estimate the expected decrease in legal, in-state purchases that would lead to lost revenue to businesses and the state of Vermont.

Reduction in Legal, In-State Tobacco Purchases

This category of tobacco purchases encompasses all tobacco products that are currently being sold in Vermont businesses as tobacco products. This is an important differentiation to make

as we heard in our interviews that some smoke shops sell tobacco products under other categories to be exempt from the taxation and restrictions that come along with selling tobacco products.

Additionally, tobacco users who travel out of state to purchase their tobacco will result in lost revenue to Vermont businesses and the state government. The Massachusetts and Rhode Island case studies showed meaningful increases in out of state purchases of tobacco following their flavor bans as they both bordered states without such bans. We anticipate a similar result for Vermont, given that they are also in close proximity to New Hampshire, that has not enacted such a ban, and New York, that has relatively lax enforcement of their ban. In 2021, Vermont reportedly lost around \$2 million in tax revenue from smuggled cigarettes, likely due to people purchasing them in New Hampshire with a lower tax rate and potentially reselling them in Vermont.¹³² If people are already willing and able to travel out of state to purchase tobacco products at a lower rate, they might also be willing and able to travel out of state if their preferred products were to be banned.

Legal sales of flavored tobacco products would certainly decrease under this ban, as they would no longer be legally permissible. Some of the sales may be replaced by the legal purchasing of tobacco flavored or unflavored nicotine products, though it is unlikely they would totally replace the flavored sales, based on results from the New York ban. If the ban does not include menthol cigarettes, the reduction in these purchases will be significantly lower than if it does.

Tax Revenue and Fiscal Note

The Vermont Joint Fiscal Office's fiscal note attached to Bill S. 18 was revised in February, with its initial estimate of the bill's fiscal impact increasing by up to 244 percent since the original report. The fiscal note assumes that the menthol cigarette ban will be enacted, which is not a guarantee.

According to the Tax Foundation's March 2023 estimates, Vermont Senate Bill 18 would result in an annual revenue loss of \$15.6-19.8 million in the first full year following the ban, a 250-350 percent increase of the original Fiscal Note's estimate of \$5.6 million.¹³³ The Tax Foundation based its calculations for Vermont on the known effects of the Massachusetts flavor ban, particularly its menthol cigarette market. Prior to the ban, menthol cigarettes made up approximately a third of the market in Massachusetts, and after the ban, sales fell by 27.4 percent.¹³⁴ Of this decrease in menthol product sales, three quarters of menthol purchases "disappeared" from state sales, while the other quarter switched to nonflavored products.¹³⁵ In comparison, Vermont has only half the menthol cigarette market of Massachusetts. In 2022, Vermont menthol sales made up about 18 percent of market sales, so proportionately to Massachusetts, sales in Vermont are estimated to fall by 13.7 percent after a full year of a ban, which would decrease excise tax collections by \$8.0 million and sales tax collections by \$1.4 million through a decrease in menthol cigarettes alone.¹³⁶ Banning e-cigarettes and vaping products, part of the other tobacco products (OTP) classification, would result in an additional decrease of \$5.3 million in revenue and \$0.9 million in sales taxes in Vermont, summing with menthol cigarettes to the figure of \$15.6 million.¹³⁷

Citing an already small menthol cigarette market and high excise taxes, the Tax Foundation suggests that Vermont can expect this revenue loss of \$15.6 million even before considering cross-border sales in neighboring New York and New Hampshire and smuggling in illicit markets.¹³⁸ In

2021, Vermont saw the first increase in cigarette sales in over a decade of about one million packs, which the Tax Foundation inferred to be attributed to an inflow of menthol smokers from neighboring Massachusetts under the flavor ban.¹³⁹ With cross-border sales, inbound smuggling is estimated to decrease revenues by \$2.7 million and sales tax by \$0.5 million to a total flavor ban cost in Vermont of \$19.8 million.¹⁴⁰ Therefore, research suggests that not only would a flavor ban in Vermont send the state's consumers to neighboring states, but it would also remove tax revenue from Massachusetts menthol shoppers in Vermont too.¹⁴¹

Given the tax rates of 92 percent for e-cigarettes and \$3.08 per pack for cigarettes, the tax revenue collected from these products is significant. According to the JFO's estimate, between \$7.2 and \$13.5 million in tax revenue would be lost in the full fiscal year of 2026, the first year with the menthol cigarette ban included.¹⁴² In fiscal year 2025, which only reflects six months lost revenue of flavored e-cigarettes and none from menthol cigarettes, the JFO estimates \$1.2 million in lost revenue. From this figure, we can extrapolate that they estimate the annual losses in e-cigarette revenue from the bill to be around \$2.4 million a year, with the rest coming from menthol cigarettes.

The JFO reached their estimate by starting with the total tax revenue derived from all cigarettes and other tobacco products. They then modified those numbers by estimating what percentage of these categories come from the potentially banned products as well as the rates at which users would quit altogether. The JFO noted that based on the Massachusetts and California policy outcomes, their original estimate had to be increased.

Since the JFO mentioned that these factors are highly unpredictable, these estimates are debatable. Regardless of differences in exact calculations, there would likely be tax revenue losses of millions of dollars, possibly forcing legislators to make a choice between cutting funding for other programs or raising taxes. That being said, when interviewed, the JFO did not raise major concerns about how the loss in revenue would impact either the education fund or the general fund.

Business Revenue

Businesses that currently sell flavored tobacco products would face large revenue losses from a ban. Although we don't have specific sales numbers for flavored tobacco, we can extrapolate from these tax estimates that total losses would be multiple millions of dollars. Some businesses rely on tobacco sales more than others, but many local business owners would potentially have to raise prices on other products or even close in face of lost revenue.

If the Vermont Joint Fiscal Office estimates a decrease in e-cigarette sales of around \$2.4 million a year, given a tax rate of 92 percent, this would equate to business losses of over \$2.6 million a year (assuming e-cigarettes are sold at their wholesale price). Further data is needed to examine how the impact on businesses would be felt. Because of this, we exclude it from the CBA. This exclusion might also be justifiable because people who quit smoking or vaping will probably spend that money on other things, so that money will likely be in circulation still in the local economy.

However, if the ban ends up including menthol cigarettes, the impact on businesses will be larger. Excluding the projected impact on e-cigarette revenue, the impact on business revenue (using the \$3.08/box tax on cigarettes) would be between 1.6 and 3.6 million boxes of cigarettes a year, or between \$8 million and \$18 million in fiscal year 2026. Again, the distribution of this reduction will influence its impact, businesses who rely more on flavored tobacco purchases will feel the impact more than those with a diverse revenue stream.

Summary

The potential loss in revenue from such a ban without menthol cigarettes would be around \$2.6 million a year to businesses and \$2.4 million to the state of Vermont. If menthol cigarettes are included in the ban, the loss in business revenue would be between \$8 million and \$18 million a year and the loss in Vermont state tax revenue would be between \$7.1 million and \$14.2 million a year.

7.2 Impact on Public Health

Reduction in Tobacco Use

Any impact on public health resulting from the bill is contingent on tobacco use actually decreasing. This variable is notably distinct from legal sales data as tobacco tax revenue does not necessarily reflect tobacco use in a state (given methods of purchase that are not subject to state taxes, such as bringing tobacco products from other states or buying them illegally). A significant amount of tobacco use is already not captured in tax figures, and with a ban, even more likely will fall out of view as users turn to the illicit market or purchase their products out of state. It's important to note that general tobacco use in Vermont, and nationally, has decreased since 2011, so any impacts of the ban would be in addition to this already decreasing figure.¹⁴³

Based on interviews with current flavored tobacco users, and evidence from the case studies that shows similar tobacco use decreases in states that did enact bans and ones that didn't, it is unlikely that most users will cease using tobacco products or even flavored products because of a ban. Current users suggested going out of state or purchasing through unlicensed distributors. Of the 11 interviews we conducted with student tobacco users, few suggested their tobacco use would decrease following a ban. Rather, one respondent said they would switch to regular cigarettes and the others would pursue alternative methods of flavored tobacco product procurement.

These student interview results are corroborated by research suggesting only 9 percent of flavored tobacco users entirely quit using tobacco products following a ban.¹⁴⁴ Our findings also suggest that some public health benefits of this magnitude of decrease in overall tobacco use might be offset by an increase in people switching to traditional cigarettes or purchasing from illicit sellers. There was particular concern raised from an interviewed expert, who stated that a ban on only e-cigarettes but not on menthol cigarettes would incentivize people to switch from e-cigarettes to traditional cigarettes, such as in New Jersey.

Public Health Outcomes

Presumably, if banning flavored tobacco products were to discourage Vermonters from using tobacco, the prevalence of tobacco-related illnesses would decline. It is well-established that using flavored tobacco products is bad for one's health. Like other cigarettes, smoking menthol cigarettes can lead to cancer, cardiovascular, and respiratory diseases.¹⁴⁵ Second hand smoke can cause these same diseases for non-smokers as well. Using electronic cigarettes carries its own unique risks.¹⁴⁶ E-cigarettes can contain dangerous heavy metals such as lead and nickel as well as ultrafine particles that can be inhaled deep into the lungs. Flavored e-cigarettes are especially appealing to young people, who are uniquely vulnerable to addiction due to their developing brains. Given the long list of tobacco-related issues, a population with less tobacco usage may be expected to live longer and healthier lives.

While nicotine use generally is widely accepted as having negative health outcomes, e-cigarette use is seen as a safer alternative to traditional cigarettes because they are heated and not burned, reducing the health impacts.¹⁴⁷ E-cigarettes, including flavored e-cigarettes, are commonly used as a smoking cessation tool and have been found to be one of the most effective tools available.¹⁴⁸ One expert interviewee affirmed this statement and suggested better public health outcomes from incentivizing people to switch from traditional to electronic cigarettes. However, there are also concerns that e-cigarettes may cause more people, especially youth, to start using tobacco products in the first place, so in that respect e-cigarettes may be more harmful than traditional cigarettes.¹⁴⁹

Healthcare Savings

We may be able to attach a monetary value to the healthcare benefits of such a policy. On principle, less illness could mean greater worker productivity and less funding required for government health programs supported by the taxpayers.¹⁵⁰ Approximately 16 million Americans live with a smoking-related disease, costing the United States more than \$225 billion in direct medical costs and more than \$156 billion in lost productivity every year. The writers of bill S.18 estimate that Vermont spends more than \$400 million annually on treating tobacco-caused illnesses. Of that, more than \$90 million each year is spent on Medicaid expenses.¹⁵¹ Total health costs of tobacco-caused illnesses translate into a tax burden of over \$1,000 per Vermont household, according to the bill. Productivity losses cause an additional \$576 million each year. Combined, these costs are just under \$1 billion annually, which represents around 2.5 percent of Vermont's annual GDP of \$40.9 billion.¹⁵² However, we noted that the text of the bill does not explain the methodology used for these calculations or cite sources. In contrast to this \$1 billion figure, other sources have estimates such as \$348 million in annual health costs related to tobacco use.¹⁵³ A study done by the University of Chicago estimated the healthcare costs associated with each smoker in Vermont to be \$4,751, the sixth highest of any state.¹⁵⁴ With around 75,000 smokers in Vermont, this gives us an annual cost of \$375 million. The general consensus of this literature is that the annual healthcare cost of smoking to Vermont is around \$350 million. We note the difficulties associated with estimating the healthcare costs of tobacco use in our limitations section.

Based on an estimate of the reduction in actual tobacco use, a portion of this approximate \$350 million annual healthcare costs could be reduced, representing an alleviation of the tax burden on Vermont residents. Based on case study results from Rhode Island, New York, and Washington, we might estimate this percentage decrease to be around 9 percent. However, the health consequences of tobacco use, such as cancer, heart disease, lung disease, diabetes, often develop over a long period of time.¹⁵⁵ Therefore, it would be oversimplistic to estimate the healthcare savings of any reduction in tobacco use by just multiplying the yearly healthcare costs by the reduction in use.

Instead, there is literature that frames the healthcare impacts of a reduction in tobacco and cigarette usage in terms of QALYs. QALYs measure years of life a health intervention saves, weighted to reflect the quality of life.¹⁵⁶ In calculating the QALY impacts, we distinguish between current users and potential users. Presumably, this ban could prevent some people from starting to use tobacco products in the first place. Research estimates that cigarettes users lose 8.0 QALYs and e-cigarette users lose 3.3 QALYs compared to never users.¹⁵⁷ These healthcare savings will be felt in the long run as a smaller and smaller portion of the population uses tobacco products. However, we do not have as much data to predict the expected tobacco uptake reduction from this bill.

The second group, current users, is the one we will focus on. We would want to estimate the potential QALY savings using demographic-specific data, though this data unfortunately does not exist or is not public at the state level. However, we do have tobacco use data by age for Vermont users, which arguably is the factor that most influences the healthcare savings of someone quitting tobacco use (as someone older likely has been using the products for longer and will feel more health impacts, and also has less years left to lose).¹⁵⁸

We used tobacco use data from the Vermont Behavioral Risk Factor Surveillance System Survey Results from 2019, the most recent year the data was available for.¹⁵⁹ The data on Vermont tobacco use by age examines tobacco use overall, without distinguishing between e-cigarettes and cigarettes. We used an NIH study that compared the QALYs lost from continued tobacco use for cigarette with e-cigarette users.¹⁶⁰ There were several discrepancies in the age groups used in the two datasets we used. For cigarettes, the QALY data is split up by five-year age range instead of 10, so we took the mean value of each group of two five-year data points. The QALY data did not provide an estimate for the 18-24 age group, so we used the estimate for 25-34. The Vermont data did not distinguish between age groups over 65+, so we used the QALY data from the median age group above 65, which was 75–84. We did not have sufficient quitting data per age group to adjust our QALY savings data accordingly, so we assumed a uniform 9 percent decrease in quitting tobacco use across age groups.

We examine a scenario where all of the reduction in tobacco usage is felt in a decline in cigarette usage and one where the reduction is felt entirely in e-cigarette usage.

Table 7.2.1: QALYs Lost From Vermont Tobacco Users Continuing Current Use

Age Group	Number of Tobacco Users	Total QALYs lost from continued cigarette use	Total QALYs lost from continued e-cigarette use
18-24	9,000	45,000	27,000
25-34	14,400	72,000	43,200
35-44	12,500	55,625	36,250
45-54	12,600	48,510	27,720
55-64	14,100	43,710	19,740
65+	9,700	17,460	1,940
<i>Total</i>	<i>72,300</i>	<i>282,305</i>	<i>155,850</i>

Table 7.2.1 demonstrates the QALYs that would be lost if every single tobacco user continued their current use compared to if they quit, depending on their type of use (in the hypothetical scenario where all tobacco users use cigarettes vs. the hypothetical scenario where they all use e-cigarettes). We can see that continuing to smoke cigarettes leads to more QALYs lost than continuing to use e-cigarettes.

Table 7.2.2: QALYs Gained From Nine Percent of Vermont Tobacco Users Quitting

Age Group	Number of Tobacco Users	Total QALYs gained from quitting cigarettes	Total QALYs gained from quitting e-cigarettes
18-24	9,000	4,050	2,430
25-34	14,400	6,480	3,888
35-44	12,500	5,006.25	3,262.5
45-54	12,600	4,365.9	2,494.8
55-64	14,100	3933.9	1776.6
65+	9,700	1571.4	174.6
<i>Total</i>	<i>72,300</i>	<i>25,407.45</i>	<i>14,026.5</i>

Table 7.2.2 shows us two scenarios of how many QALYs might be saved in the long term by a reduction in tobacco use. Our high estimate, assuming all of the people who quit are cigarette users, is 25,407.45 QALYs. Our low estimate, assuming all of the people who quit are e-cigarette users, is 14,026.5 QALYs. To derive an estimate for the expected outcome of a total flavor ban in 7.3, we average these two values to represent a reduction in both e-cigarette usage and cigarette usage. We take an average of the two values because we would anticipate that the reduction in tobacco use would be felt somewhat evenly between cigarette and e-cigarette users. E-cigarette users make up around 30% of the tobacco using population, but a much higher percentage of e-cigarettes are flavored in comparison with cigarettes, so they would likely be more affected by a ban.

7.3 Cost Per QALY

Now that we have a high and low range for the potential QALY savings from the ban, we can assess the cost of the policy in tax revenue in terms of QALYs. Cost per QALY is a standard metric in healthcare policy to assess whether a treatment is cost-efficient. It provides a dollar amount for how much a QALY would cost. A lower cost per QALY would indicate a more cost efficient treatment, since the cost of gaining an extra QALY is lower.¹⁶¹ This is a common threshold metric of the costs of a public health intervention, which in this case is missed tax revenue, and does not include any health cost savings from a policy (which, as mentioned earlier, are difficult to estimate but could be in the hundreds of millions of dollars).

It is difficult to exactly calculate the cost per QALY in the near future because many of the QALYs saved would be felt decades away from now. Similarly, we don't have tax revenue loss predictions for the long term. Our best approximation of the tax revenue loss was to take the JFO fiscal year 2026 estimates for revenue loss from the different possible bans and multiply them by 25. This gives us a rough estimate of the 25-year loss in tax revenue that would accompany such a ban. We used a 25-year prediction point because over this longer time period, the health consequences of these long-term diseases will become evident.

We show the formulas for the above calculations, with an example of the e-cigarette ban only, below:

Cost per QALY Formula (only e-cigarettes banned)			Example
Cost	25-year tax revenue loss	FY 2025 Tax Revenue Loss JFO Estimate (for e-cigarettes) * 25	\$2.4 mil * 25 = \$60 million
QALY	QALYs gained	QALYs gained from all smokers quitting * quit rate	155,850 * 9% = 14,027 QALYs
\$/QALY	\$60,000,000 / 14,027 QALYs= \$4,278 per QALY		

Using the above methodology, we arrived at the following estimates:

E-cigarette ban only: \$4,278 per QALY

Ban on all flavored tobacco products (which was calculated in parallel fashion to the above calculation but with the “all flavored products” data): \$13,567 per QALY

Both of these estimates are significantly lower than the standard \$50,000 per QALY cost efficiency threshold. These estimates also do not reflect the people who would not start using tobacco in the first place, and as tobacco use declines, the expected loss in revenue would also decline.

We used the 9 percent quit rate based on our case studies. However, it is plausible that the quit rate could be higher or lower than 9 percent. The following table 7.3.1 provides the potential QALY savings, and cost per QALY savings for different quit rates:

Table 7.3.1: Cost Per QALY By Quit Rate

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

Even if only 5 percent of the Vermont adult population were to quit using tobacco products, the cost per QALY would still be under half the standard level of cost-efficiency. The lowest percentage quit rate that would meet the \$50,000 threshold is 2.4 percent for a total flavor ban and 0.8 percent for an e-cigarette ban. Our cost per QALY analysis concludes that small reductions in tobacco use justify resulting losses in tax revenue from a cost-efficiency perspective, and that a ban on e-cigarettes only is considered to be more cost-effective than a ban on all flavored tobacco products. An explanation for why the e-cigarette ban is considered more cost-effective than a total ban (despite e-cigarettes having a less harmful effect on QALYs than cigarettes) is that the

potential revenue loss for a purely e-cigarette ban is significantly lower than for a total flavor ban, according to the JFO's estimates.

7.4 Intangible Concerns

Finally, in addition to the financial and health costs and benefits of the bill, it is important to consider the unquantifiable aspect of restricting consumers' choices. Governments must weigh this freedom against the anticipated benefits of a policy. Regarding freedom of choice, one of our expert interviewers compared a ban on flavored tobacco products to a tax. Some taxation literature on e-cigarette regulation argues that as long as taxes reflect the internalities and externalities caused by e-cigarette usage, a tax may appear preferable to an outright ban because it gives consumers the ability to make an informed choice to maximize the consumer surplus.¹⁶² Another concern associated with this ban is its scope may be broader than the primary issues it intends to target. One of the primary goals of the ban is to reduce youth e-cigarette consumption.¹⁶³ However, this ban does not simply limit the choices of young people (who are already not allowed to buy these products), but rather prohibits all adults from deciding what to consume. Additionally, it is worth considering this ban in the context of other drug policy in the state. In particular, it is worth noting that the state of Vermont has legalized marijuana but seems to be moving in the opposite direction with tobacco use. Overall, it is important to weigh both the monetary and intangible concerns on both sides in order to produce the most comprehensive cost-benefit analysis.

7.5 Policy Alternatives

There are several other policy options that Vermont could consider to achieve the goal of reducing flavored tobacco usage. We have already discussed an absolute ban so these will be alternatives in addition to the status quo, with no ban, and the proposal in S. 18. We divide the policy alternatives into two categories: proscriptive policy and prescriptive policy. Proscriptive policy dissuades people from doing things that are harmful, while prescriptive policy encourages people to do things deemed beneficial.

Proscriptive Policy Alternatives

Taxation

For one, Vermont could raise the tax on tobacco products even more. This may be difficult given that they already have some of the highest tax rates in the nation. At the same time, it would presumably have the effect of discouraging tobacco consumption while still maintaining revenue sources and allowing for consumer choice. Other jurisdictions such as Massachusetts have done this, so we would look to comparable states to project what the general consequences may be. As the proposed Vermont ban only applies to flavored tobacco products, other alternatives might look similar to Massachusetts increasing their excise tax on nicotine-containing vaping products alongside their flavored tobacco ban.

Limited Bans

Vermont could also ban these products in less restrictive ways. For example, among Vermont adults who smoke, banning tobacco sales near schools is the most supported policy, at 62 percent agreement.¹⁶⁴ Some other options include banning tobacco sales from pharmacies, banning tobacco product displays and limiting the number of stores that sell tobacco, which are

more favorable options among non-smokers in Vermont.¹⁶⁵ The scope of these policies would be limited but they may be more feasible given public opinion.

An interviewed expert proposed a ban limiting the sale of flavored products to tobacco shops restricted to those over the age of 21. This limited ban would still give adult smokers the option to use flavored e-cigarettes as a smoking cessation tool but prevent access by youth.

The expert also proposed a ban on only menthol cigarettes but not menthol e-cigarettes, as menthol cigarettes aren't considered a smoking cessation tool but flavored e-cigarettes are. Additionally, by banning flavored cigarettes but not e-cigarettes, a state would incentivize flavored cigarette users to switch to e-cigarettes, which would have positive public health outcomes.

Nicotine Caps

Nicotine caps were proposed as a policy alternative to a flavor ban during one of our student interviews. Nicotine caps are regulations that put an upper limit on the amount of nicotine a product may contain. The principle is that these products will be less addictive and pose less health risks because they have less nicotine. However, there is concern about whether lower concentrations of nicotine in e-cigarettes provide the same level of smoking cessation as products with higher concentrations.¹⁶⁶ Of the states we looked at, only Massachusetts had an imposed cap on the amount of nicotine. In Massachusetts, products with nicotine content over 35 mg/mL can only be sold by licensed tobacco retailers and smoking bars. In Europe and the UK, nicotine concentration cannot exceed 20 mg/mL.¹⁶⁷

Increasing Fines

Increasing fines for violating existing tobacco regulation on sellers or purchasers is another policy alternative that could lead to meaningful public health impacts in Vermont. Raising fines has been shown meaningfully suppress illicit market activity.¹⁶⁸

Prescriptive Policy Alternatives

Funding Tobacco Prevention and Cessation Programs

Another policy alternative Vermont could consider is increasing state funding for tobacco prevention and cessation services. The American Lung Association gives Vermont, along with the majority of states, an F grade for its tobacco prevention and cessation spending.¹⁶⁹ In the fiscal year 2021, Vermont allocated \$2.7 million in state funds to tobacco prevention, 32 percent of the Centers for Disease Control and Prevention's annual spending recommendation for the state.

Increasing Spending on Research

Throughout the course of writing our report, we have encountered many obstacles in retrieving data that would better inform Vermont state tobacco policy. From our interview with the Joint Fiscal Office, it was clear that Vermont lacked specific data on e-cigarette sales and was left to extrapolate from federal data. Given that tobacco usage varies significantly based on age, racial status, and other demographic variables, it seems worthwhile to collect this data at a state level. In particular, increased surveys around illegal tobacco usage, the illicit market, and cross-border sales would be useful in writing future tobacco Vermont policy.

Incentivise E-Cigarette Usage Over Cigarette Usage

Given the literature and consensus medical opinion that e-cigarettes are less harmful than cigarettes, a mix of policy tools could be employed to incentivize current cigarette users to switch to e-cigarettes. One limitation of this strategy would be that it does not address the use of e-cigarettes as a gateway into smoking, particularly for youth.

7.6 Limitations

The usage of addictive substances, like nicotine, are necessarily hard to predict. In particular, it is extremely difficult to predict or measure actual usage when a significant portion of it occurs in the illicit marketplace.

Additionally, the health consequences of nicotine and tobacco use are extremely hard to quantify. Many tobacco users have other health issues which are difficult to distinguish. The health impacts of tobacco use are often not felt for several years and depend on many variables. For that reason, conjuring an official estimate of healthcare savings from a flavored tobacco ban is nearly impossible.

A significant variable that will also impact the costs and benefits of a ban is the level of enforcement. Higher enforcement of a ban will usually lead to higher compliance and therefore better health outcomes. However, enforcement can also lead to additional financial costs and risks infringing on individual liberty and disproportionately punishing marginalized groups.

One limitation of our cost-benefit analysis is that it does not account for potential switching of products (i.e. from e-cigarettes to cigarettes, or from legal to black market products) that may have negative impacts on QALYs. On the other hand, it does not account for the QALYs saved from a reduction in secondhand smoke exposure from a decrease in tobacco use. Another limitation is that the data grouped together men and women, who both have different rates of tobacco product usage and resulting health outcomes. This gender difference would lead us to think that our estimates of QALYs saved from reductions in tobacco use are underestimates. Another limitation is that we did not calculate the loss to business revenue per QALY, given that QALYs are typically from the perspective of the government or public health agency who would normally bear the healthcare costs. Normal business revenue would not go to healthcare costs, so it would be counterintuitive to measure the revenue losses per QALY saved and there is no standard value for which this is considered efficient. That being said, our model does not account for costs of enforcement or losses in business revenue which is an impact of the ban.

8 CONCLUSION

This research has aimed to study the potential public health and economic effects of Vermont's proposed ban on flavored tobacco products for the House Committee on Human Services to consider.

Case studies of Massachusetts, California, New York, New Jersey, and Maryland provided data on how flavored tobacco bans have impacted the health and tax revenue of these states and what impacts similar Vermont might observe. Comparing the policy outcomes in the former two states, which enacted total flavor bans, with the latter three, which enacted bans only on e-cigarettes, provides insight for Vermont to consider as they weigh including menthol cigarettes in Bill S. 18. Relevant results from the case studies include an expected increase in purchases of tobacco from out-of-state as well as previous e-cigarette users switching to traditional cigarettes, neither of which are intended policy outcomes of such a ban. The experts whom we interviewed were concerned about this possibility from a public health perspective. Several experts also emphasized the use of e-cigarettes as an effective smoking cessation tool that could be removed as a result of this bill.

Student interviews provided qualitative insight into youth tobacco usage and how youth might respond to such a ban. Our interview findings produced further evidence of tobacco product users' willingness to purchase illicit or out-of-state goods in response to a flavor ban. These interviews, combined with our case studies, informed our cost-benefit analysis. Our cost-benefit analysis provided a framework for calculating the expected revenue losses and health impacts of the ban dependent on legal sales and actual usage. We provided upper and lower estimates for the potential cost in tax revenue per QALY, finding that almost any reduction in tobacco use would make the ban cost-efficient using standard cost per QALY baselines and looking at revenue loss in the next 25 years. The costs and benefits of Bill S. 18 are extremely dependent on whether the final bill includes the menthol cigarette ban.

Much of our analysis led to unanswered questions due to a lack of data on Vermont tobacco use and sales. In particular, more detailed information on tobacco users, their product types, and demographics would create a more accurate depiction of the health outcomes of a ban. Without this data, we provided ranges for the potential costs, QALY savings, and cost per QALYs, but we were unable to reach a single estimate. To better inform tobacco policy in the future, Vermont could consider investing in more comprehensive tobacco data collection. Other policy alternatives to a ban that we examined were taxation, increasing funding for tobacco cessation programs, limited bans, nicotine caps, and increased fines for violating state law. No matter the regulation, ban or not, enforcement is a critical determinant of a policy's efficacy.

APPENDIX A. LIST OF QUESTIONS FOR STUDENT INTERVIEWS

Introduction (3 minutes)

1. Introduce the interviewers; briefly discuss the class and the PRS; briefly describe the project; describe our objective for these interviews—expand our understanding of flavored tobacco usage among young people in Vermont and how it might be impacted by a retail ban. For our purposes, tobacco products include traditional cigarettes, e-cigarettes, and other tobacco and nicotine products (e.g. chewing tobacco, cigars, nicotine patches).
2. State the expectations for the interview—half-an-hour timeframe, confidentiality of responses, seeking to cover three main topic areas in a limited amount of time.

Background information (3 minutes)

3. Briefly introduce yourself:
 - a. Where are you from?
 - b. What are you studying at college?
 - c. Do you have a job?
 - d. Do you have any hobbies?

Current tobacco usage (12 minutes)

4. Do you use any tobacco products?
 - a. Do you use e-cigarettes or traditional cigarettes or any other tobacco products?
 - b. Are they flavored?
 - c. If you couldn't get your preferred flavor, what would you do?
 - d. If you are committed to your flavor, how would you get them?
 - e. What kind (flavor and brand) do you use? How often?
5. Where and how do you get your tobacco products?
 - a. If in-person/retail, do you buy them from a convenience store, supermarket, discount store, or gas station?
 - i. If yes, do you remember seeing any advertisements at the store? Did these have any effect on your decision to buy?
 - ii. How far away is this store? If you could estimate, what is the furthest away you would go if your preferred store no longer sold e-cigarettes?
 - iii. Do you have a car?
 - b. If online or through other means, where do you purchase them? Have you ever bought them off a friend?
6. When did you start using tobacco products? Why did you start?
 - a. If you started in middle or high school, how has your usage changed from then to now?
 - b. If you smoked when you were underage, how did you obtain the tobacco products?
 - c. Did you grow up in a smoking household?
7. Why do you use tobacco products?

- a. Is there a social element? Do most of your friends also use tobacco products?
 - b. Do any of your relatives use tobacco?
8. How does the cost of tobacco products influence your use?
 - a. Would your use change if they were taxed at a higher rate?
9. How do the health effects of tobacco influence your use?
10. Have you considered or tried quitting? What factors would influence your decision to quit?
 - a. Have you engaged with your home state's resources on quitting? Why or why not?

Effects of banning flavored tobacco products (12 minutes)

11. If you could no longer legally purchase flavored tobacco products in Vermont at retail locations, would you stop using them?
 - a. Why or why not?
12. Would you switch to unflavored tobacco products?
13. Would you consider going out of the state or country to purchase flavored tobacco products?
14. Would you be more likely to quit using tobacco products in general?
15. What do you think of banning the sale of flavored tobacco products in Vermont?
16. What do you think of raising the tax on flavored tobacco products in Vermont?
17. Is there any policy in your state that could influence your decision to quit smoking?
18. Do you feel like you're getting mixed messaging from the increasing legalization of cannabis and a proposed ban on flavored tobacco products?
19. If banned in your home state, would you buy flavored tobacco products from other students?

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