

MEMORANDUM

To: Vapor Technology Association
From: John Dunham
Date: November 21, 2019
Re: The Economic Impact of a Ban on Flavored Vapor Products

Overview

- The vapor product industry is an important part of the US economy. About \$9.2 billion in vapor sales lead to 166,000 jobs and \$24.5 billion in economic activity.
 - About 58,430 of these jobs are held by people working for the over 13,480 independent retail vape shops located across the country.
- Based on independent vapor industry data, flavored vapor products account for about 85.7 percent of sales volume. Therefore, a ban on all flavored vapor products would:
 - Cause sales to fall by about \$8.4 billion and the overall economy would see a \$22.4 billion hit.
 - Eliminate over 151,850 jobs.
- Based on traditional channel figures collected by Nielsen using scanner data from chain retailers in the convenience store, gas station and grocery store sector, which grossly understate the total vapor market, a ban the sale of flavored vapor products would cause sales to fall by about \$2.7 billion and the overall economy would see a \$7.3 billion hit.
- Either way, the estimated impact of these proposed bans on the industry and on the overall economy suggest that this would be a major rule and should be subject to a full regulatory review process.
- More importantly, if a flavor ban was implemented, the independent vapor segment of the market would cease to exist in any meaningful way since the vast majority of the 13,480 independent vapor shops in the country (which currently generate 58,430 full-time equivalent jobs) would likely have to close. No business can continue to exist were it to lose 90 percent of its revenue.

Background on the Proposed Flavor Ban Guidance

According to the Office of Management and Budget, all rules with a major impact must undergo an extensive regulatory assessment process.¹ One of the parameters used to establish if a proposed rule is *major* is that it would have an effect of at least \$100 million on the economy. Proposals to ban the sale of all nicotine vapor products that are not tobacco flavored would have impacts on both sales and on the economy far in excess of this guideline. The same is true of proposals to ban all but tobacco, menthol and mint flavored vapor products. This would mean that under most normal circumstances, these proposals would need to follow all of OMB's regulatory guidelines.

¹ Vought, Russell, *Memorandum For The Heads Of Executive Departments And Agencies: Guidance on Compliance with the Congressional Review Act*, The Executive Office of the President, Office of Management and Budget, Memorandum M-19-14, April 11, 2019.

Table 1
Economic Impact of Vape Industry in the United States (2018)

	Direct	Supplier	Induced	Total
Jobs	87,574	29,428	49,000	166,002
Wages	\$ 3,277,220,644	\$ 2,092,843,720	\$ 2,527,825,691	\$ 7,897,890,055
Economic Impact	\$ 9,151,211,110	\$ 7,272,385,966	\$ 8,033,914,280	\$ 24,457,511,357

A recently completed economic impact model of the vapor industry shows that over 166,000 jobs depend on the production and sale of vapor and electronic cigarette products. Those holding these jobs are paid nearly \$7.9 billion in wages and benefits, while generating almost \$24.5 billion for the US economy.²

Of these, nearly 87,600 are direct industry jobs, including people working in the vapor product manufacturing and distribution chain, and most importantly, 58,430 jobs are at independent vapor retail stores, or vape shops.^{3,4} See Table 2.

Table 2
Breakdown of Independent Vape Shop Jobs (2018)

	Jobs	Percent of Jobs	Stores
Direct Jobs	87,574	100.0%	
Vape Shop Jobs	58,429	66.7%	13,481

Economic Effects of a Ban on Flavored Vapor Product Sales

Based on an analysis conducted by JDA, were the Federal government to ban the sale of flavored vape products, the impact on the economy would be more than \$12.7 billion, with as much as \$4.8 billion in direct sales losses.⁵ Were the Federal government to ban the sale of flavored and menthol vape products, the impact on the economy would be almost \$22.4 billion, with about \$8.4 billion in direct sales losses.

Table 3
Estimates of Current Market Share of Vapor Product Sales by Flavoring

Percent	Flavored	Menthol	Tobacco	Total
Current	85.7%	7.9%	6.4%	100.0%

These data are based on a survey of the 3 largest distributors in the independent vapor distribution chain which show that 85.7 percent of sales are of flavored vapor products, and just 6.4 percent are tobacco flavors.⁶ These data should be more representative of the total market than scanner data (which are

² *The Vapor Industry Economic Impact Study (2018)*, Prepared for Vapor Technology Association, by John Dunham & Associates, April 29, 2019.
³ Ibid. This includes as many as 3,094 jobs (803 shops) in Florida, 2,832 jobs (614 shops) in Ohio, 2,280 jobs (533 shops) in Pennsylvania, 1,522 jobs (359 shops) in Michigan and 898 jobs (204 shops) in Wisconsin.
⁴ In addition, there are 11,920 full-time equivalent jobs created by vapor product sales at traditional retailers like supermarkets, convenience stores, drug stores, and department stores.
⁵ Throughout this analysis the term *flavored* means all flavorings other than tobacco, mint and menthol, while the term menthol includes mint. Sales is economic output by producers, wholesalers and retailers. It is equal to retail sales less consumption taxes (sales taxes, excise taxes), and adjusted for inventory fluctuations.
⁶ Survey data reported from three major distributors and a total of 5 business units. Weighted average results, weighted by dollar sales. Data were provided under a guarantee of confidentiality of individual firm reporting.

Economic Impact of a Ban on Flavored Vapor Products

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discussed below) since well more than half of all vapor sales are of open-systems (or e-liquids), and are made at dedicated vapor and tobacco retailers.

Using these breaks, were the Federal government to ban both flavored and menthol products, the immediate loss would be 91.6 percent of retail sales. Were this to occur, adults who prefer these products will react in one of three ways. They could:

- 1) Stop vaping altogether or switch to another tobacco product;
- 2) Switch to vaping tobacco flavored products;
- 3) Continue to vape flavored and menthol products but purchase them over the black market or flavor products at home.

JDA's modeling suggests that a large portion of consumers would react by purchasing unregulated products over the black market, or make their own flavored e-liquids. However, government sponsored research (that does not include this option) concludes that there would be a large shift toward tobacco flavored products.⁷ Based on these data it would be likely that the current 6.4 percent share of tobacco flavored products would increase to about 8.5 percent of pre-ban sales. Overall, sales would fall to roughly \$779.7 million. See Table 4.

Table 4
Projected Losses Across Segments Under Total Flavor Ban Scenarios (Including Menthol) – Based on Survey of Distributors

Percent	Flavored	Menthol	Tobacco	Total
Current	85.7%	7.9%	6.4%	100.0%
Post Ban	0.0%	0.0%	8.5%	8.5%
Sales				
Current	\$ 7,839,051,104	\$ 725,505,950	\$ 586,654,056	\$ 9,151,211,110
Post Ban	\$ -	\$ -	\$ 779,663,240	\$ 779,663,240

The model estimates that a flavor ban would lead to a loss of nearly 151,860 jobs and about \$22.4 billion in economic activity. Essentially, the vapor segment of the market would cease to exist in any meaningful way and the impact might even be larger since the vast majority of the 13,480 independent vapor shops in the country (which currently generate 58,430 full-time equivalent jobs) would likely have to close. No business can continue to exist were it to lose 90 percent of its revenue. Fixed costs, such as rent, insurance, electricity and interest still must be paid, and represent at least 23.0 percent of a retail store's operating budget.⁸

Table 5
Economic Impact of Lost Sales Under Total Flavor Ban – Based on Survey of Distributors

	Direct	Supplier	Induced	Total
Jobs	(80,113)	(26,921)	(44,825)	(151,859)
Wages	\$ (2,998,008,589)	\$ (1,914,537,997)	\$ (2,312,460,452)	\$ (7,225,007,037)
Economic Impact	\$ (8,371,547,870)	\$ (6,652,794,533)	\$ (7,349,442,295)	\$ (22,373,784,698)

⁷ Buckell, John, et. al., *Should Flavors Be Banned In E-Cigarettes? Evidence On Adult Smokers And Recent Quitters From A Discrete Choice Experiment*, NBER Working Paper 23865, at: <http://www.nber.org/papers/w23865>.

⁸ US Department of Commerce, Bureau of the Census, *Annual Retail Trade Survey Detailed Operating Expenses: 2017, Estimated Detailed Operating Expenses of U.S. Retail Firms by Kind of Business*, at: www.census.gov/data/tables/2017/econ/arts/operating-expenses.html

The paper used for the first scenario does not have corresponding results for a ban impacting flavored products only. Therefore, a proxy for vaping (cigarette smoking) is used. Data for these elasticities comes from a comprehensive study on the menthol cigarette market conducted by Compass Lexecon for Lorillard Tobacco Company in 2011.⁹ This study provides a series of estimates on all the different elasticities required for this model.

According to the Compass Lexecon analysis, the cross-elasticity of demand between menthol and non-menthol cigarettes ranges from 0.28 to 0.42. This means that a 100 percent reduction in the sale of menthol cigarettes (as would happen under the proposed ban) would lead to an increase of non-menthol cigarettes equal to between 28 and 42 percent of the initial menthol product demand. For this analysis of the proposed ban the most conservative estimate – 0.42 – was used, meaning that the analysis assumes the lowest impact to the economy as a result of the proposed ban.

For this model, the 42 percent of sales is used as an estimated increase for menthol, while the quit rate from lost flavored vape products is taken from the tobacco flavored share of the market.

Table 6 outlines the expected sales changes under this scenario. Even exempting menthol from the proposed ban would not have much of an impact. Rather, based on these very generous assumptions, over half (52 percent) of vapor product sales would still be lost.

Table 6
Projected Losses Across Segments Under Flavored Vapor Product Ban (Menthol Excluded) – Based on Survey of Distributors

	Flavored	Menthol	Tobacco	Total
Current	85.7%	7.9%	6.4%	100.0%
Post Ban	0.0%	42.0%	6.0%	48.0%
Sales				
Current	\$ 7,839,051,104	\$ 725,505,950	\$ 586,654,056	\$ 9,151,211,110
Post Ban	\$ -	\$ 3,843,508,666	\$ 548,521,542	\$ 4,392,030,208

Thus, even if menthol is exempted, this would translate into about 88,330 jobs lost in the vapor industry, and a \$12.7 billion dollar hit to the US economy.

Table 7
Economic Impact of Lost Sales Under Flavored Vapor Product Ban (Menthol Excluded) – Based on Survey of Distributors

	Direct	Supplier	Induced	Total
Jobs	(45,544)	(15,305)	(25,483)	(86,331)
Wages	\$ (1,704,352,103)	\$ (1,088,404,774)	\$ (1,314,621,595)	\$ (4,107,378,473)
Economic Impact	\$ (4,759,180,902)	\$ (3,782,078,676)	\$ (4,178,119,262)	\$ (12,719,378,840)

Note that none of these scenarios contemplates a shift from retail to black market (or home-made) vape products. Based on what has happened in the cigarette marketplace it could be extremely large. Every black-market sale takes away from legitimate producers, and would therefore increase the impact of a ban.

⁹ *Estimating Consequences of a Ban on the Legal Sale of Menthol Cigarettes*, prepared by Compass Lexecon for Lorillard Tobacco Company, January 19, 2011. On-line at: https://www.thecre.com/ccsf/wp-content/uploads/2011/03/compass_1_19_2011.pdf According to its website, Compass Lexecon is *one of the world's leading economic consulting firms*.

Effects of a Ban Based on Extremely Conservative Assumptions

Studies funded by the federal government have estimated that flavored products do not constitute a significant part of the market. This assumption, however, is based on limited scanner data collected mostly from convenience store and grocery store sales which do not tend to sell open system (or liquid) vapor products. These data are reported in research conducted by the Centers for Disease Control and Prevention and report that about 10.2 percent of the analyzed vapor products were flavored, roughly 37 percent were menthol, and the remaining 52.8 percent were tobacco flavored.¹⁰ This essentially reflects chain retailer sales of closed vapor systems (so-called e-cigarettes) over the period from 2012 to 2016.

The Nielsen data that this research relies on comes from contracted retailers' scanner systems. The vast majority of vape shops, and tobacco shops would not be included in the data. Based on the CDC paper, about 52.2 percent of open systems (e-liquid) product sales were flavored, while 25.2 percent were menthol. Most tobacco stores and specialized vape shops focus more on e-liquid sales than do the conventional chain stores that are included in the Nielsen data. This suggests that the analysis performed here is extremely conservative since conventional retailers represent only about half of the market for vapor products.

Table 8
Projected Losses Across Segments Under Total Flavor Ban Scenarios (Including Menthol) – Based on Scanner Data

Percent	Flavored	Menthol	Tobacco	Total
Current	10.2%	37.0%	52.8%	100.0%
Post Ban	0.0%	0.0%	70.2%	70.2%
Sales				
Current	\$ 933,423,533	\$ 3,385,948,111	\$ 4,831,839,466	\$ 9,151,211,110
Post Ban	\$ -	\$ -	\$ 6,421,514,651	\$ 6,421,514,651

Lost jobs are a result of lost sales. Based on the assumptions above, the overall market for vapor products would decrease by about 29.8 percent in terms of sales volume, even though the sale of tobacco flavored products would increase by about \$1.6 billion.

Table 9
Economic Impact of Lost Sales Under Total Flavor Ban – Based on Scanner Data

	Direct	Supplier	Induced	Total
Jobs	(26,122)	(8,778)	(14,616)	(49,516)
Wages	\$ (977,555,592)	\$ (624,270,168)	\$ (754,020,070)	\$ (2,355,845,829)
Economic Impact	\$ (2,729,696,460)	\$ (2,169,265,465)	\$ (2,396,420,223)	\$ (7,295,382,148)

This means that the ban would result in about \$2.7 billion in lost vapor product sales and an impact on the overall economy of almost \$7.3 billion.

If menthol/mint flavored vapor products are still available for sale, the reduction in overall sales would be about 8.6 percent with many of those currently using banned products switching to menthol.

Table 10

¹⁰ Kuiper, Nicole, et. al., *Trends in Unit Sales of Flavored and Menthol Electronic Cigarettes in the United States, 2012–2016*, Preventing Chronic Disease, August 23, 2018.

Projected Losses Across Segments Under Flavored Vapor Product Ban (Menthol Excluded) – Based on Scanner Data

	Flavored	Menthol	Tobacco	Total
Current	10.2%	37.0%	52.8%	100.0%
Post Ban	0.0%	42.0%	49.4%	91.4%
Sales				
Current	\$ 933,423,533	\$ 3,385,948,111	\$ 4,831,839,466	\$ 9,151,211,110
Post Ban	\$ -	\$ 3,843,508,666	\$ 4,517,769,901	\$ 8,361,278,567

With a smaller reduction in sales, the loss of jobs and economic activity would be somewhat smaller, with 7,559 direct jobs lost and an overall reduction of nearly 14,330. This would be the result of \$789.9 million in lost vapor product sales. The overall impact on the US economy would be as much as \$2.1 billion.

Again, this is probably a significant underestimate, since the market shares used take into account only closed systems sold through standard retail channels.

**Table 11
 Economic Impact of Lost Sales Under Flavored Vapor Product Ban (Menthol Excluded) – Based on Scanner Data**

	Direct	Supplier	Induced	Total
Jobs	(7,559)	(2,540)	(4,230)	(14,329)
Wages	\$ (282,889,686)	\$ (180,654,270)	\$ (218,201,914)	\$ (681,745,870)
Economic Impact	\$ (789,932,543)	\$ (627,752,357)	\$ (693,487,481)	\$ (2,111,172,380)

Even without including black market sales, in both cases, a preliminary analysis suggests that this proposed ban would constitute a major rulemaking with a bare minimum loss of \$789.9 million in sales and over \$2.1 billion in lost economic activity. Using more realistic assumptions, the loss in sales would be as high as \$8.4 billion, with \$22.4 billion in lost economic activity.

The nation's 13,480 independent vapor shops would likely be forced to close, since their fixed costs could far outweigh any remaining sales.