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Economic Research Informing Tobacco Control Policy

Taxation of Emerging Tobacco Products

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Introduction

Significant increases in tobacco excise taxes are widely considered the single most effective policy for reducing tobacco use and its consequences.[1] In recent years, as new tobacco products and vaping products have emerged and grown in popularity, governments have struggled to determine how best to tax these products. The potential for some of these new products to be significantly less harmful than cigarettes and other traditional tobacco products has added to the complexity, with some proposing a harm reduction approach that would apply differential taxation based on the relative harms of different products.[2] This is further complicated by the rapid evolution of these products and limited, at best, regulation of these products.

This report begins with an assessment of current tobacco and vaping product taxes in the United States. This is followed by a discussion of the challenges that states have encountered in implementing taxes on electronic cigarettes and other vaping products. Based on these experiences, we propose a set of recommendations on how to best tax these products and discuss the potential for differential taxation based on a determination by the Food and Drug Administration that some products are modified risk tobacco products that are likely to be of less harm to the public health.

Executive Summary

Background: Over the past decade, new nicotine products have emerged in the marketplace requiring governments to adapt existing tobacco control policies and to develop new methods of regulation, standardization, and taxation. Taxation is one of the most effective public health strategies for reducing tobacco use and its associated health consequences. Each type of tobacco product is subject to its own tax rates and may vary in form (by weight, by pack, by wholesale price, etc.).

The emergence of new products such as e-cigarettes and other vaping products and heated tobacco products has added new complexity and challenges for efficient and effective taxation, given the diversity of the product categories, differing levels of nicotine, and the lack of product standardization. This has led to considerable variability in how these newer products are being taxed by states and localities.

Methodology: This report provides an analysis of current state tobacco product taxation, including the taxation of e-cigarettes, in the United States and a summary of qualitative interviews that elucidated the challenges to implementation states have faced and important lessons learned. The findings from this assessment have helped shape a set of recommendations for e-cigarette and other vaping product taxation going forward. As the market and regulations change, these recommendations may evolve.

Key Recommendations: Based on experiences of states and local jurisdictions taxing e-cigarettes, the following are recommendations for applying taxes equivalent to taxes on combustible cigarettes:

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[1] U.S. National Cancer Institute and World Health Organization (2016). *The Economics of Tobacco and Tobacco Control*. National Cancer Institute Tobacco Control Monograph 21. NIH Publication No. 16-CA-8029A. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; and Geneva, CH: World Health Organization.

[2] Chaloupka FJ, Sweanor D, Warner KE (2015). Differential Taxes for Differential Risks – Toward Reduced Harm from Nicotine-Yielding Products. *New England Journal of Medicine* 373:594-597.

- ***Specific vs. Ad Valorem Taxation***: The wide variety of available vaping products make *ad valorem* excise tax the most appropriate tax structure to avoid favoring certain products. Specific excise taxes are more beneficial to products that are highly homogenous and become problematic when applied to products that have significant differences.

- ***Ad Valorem Tax Base:*** By levying an *ad valorem* excise tax based on the tax-inclusive retail price of e-cigarettes and other vaping products, the potential for tax-avoidance resulting from pricing schemes will be minimized and the effective tax will rise with inflation. This ensures the price paid by the consumer includes the tax and has a greater impact on consumer behavior.

- ***Taxing Devices and/or Components:*** Some vaping product devices are well defined, while others are not. Due to the diversity of devices and components on the market, it is not recommended that excise taxes be levied on the devices themselves.

- ***Taxing E-Liquids***: The most effective method of taxing e-liquids is to include all liquids due to the difficulty in measuring and determining the presence of nicotine. For products that include the device and the e-liquid, taxes should be levied on the retail price of the product.

- ***Where to Collect the Tax****:* The non-traditional distribution chains for e-cigarettes and other vaping products make it difficult to determine where tax should be collected. State and local level excise taxes should be collected at the point-of-sale based on the retail price.

- ***Tax Rates:*** At this time, all e-cigarettes and other new tobacco products should be taxed at rates that achieve parity with the average cigarette tax rates in each state. Until more clarity is provided about the relative harms and risks of new tobacco product as determined by the FDA, it is appropriate to tax these products at the same rate as combustible cigarettes.

- ***Heated Tobacco Products:*** Given the relatively homogeneous ‘heat sticks’ used in heated tobacco products, levying a specific tax per stick appears most appropriate.

- ***Federal Government:*** Currently, the federal government does not tax e-cigarettes or heated tobacco products. However, alternative proposals for taxing these products have been introduced in the US Congress and, for e-cigarettes, the best approach may be a volume-based specific tax equivalent to the level of nicotine contained in cigarettes, assuming that there is nicotine testing conducted on the products.

Current Tax Structures for Tobacco Products

In the United States (US), tobacco products are taxed by federal, state, and local governments. Two types of excise taxes are applied to tobacco products in the US – specific and *ad valorem*. A specific excise tax is a constant nominal rate per unit of quantity. For example, a specific excise tax might take the form of a fixed amount per pack of cigarettes, a fixed amount per weight of tobacco, or a fixed amount per ounce of liquid nicotine. An *ad valorem* tax is a tax based on the value of a tobacco product. For example, an *ad valorem* tax might take the form of percentage of the manufacture, wholesale, or retail price of a tobacco product.

Federal Taxes

The current federal tax rate on cigarette is $1.0066 per pack of 20 cigarettes. The last federal tax change on cigarettes occurred on April 1, 2009 when the tax increased from $0.39 per pack to $1.0066 per pack. At the same time, Congress equalized the tax rate on small cigars that look like cigarettes and on roll-your-own cigarettes to that of conventional cigarettes. The federal tax on large cigars is 52.75% of the manufacturer's price of the cigar, with a maximum tax of $0.4026 per cigar. The federal tax on loose moist snuff, snus, and dissolvable tobacco products is $1.51 per pound and for chewing tobacco is $0.503 per pound. Finally, pipe tobacco is currently being taxed at $2.8311 per pound at the federal level.

At this time, the federal government does not tax electronic cigarettes or heated tobacco products. However, this may change as alternative proposals for taxing these products have been introduced in the US Congress. For example, Senator Ron Wyden (Oregon) and 18 colleagues introduced legislation to tax electronic cigarettes and other alternative nicotine products on September 11, 2019. The legislation, known as the E-cigarette Tax Parity Act, would expand the definition of taxable tobacco products under the Tax Code to include e-cigarettes and other alternative nicotine products. The legislation would establish an excise tax on alternative nicotine products at a rate equal to the federal cigarette tax (equivalent to $1.0066 per pack of 20 cigarettes). The tax would be calculated on a per-milligram of nicotine basis because the nicotine content and delivery method of alternative nicotine products vary significantly. Similarly, Representatives Tom Suozzi and Peter King of New York introduced a bill to tax the nicotine used in vaping at a rate equivalent to the cigarette tax rate or, if greater, at a rate of $50.33 per 1,810 milligrams of nicotine.

State and Local Taxes

Cigarettes

All 50 states and the District of Columbia (DC) currently impose a specific excise tax on cigarettes. As can be seen in Table 1, state excise tax rates range from a low of 17 cents per pack in Missouri to $4.50 per pack in DC. Since 2002, 48 states and the DC have increased their cigarette tax rates 138 times.

Table 1

State Specific Excise Tax Rates as of January 1, 2020

State	Tax per Pack	State	Tax per Pack
Alabama	$0.68	Montana	$1.70
Alaska	$2.00	Nebraska	$0.64
Arizona	$2.00	Nevada	$1.80
Arkansas	$1.15	New Hampshire	$1.78
California	$2.87	New Jersey	$2.70
Colorado	$0.84	New Mexico	$2.00
Connecticut	$4.35	New York	$4.35
Delaware	$2.10	North Carolina	$0.45
DC	$4.50	North Dakota	$0.44
Florida	$1.34	Ohio	$1.60
Georgia	$0.37	Oklahoma	$2.03
Hawaii	$3.20	Oregon	$1.33
Idaho	$0.57	Pennsylvania	$2.60
Illinois	$2.98	Rhode Island	$4.25
Indiana	$1.00	South Carolina	$0.57
Iowa	$1.36	South Dakota	$1.53
Kansas	$1.29	Tennessee	$0.62
Kentucky	$1.10	Texas	$1.41
Louisiana	$1.08	Utah	$1.70
Maine	$2.00	Vermont	$3.08
Maryland	$2.00	Virginia	$0.30
Massachusetts	$3.51	Washington	$3.03
Michigan	$2.00	West Virginia	$1.20
Minnesota	$3.04	Wisconsin	$2.52
Mississippi	$0.68	Wyoming	$0.60
Missouri	$0.17		

Source: Campaign for Tobacco-Free Kids, 2020.

In addition, more than 600 cities, towns, and counties in the US impose their own specific excise taxes on cigarettes. Compared to state tax rates, most of these local jurisdictions apply a relatively smaller tax. However, several cities and counties do impose large cigarette taxes. For example, Aspen, Colorado imposes a $3.10 per pack tax; Cook County, IL, Avon CO, and Juneau, AK impose a $3.00 per pack tax; Sitka, Anchorage, Matanuska-Susitna Borough, Kotzebue, Petersburg, Bethel, Ketchikan, and Northwest Arctic Alaska impose taxes of $2.462, $2.41, $2.28, $2.20, $2.03, $2.00, $2.00, and $2.00 per pack, respectively. Moreover, several other large cities like Philadelphia and New York City have large taxes on cigarettes at $2.00 and $1.50 per pack, respectively. Combining federal, state, and local level taxes, individuals purchasing cigarettes in Chicago pay the highest cigarette excise taxes in the country at $8.17 per pack.

Other Tobacco Products

Every state taxes snuff, chewing tobacco, cigars, and other smoking tobacco, with the exceptions of Florida and Pennsylvania who do not tax cigars, but do tax the other aforementioned tobacco products.

Snuff

All 50 states tax snuff. Some states tax snuff on an *ad valorem* basis and some tax snuff on a specific tax basis. Table 2 lists the states that tax snuff on an *ad valorem* basis and provides the rate at which snuff is taxed. Table 3 lists the states that tax snuff on a specific tax basis and provides the rate at which it is taxed. As can be seen in Tables 2 and 3, more than half the states apply an *ad valorem* tax towards snuff. The *ad valorem* tax rates range from 5% of manufacture price in South Carolina to 210% of wholesale price in Massachusetts. The remaining 23 states tax snuff on a specific tax basis. The specific tax ranges from 1 to 12 cents per ounce (based on weight) in Alabama to $3.00 per ounce in Connecticut.

Table 2

Snuff – *Ad Valorem* Tax as of January 1, 2020

1	Alaska	75% of Wholesale price
2	Arkansas	68% of Manufacture price
3	California	59.27% of Wholesale price
4	Colorado	40% of Manufacture price
5	DC	96% of Wholesale price
6	Florida	85% of Wholesale price
7	Georgia	10% of Wholesale price
8	Hawaii	70% of Wholesale price
9	Idaho	40% of Wholesale price
10	Kansas	10% of Wholesale price
11	Louisiana	20% of Manufacture price
12	Maryland	30% of Wholesale price
13	Massachusetts	210% of Wholesale price
14	Michigan	32% of Wholesale price
15	Minnesota	95% of Wholesale price ($3.04 min tax)
16	Mississippi	15% of Manufacture price
17	Missouri	10% of Manufacture price
18	Nevada	30% of Wholesale price
19	New Hampshire	65.03% of Wholesale price
20	New Mexico	25% of Manufacture price
21	North Carolina	12.8% of Wholesale price
22	Ohio	17% of Wholesale price
23	Oklahoma	60% of Manufacture price
24	South Carolina	5% of Manufacture price
25	South Dakota	35% of Wholesale price
26	Tennessee	6.6% of Wholesale price
27	West Virginia	12% of Wholesale price
28	Wisconsin	100% of Manufacture price

Source: Campaign for Tobacco-Free Kids, 2019.

Table 3

Snuff – Specific Tax as of October 1, 2019

1	Alabama	1 to 12 Cents Per Ounce (based on weight)
2	Arizona	22.5 Cents Per Ounce
3	Connecticut	300 Cents Per Ounce
4	Delaware	92 Cents Per Ounce
5	Illinois	30 Cents Per Ounce
6	Indiana	40 Cents Per Ounce
7	Iowa	119 Cents Per Ounce
8	Kentucky	19 Cents Per Unit
9	Maine	202 Cents Per Ounce
10	Montana	85 Cents Per Ounce
11	Nebraska	44 Cents Per Ounce
12	New Jersey	75 Cents Per Ounce
13	New York	200 Cents Per Ounce
14	North Dakota	60 Cents Per Ounce
15	Oregon	178 Cents Per Ounce
16	Pennsylvania	55 Cents Per Ounce
17	Rhode Island	100 Cents Per Ounce
18	Texas	122 Cents Per Ounce
19	Utah	183 Cents Per Ounce
20	Vermont	257 Cents Per Ounce or 308 per pack if less than 1.2 ounces
21	Virginia	18 Cents Per Ounce
22	Washington	252.6 Cents Per 1.2 Ounce min.
23	Wyoming	60 Cents Per Ounce

Source: Campaign for Tobacco-Free Kids, 2020.

Cigars

48 states tax cigars (Florida and Pennsylvania do not impose an excise tax on cigars). Some states tax cigars on an *ad valorem* basis and some tax cigars on a specific tax basis. Table 4 lists the states that tax cigars on an ad *valorem* basis and provides the rate at which cigars are taxed. Table 5 lists the states that tax cigars on a specific tax basis and provides the rate at which they are taxed. As can be seen in Tables 4 and 5, only 5 states apply a specific tax on cigars. The specific tax ranges from .01 cents per cigar in Texas (for cigars that weigh less than 3 pounds per thousand) to $4.00 per cigar in Vermont (if wholesale price of the cigar is greater than or equal to $10.00). 44 states and DC impose an *ad valorem* tax on cigars. The tax ranges from 5% of manufacturer price in South Carolina to 96% of wholesale price in DC. One state, Vermont, imposes both an *ad valorem* tax and a specific tax. If the wholesale price of a cigar is less than or equal to $2.17, the tax is 92% of wholesale price in Vermont; if the wholesale price is greater than $2.17 but less than $10.00 a specific excise tax of $2.00 per cigar is imposed; if the wholesale price is $10.00 or more a specific excise tax of $4.00 per cigar is imposed.

Table 4

Cigars – *Ad Valorem* Tax as of January 1, 2020

1	Alaska	75% of Wholesale price
2	Arkansas	68% of Manufacture price
3	California	59.27% of Wholesale price
4	Colorado	40% of Manufacture price
5	Connecticut	50% of Wholesale price
6	Delaware	30% of Wholesale price
7	DC	96% of Wholesale price
8	Georgia	23% of Wholesale price
9	Hawaii	50% of Wholesale price
10	Idaho	40% of Wholesale price
11	Illinois	36% of Wholesale price
12	Indiana	24% of Wholesale price
13	Iowa	50% of Wholesale price
14	Kansas	10% of Wholesale price
15	Kentucky	15% of Wholesale price
16	Maine	43% of Wholesale price
17	Louisiana	8% - 20% of Manufacture price
18	Maryland	70% (non-premium) 15% (premium) of Wholesale price
19	Massachusetts	40% of Wholesale price
20	Michigan	32% of Wholesale price
21	Minnesota	95% of Wholesale price ($.50 cap premium)
22	Mississippi	15% of Manufacture price
23	Missouri	10% of Manufacture price
24	Montana	50% of Wholesale price
25	Nebraska	20% of Wholesale price
26	Nevada	30% of Wholesale price
27	New Hampshire	65.03% of Wholesale price
28	New Jersey	30% of Wholesale price
29	New Mexico	25% of Manufacture price
30	New York	75% of Wholesale price
31	North Carolina	12.8% of Wholesale price
32	North Dakota	28% of Wholesale price
33	Ohio	Large cigars 37% other cigars 17% of Wholesale price
34	Oregon	65% of Wholesale price (50 cent cap)
35	Rhode Island	80% of Wholesale price (50 cent cap)
36	South Carolina	5% of Manufacture price
37	South Dakota	35% of Wholesale price
38	Tennessee	6.6% of Wholesale price
39	Utah	86% of Manufacture price
40	Vermont	92% of Wholesale price if wholesale price is less than or equal to $2.17
41	Virginia	10% of Manufacture price

42	Washington	95% of Taxable Sales Price
43	West Virginia	12% of Wholesale price
44	Wisconsin	71% of Manufacture price ($0.50 cap)
45	Wyoming	20% of Wholesale price

Source: Campaign for Tobacco-Free Kids, 2020.

Table 5

Cigars – Specific Tax as of January 1, 2020

1	Alabama	4 to 40.5 Cents Per 10 cigars (based on number of cigars received)
2	Arizona	22.05 - 218 Cents Per 10 cigars
3	Oklahoma	3.6 – 120 Cents Per 10 cigars
4	Texas	1-15 Cents Per 10 Cigars
5	Vermont	200 Cents Per Cigar if Wholesale Price is greater than $2.17 but less than $10; 400 Cents Per Cigar if Wholesale Price is greater than or equal to $10;

Source: Campaign for Tobacco-Free Kids, 2020.

Chewing Tobacco

All 50 states and DC tax chewing tobacco. Most tax chewing tobacco on an *ad valorem* basis and some tax chewing tobacco on a specific tax basis. Table 6 lists the states that tax chewing tobacco on an *ad valorem* basis and provides the rates at which chewing tobacco is taxed. Table 7 lists the states that tax chewing tobacco on a specific tax basis and provides the rate at which they are taxed. As can be seen in Tables 6 and 7, only 7 states apply a specific tax towards chewing tobacco. The specific tax ranges from 1.5 cents per ounce in Alabama to $2.02 per ounce in Maine. 43 states and DC impose an *ad valorem* tax on chewing tobacco. The *ad valorem* tax ranges from 5% of manufacture price in South Carolina to 210% of wholesale price in Massachusetts.

Table 6

Chewing Tobacco – *Ad Valorem* Tax as of January 1, 2020

1	Alaska	75% of Wholesale price
2	Arkansas	68% of Manufacture price
3	California	59.27% of Wholesale price
4	Colorado	40% of Manufacture price
5	Connecticut	50% of Wholesale price
6	Delaware	30% of Wholesale price
7	DC	96% of Wholesale price
8	Florida	85% of Wholesale price

9	Georgia	10% of Wholesale price
10	Hawaii	70% of Wholesale price
11	Idaho	40% of Wholesale price
12	Illinois	36% of Wholesale price
13	Indiana	24% of Wholesale price
14	Iowa	50% of Wholesale price
15	Kansas	10% of Wholesale price
16	Kentucky	15% of Wholesale price
17	Louisiana	20% of Manufacture price
18	Maryland	30% Wholesale price
19	Massachusetts	210% of Wholesale price
20	Michigan	32% of Wholesale price
21	Minnesota	95% of Wholesale price
22	Mississippi	15% of Manufacture price
23	Missouri	10% of Manufacture price
24	Montana	50% of Wholesale price
25	Nebraska	20% of Wholesale price
26	Nevada	30% of Wholesale price
27	New Hampshire	65.03% of Wholesale price
28	New Jersey	30% of Wholesale price
29	New Mexico	25% of Manufacture price
30	New York	75% of Wholesale price
31	North Carolina	12.8% of Wholesale price
32	Ohio	17% of Wholesale price
33	Oklahoma	60% of Manufacture price
34	Oregon	65% of Wholesale price
35	Rhode Island	80% of Wholesale price
36	South Carolina	5% of Manufacture price
37	South Dakota	35% of Wholesale price
38	Tennessee	6.6% of Wholesale price
39	Utah	86% of Manufacture price
40	Vermont	92% of Wholesale price
41	Washington	95% of Taxable Sales Price
42	West Virginia	12% of Wholesale price
43	Wisconsin	71% of Manufacture price
44	Wyoming	20% of Wholesale price

Source: Campaign for Tobacco-Free Kids, 2020.

Table 7

Chewing Tobacco – Specific Tax as of January 1, 2020

1	Alabama	1.5 Cents Per Ounce

2	Arizona	22.25 Cents Per Ounce
3	Maine	202 Cents Per Ounce
4	North Dakota	16 Cents Per Ounce
5	Pennsylvania	55 Cents Per Ounce
6	Texas	122 Cents Per Ounce
7	Virginia	21 – 70 Cents Per Unit (based on weight)

Source: Campaign for Tobacco-Free Kids, 2020.

Other Smoking Tobacco

All 50 states tax other smoking tobacco. Most states tax other smoking tobacco on an *ad valorem* basis and a few tax other smoking tobacco on a specific tax basis. Table 8 lists the states that tax other smoking tobacco on an *ad valorem* basis and provides the rate at which other smoking tobacco is taxed. Table 9 lists the states that tax other smoking tobacco on a specific tax basis and provides the rate at which it is taxed. As can be seen in Tables 8 and 9, only 4 states apply a specific tax towards other smoking tobacco. The specific tax ranges from a low of 4 cents per ounce in Alabama to $1.22 per ounce in Texas. 46 states and DC impose an *ad valorem* tax on other smoked tobacco. The *ad valorem* tax ranges from 5% of manufacturer price in South Carolina to 96% of wholesale price in DC.

Table 8

Other Smoking Tobacco – *Ad Valorem* Tax as of January 1, 2020

1	Alaska	75% of Wholesale price
2	Arkansas	68% of Manufacture price
3	California	62.78% of Wholesale price
4	Colorado	40% of Manufacture price
5	Connecticut	50% of Wholesale price
6	Delaware	30% of Wholesale price
7	DC	96% of Wholesale price
8	Florida	85% of Wholesale price
9	Georgia	10% of Wholesale price
10	Hawaii	70% of Wholesale price

11	Idaho	40% of Wholesale price
12	Illinois	36% of Wholesale price
13	Indiana	24% of Wholesale price
14	Iowa	50% of Wholesale price
15	Kansas	10% of Wholesale price
16	Kentucky	15% of Wholesale price
17	Louisiana	33% of Manufacture price
18	Maine	43% of Wholesale price
19	Maryland	30% Wholesale price
20	Massachusetts	40% of Wholesale price
21	Michigan	32% of Wholesale price
22	Minnesota	95% of Wholesale price
23	Mississippi	15% of Manufacture price
24	Missouri	10% of Manufacture price
25	Montana	50% of Wholesale price
26	Nebraska	20% of Wholesale price
27	Nevada	30% of Wholesale price
28	New Hampshire	65.03% of Wholesale price
29	New Jersey	30% of Wholesale price
30	New Mexico	25% of Manufacture price
31	New York	75% of Wholesale price
32	North Carolina	12.8% of Wholesale price
33	North Dakota	28% of Wholesale price
34	Ohio	17% of Wholesale price
35	Oklahoma	80% of Manufacture price
36	Oregon	65% of Wholesale price
37	Rhode Island	80% of Wholesale price
38	South Carolina	5% of Manufacture price
39	South Dakota	35% of Wholesale price

40	Tennessee	6.6% of Wholesale price
41	Utah	86% of Manufacture price
42	Vermont	92% of Wholesale price
43	Virginia	10% of Manufacture price
44	Washington	95% of Taxable Sales Price
45	West Virginia	12% of Wholesale price
46	Wisconsin	71% of Manufacture price
47	Wyoming	20% of Wholesale price

Source: Campaign for Tobacco-Free Kids, 2020.

Table 9

Other Smoking Tobacco – Specific Tax as of January 1, 2020

1	Alabama	4-6 Cents Per Ounce
2	Arizona	22.25 Cents Per Ounce
3	Pennsylvania	55 Cents Per Ounce
4	Texas	122 Cents Per Ounce

Source: Campaign for Tobacco-Free Kids, 2020.

Snus

46 states tax snus. Alabama, Connecticut, New Hampshire, and North Dakota are the only states not to tax snus. Most states tax snus on an *ad valorem* basis and some tax snus on a specific tax basis. Table 10 lists the states that tax snus on an *ad valorem* basis and provides the rate at which snus is taxed. Table 11 lists the states that tax snus on a specific tax basis and provides the rate at which it is taxed. As can be seen in Tables 10 and 11, only 6 states apply a specific tax on snus. The specific tax ranges from a low of 12.66 cents per ounce in Kentucky to $2.57 per ounce in Vermont. The average specific tax across these six states is $1.118 per ounce. 40 states and DC impose an *ad valorem* tax on snus. The *ad valorem* tax ranges from 5% of manufacturer price in South Carolina to 96% of wholesale price in DC.

Table 10

Snus – *Ad Valorem* Tax as of January 1, 2020

1	Alaska	75% of Wholesale price
2	Arkansas	68% of Manufacture price
3	California	62.78% of Wholesale price
4	Colorado	40% of Manufacture price
5	Delaware	30% of Wholesale price
6	DC	96% of Wholesale price
7	Florida	85% of Wholesale price
8	Georgia	10% of Wholesale price
9	Hawaii	70% of Wholesale price
10	Idaho	40% of Wholesale price
11	Illinois	36% of Wholesale price
12	Indiana	24% of Wholesale price
13	Iowa	50% of Wholesale price
14	Kansas	10% of Wholesale price
15	Louisiana	20% of Manufacture price
16	Maryland	30% Wholesale price
17	Massachusetts	30% of Wholesale price
18	Michigan	32% of Wholesale price
19	Minnesota	95% of Wholesale price
20	Mississippi	15% of Manufacture price
21	Missouri	10% of Manufacture price
22	Montana	50% of Wholesale price
23	Nebraska	20% of Wholesale price
24	Nevada	30% of Wholesale price
25	New Jersey	30% of Wholesale price
26	New Mexico	25% of Manufacture price
27	New York	75% of Wholesale price

28	North Carolina	12.8% of Wholesale price
29	Ohio	17% of Wholesale price
30	Oklahoma	60% of Manufacture price
31	Oregon	65% of Wholesale price
32	Rhode Island	80% of Wholesale price
33	South Carolina	5% of Manufacture price
34	South Dakota	35% of Wholesale price
35	Tennessee	6.6% of Wholesale price
36	Utah	86% of Manufacture price
37	Virginia	10% of Wholesale price
38	Washington	95% of Taxable Sales Price
39	West Virginia	12% of Wholesale price
40	Wisconsin	71% of Manufacture price
41	Wyoming	20% of Wholesale price

Source: Campaign for Tobacco-Free Kids, 2020.

Table 11

Snus – Specific Tax as of January 1, 2020

1	Arizona	22.25 Cents Per Ounce
2	Kentucky	12.66 Cents per Ounce
3	Maine	202 Cents Per Ounce
4	Pennsylvania	55 Cents Per Ounce
5	Texas	122 Cents Per Ounce
6	Vermont	257 Cents Per Ounce

Source: Campaign for Tobacco-Free Kids, 2020.

Vaping Products

Currently 21 states tax electronic cigarettes and other vaping products. In addition, Massachusetts has enacted a tax on that will go into effect on June 1, 2010. Some states tax vaping products on an *ad valorem* basis, some tax them on a specific tax basis, and some states such as Connecticut and New Mexico apply a two-tier tax that employs both *ad valorem* and specific excise taxes. On November 1, 2019 New Jersey changed its tax structure from applying only a specific tax to a two-tier mixed tax. The vaping product taxing strategies of states are quite different. States are currently taxing one or more of the following e-cigarette products: e-cigarette devices; e-cigarette kits, components of e-cigarette devices, volume of the consumable liquid product that contains nicotine, and volume of the consumable liquid product that is not required to contain nicotine. Table 12 lists the states that tax vaping products on an *ad valorem* basis, provides the initial effective date and tax rate as well as the dates of all subsequent tax changes and tax rates, and provides a description of what each state is taxing. Table 13 lists the states that tax vaping products on a specific basis, provides the initial effective date and tax rate as well as the dates of all subsequent tax changes and tax rates, and provides a description of exactly what each state is taxing. As can be seen in Tables 10 and 11, 9 states apply an *ad valorem* tax on vaping products (increasing to 10 states in June 2020 when the Massachusetts tax is implemented), 9 states apply a specific tax, and 3 states apply both an *ad valorem* and a specific tax.

States that apply only an *ad valorem* tax differ in what constitutes a taxable vapor product. In California and DC, the e-cigarette device, some components, and consumable liquid that contains nicotine are taxed. In four states (IL, NV, PA, VT) the e-cigarette device, some components, and consumable liquid that does not need to contain nicotine are taxed. Among the states and DC that only apply an *ad valorem* tax, the tax ranges from 15% of wholesale price in Illinois to 96% of wholesale price in DC.

All states that apply only a specific tax to e-cigarettes tax the number of milliliters of consumable product (i.e. ml of liquid) purchased, nothing else. States, however, differ on what constitutes a consumable product to be taxed. Five states (DE, LA, NJ, NC, and OH) require the consumable product to contain nicotine, whereas, four states (KS, WA, WV, and WI) do not require the consumable product to contain nicotine. Washington state is a unique case that applies a two-tier specific tax where consumable product in closed systems with less than 5 ml of consumable product are taxed at 27 cents per ml, whereas, open container consumable product is taxed at 9 cents per ml. Excluding Washington state, among the states that only apply a specific tax, the tax ranges from 5 cents per ml to 10 cents per ml.

Finally, three states, Connecticut, New Hampshire and New Mexico, impose a two-tier mixed tax on vapor products. In Connecticut an *ad valorem* tax of 10% of wholesale price is applied to open e-cigarette devices and bottled e-juice that contain nicotine and a specific tax of 40 cents per ml of e-liquid in closed products (i.e. like pods and cigalikes). In New Hampshire, the tax is 8% of wholesale price on liquids used in open systems and 30 cents per ml on solutions used in closed systems. In New Mexico, an *ad valorem* tax of 12.5% of the price is applied to liquid intended to be used in an open system e-cigarette device and a specific tax of 50 cents per closed system single-use, pre-filled disposable cartridges containing five milliliters or less of e-liquid is imposed.

Table 12

Vaping Product Taxes – Effective Dates, *Ad Valorem* Rate, and Products that are Taxed

California	4/1/2017 7/1/2017 7/1/2018 7/1/2019	27.3% of Wholesale price 65.08% of Wholesale price 62.78% of Wholesale price 59.27% of Wholesale price	E- cigarette device, component sold separately, e-liquid containing nicotine
Connecticut	10/1/2019	10% of Wholesale price	Two-Tiered Tax: Ad Valorem is applied to open E- cigarette device and bottled e-juice (must

			contain nicotine). Ad valorem does not apply to closed devices such as pods and cigalikes – these have a specific tax
DC	10/1/2015 10/1/2016 10/1/2017 10/1/2018	67% of Wholesale price 65% of Wholesale price 60% of Wholesale price 96% of Wholesale price	E-cigarette device and when purchased separately all components of device. E-juice that contains nicotine.
Illinois	07/1/2019	15% of Wholesale price	E-cigarette device, cartridge, components, and e-liquid (does not need nicotine to be taxed)
Maine	1/2/2020	43% of Wholesale price	E-cigarette device, components, and e-liquid containing nicotine.
Massachusetts	6/1/2020	75% of Wholesale price	E-cigarette device, components, and e-liquid containing nicotine.
Minnesota	8/1/2010 7/1/2013	70% of Wholesale Price 95% of Wholesale price	E-cigarette devices sold with nicotine cartridges and e-juice that contain nicotine; components not taxed.
Nevada	7/1/2019	30% of Wholesale price	E-cig devices, components, and e-liquid (does not need nicotine to be taxed)
New Hampshire	1/1/2020	8% of Wholesale price	Liquids used in open systems
New Jersey	11/1/ 2019	10% of the listed retail price	Two-tiered Containers of e-liquid (used in an open system) Specific tax will be applied to pre-filled cartridges
New Mexico	7/1/2019	12.5% of Product Value	Two-Tiered Tax: Liquid intended to be used in an open system e-cigarette device (does not require nicotine); cannabis liquid/oil not taxed
New York	12/1/2019	20% supplemental sales tax	“vapor products”
Pennsylvania	10/1/2016	40% of Wholesale price + devices	E-cigarette devices, e-cig kits, any consumable material (nicotine not required) not taxed: coils, reservoirs, batteries
Vermont	7/1/2019	92% of Wholesale price	e-cigarette devices, vaping liquid of any substance even if it does not contain nicotine, and vaping apparel such as hoodies. Repair parts, accessories, and charging devices that can only be used in vaping devices or are custom made for vaping devices are taxable.

Source: Campaign for Tobacco-Free Kids, 2020; Public Health Law Center, 2020.

Table 13

Vaping Product Taxes – Effective Dates, Specific Tax Rate, and Products that are Taxed

Connecticut	10/1/2019	40 cents per ml	Two-Tiered Tax: E-liquid in closed products (like pods and cigalikes) have a specific tax
Delaware	1/1/2018	5 cents per ml	Liquid or other material containing nicotine
Kansas	1/1/2017 7/1/2017	20 cents per ml 5 cents per ml	Consumable material required nicotine prior to 7/1/17. After 7/1/17 no nicotine required to be taxed consumable material
Louisiana	8/1/2015	5 cents per ml	Consumable Nicotine solution
New Hampshire	1/1/2020	30 cents per ml	Liquids used in closed systems
New Jersey	9/29/2018 11/1/2019	10 cents per ml 10 cents per ml	Any solution containing nicotine to be used with e-cig. Solutions without nicotine are not taxed. Two Tier Mixed tax 10 cents per fluid milliliter on liquid nicotine in a pre-filled cartridge or other container where the cartridge or container is marketed, sold, or intended for use as part of an electronic smoking device
New Mexico	7/1/2019	50 cents per closed system cartridges (1-time use)	Two-Tiered Tax: A closed system single-use, pre-filled disposable cartridge containing five milliliters or less of e-liquid
North Carolina	6/1/2015	5 cents per ml	Consumable product that must contain nicotine
Ohio	10/1/2019	10 Cents per ml	nicotine-containing e-liquid
Washington	10/1/2019	9 cents per ml (open container) 27 cents per ml (closed)	Two Tier Specific Tax: 1) Open container solution: Any accessible container of solution, regardless of whether it contains nicotine, that is greater than five milliliters (mL), is taxed at 9-cents per mL. 2) Closed Pods/cartridges less than 5 ml taxed at 27 cents per ml
West Virginia	7/1/2016	7.5 cents per ml	E-cigarette liquid is taxed. Does not need to contain nicotine
Wisconsin	10/1/2019	5 cents per ml	Consumable liquid that does not require nicotine to be taxed

Source: Campaign for Tobacco-Free Kids, 2019; Public Health Law Center, 2020.

In addition, several cities, towns, and counties in the US impose their own excise taxes on electronic cigarettes. For example: Aspen Colorado imposes an *ad valorem* 40% tax of wholesale price; Chicago, IL imposes a tax of $1.50 per product unit AND $1.20 per fluid ml of consumable product; Cook County IL imposes a tax of $0.20 per ml of consumable product; Juneau, NW Arctic, and Petersburg Alaska impose an *ad valorem* tax of 45% of wholesale price; Matanuska-Susitna Borough Alaska imposes a tax of 55% of wholesale price; and Montgomery County Maryland imposes a tax of 30% of wholesale price.

Heated Tobacco Products

In May 2019, the Food and Drug Administration approved the sale of IQOS, a heated tobacco product, in the United States, where Altria has the rights to sell the product through an agreement with Philip Morris International. Altria is rolling out the IQOS in Atlanta as a test market. Approximately 500 retail stores in the Atlanta area will eventually sell the tobacco "heat sticks" that go into the IQOS device, but smokers will have to buy the rechargeable device itself in face-to-face interactions at mobile sales units or kiosks set up at retail stores or at two dedicated IQOS stores in the Atlanta area. The first of these stores opened in fall 2019 at the Lenox Square shopping mall in the Buckhead area of Atlanta and at the Mall of Georgia about 30 miles from Atlanta.

Marlboro Heatsticks will likely be categorized as cigarettes under the current definition of cigarettes in the federal tax code, and therefore would be subject to the federal excise tax for cigarettes. At the state level, the definition of what constitutes a cigarette differs. In many states, Heatsticks will fit the definition of cigarettes and be taxed the same as cigarettes. In other states, like Minnesota, Heatsticks will be taxed as other tobacco products. Most states are currently in the process of formulating taxation strategies for heated tobacco products in order to have a tax in place by the time heated tobacco products are sold throughout the United States.

Strengths and Limitations of Different Tobacco Tax Structures

Historically, tobacco products in the United States were taxed primarily for the purpose of revenue generation. However, as the evidence on the deleterious health consequences of tobacco use grew in conjunction with growing evidence on the effects of taxes on tobacco consumption, the federal and state governments began increasing tobacco taxes to not only raise revenue, but to discourage tobacco use as well. The tobacco tax structure in the United States reflects the government's interest in both raising revenue and decreasing the harm caused by tobacco use. Economic theory predicts that the type of tax structure that the government employs will be instrumental in determining how much revenue will be generated and how much harm will be reduced from excise tax increases.[1]

A specific tax on tobacco products is relatively easier to administer, and hence has a lower cost of administration, than an *ad valorem* tax. For a specific tax it is straight forward to count the amount of product being sold (i.e number of packs, weight, or volume) as long as the government uses a precise definition of exactly what comprises one unit of quantity. Price-based *ad valorem* taxes require administrators to calculate the value of the tobacco product and therefore requires more administrative effort and increased costs of administration. Manufacturers can manipulate the prices of products to avoid higher tax payments under an *ad valorem* structure, whereas there is no incentive to manipulate price under a specific tax structure.

Government tax revenues are more predictable when using a specific tax as compared to an ad valorem tax. Specific tax revenue depends solely on the demand for tobacco products by consumers and does not depend on industry pricing strategies The revenues generated from an *ad valorem* tax are sensitive to the manufacture's pricing decisions; *ad valorem* tax revenues rise when tobacco prices rise and fall when the industry cuts prices.

When using a specific tax, the same tax applies to low-price tobacco products as to high-price tobacco products. Therefore, when a specific tax is increased, it usually results in a similar price increase for both low-price and high-price tobacco products. An identical price increase for low- and high- price products results in the same price differential between low- and high-price products before and after the tax. This is not the case with *ad valorem* taxes. With *ad valorem* taxes, a tax increase raises the price of low-end products less than it raises the price of high-end products resulting in a larger price differential between low- and high-end products after the tax as compared to before the tax. This increase in price variability after an *ad valorem* tax increase will likely lead to greater opportunities for tax avoidance, may lead tobacco users to switch from high end tobacco products to low end tobacco products, and likely reduce the effect of taxation on tobacco consumption. Moreover, when an *ad valorem* tax is increased, there is an incentive for manufacturers to produce lower-priced products, and hence lower quality products, because *ad valorem* taxes are tied to price. The greater availability of low price/low quality products may be particularly appealing to youth and low-income individuals, two groups that have been found to have more price elastic demands for tobacco products than the general population.

The advantage of an *ad valorem* tax over a specific tax is that the *ad valorem* tax automatically adjusts for inflation since it is directly tied to the product price. Because a specific tax is not tied to the price of a product, inflation erodes the value of a specific tax over time. To adjust for inflation, governments must periodically increase the specific tax. In addition, in a market where there is considerable heterogeneity among products, as in the vaping products market, an *ad valorem* tax has the benefit of creating a more level playing field across products.

Challenges with Vaping Product Taxation

To understand the challenges with implementing and collecting taxes on vaping products, we relied primarily on semi-structured phone interviews with tax authorities responsible for implementing these taxes. Several states required us to submit our questions via e-mail instead of having a phone interview, and one state required us to fill out an open records request to obtain the information we requested. The information on vaping tax challenges were collected between July 2019 and September 2019 and focused primarily on states that had enacted vapor taxed prior to July 2019 since these states would have a much better grasp of challenges post tax enactment. Our first question regarding challenges was open ended and asked about the biggest challenges faced with respect to vaping taxes. Further questions asked more specifically about any challenges faced related to enacting the tax and collecting taxes, challenges with the type of vaping products that were being taxed, and challenges with tax avoidance and tax enforcement. Frequently noted challenges are described below.

One challenge for states and localities is how to classify vaping products for tax purposes. According to the United States Food and Drug Administration (FDA) electronic cigarettes and other vaping products are classified as tobacco products.[3] However, most taxing states classify vaping as tobacco products. The other five taxing states (CT, KS, OH, WA, and WI) classify vaping products cigarettes as unique non-tobacco

[3] https://www.fda.gov/tobacco-products/products-ingredients-components/vaporizers-e-cigarettes-and-other-electronic-nicotine-delivery-systems-ends

products to be taxed. Among the states that do classify vaping products as tobacco products, two states (CA and ME) tax them at a rate equivalent to the combined rate of taxes applied to cigarettes; three states (MN, NV, VT) and DC tax vaping products at the same rate as other tobacco products(OTP); and nine states (IL, ME, NM, NY, PA, DE, LA, NJ, NC, and WV) tax vaping products at different rates than cigarettes and other tobacco products.

The choice on how to tax vaping products - an equivalent rate to cigarettes, an equivalent rate to OTP, or a unique tax - often depends on the state's objective for implementing the tax. If the state's objective is to minimize the harm from consuming nicotine products, the state may impose a vaping products tax that is lower than the tax imposed on cigarettes, as some consider these products to be significantly less harmful than conventional cigarettes. Some researchers argue that the level of taxation on nicotine products should directly correspond to the health risks that those products impose onto users.[2] If states are contemplating using a vaping products tax for harm reduction purposes, they may want to enact a tax that is high enough to discourage youth use while at the same time increasing taxes on cigarettes and other tobacco products to increase the price differentials between products in order to incentivize nicotine users who are unable to quit entirely to switch from more harmful to less harmful products.

Among the nine states that apply only a specific tax on the ml of consumable product, five states only tax the number of ml of liquid if it contains nicotine, consumable product that does not contain nicotine is not taxed. This type of strategy for vaping product taxation creates an incentive for tax avoidance by retailers. That is, retailers have an incentive to purchase and pay taxes on a relatively small amount of highly concentrated nicotine solution and mix it with untaxed non-nicotine solution, such as solutions that contain flavorings, to avoid paying taxes on the total ml of consumable product. If a portion of the consumable product is not taxed, it will be relatively less expensive to produce the final consumable liquid (compared to the entire solution being taxed) and will likely result in lower prices being charged for vape juice. These lower prices translate into increased consumption and may encourage the use of vaping products by more price sensitive consumers.

The choice of tax structure, *ad valorem* versus specific, imposes a unique challenge for vaping products. An *ad valorem* tax may treat disposable e-cigarettes differently than non-disposable e-cigarettes that use refillable e-liquids. The price to purchase a disposable e-cigarette is less expensive than the price to purchase a re-useable vaping device. Therefore, the consumer pays less tax purchasing the disposable e-cigarette than purchasing the re-useable e-cigarette. However, there is also a differential tax associated with using the devices. The *ad valorem* tax on a disposable e-cigarette is calculated based on the price of the e-liquid and the value of the device itself. The *ad valorem* tax on a non-disposable product is primarily based on the price of the e-liquid itself, once the tax on the purchase of the device has been paid. Therefore, the consumer pays more tax using disposable e-cigarettes compared to using re-useable e-cigarette for the same amount of liquid consumed. The specific tax treats the use of disposable and non-disposable e-cigarettes the same since it taxes only the volume of e-liquid that the person purchases. Since many new users do not want to make a larger financial outlay before they've tried electronic cigarettes, many purchase disposable e-cigarettes to start. The choice between *ad valorem* and specific excise tax structures may affect youth e-cigarette initiation and adult smokers switching from combustible cigarettes to vaping products.

An increasing number of states have made a distinction on how to tax vaping products by the nature of the container in which the e-liquid is sold. For example, New Mexico has a two-tier mixed (i.e. has both a specific and ad valorem tax component) tax on e-liquids. If the e-liquid comes in a closed cartridge (i.e. single use, prefilled cartridge that contains less than 5ml of e-liquid) the tax is a specific tax of $0.50 per cartridge. If the e-liquid is to be used in an open (refillable) device, and ad valorem tax of 12.5% of the value of the e-liquid is imposed. Connecticut also has a two-tier mixed tax. It imposes a specific tax of $0.40 per ml of e-juice for closed devices such as disposable e-cigarettes, rechargeable cigalikes, and pods and charges an ad valorem tax of 10% on open (refillable) e-cigarette devices and bottled e-juice. New Hampshire recently implemented a similar tax, with an *ad valorem* rate of 8% of wholesale price on liquids used in open systems and a specific tax of 30 cents per ml on liquids used in closed systems. Finally, Washington state has a two-tier uniform tax. The specific tax is $0.27 per ml of e-juice for closed (non-refillable) cartridges and pods containing less than or equal to 5ml of e-juice and only $0.09 per ml of e-juice for open (any accessible container of solution greater than 5ml) containers of e-juice. Washington state's two-tier uniform tax is unique in the sense that it aims for greater equivalence between the higher volume liquids used in open systems and the low-volume, high-nicotine solutions used in nicotine salt-based products such as JUUL. Evidence shows that refillable liquid vaping devices (open systems) are primarily used by adults while disposable, cartridge-based and pod-based (closed systems) are favored by minors. Open systems are typically sold in vape shops, whereas, closed systems are available in convenience stores, gas stations, etc.

The distribution chain for vaping products is very different than the distribution chain for cigarettes and other traditional tobacco products. The distribution chain for cigarettes and traditional tobacco products is well defined – manufacturers sell to wholesalers/distributors who sell to retailers who sell to consumers. For vaping products, manufacturers, wholesalers/distributors, and retailers are not mutually exclusive. That is, many manufacturers are also wholesalers and retailers at the same time. This poses a challenge to states as to which entity to tax and makes it more difficult for enforcement agencies to make sure taxes are actually being paid on vaping products. Twelve states (CA, CT, IL, ME, MN, NH, NV, VT,KS, NJ, OH, and WI) impose a tax upon the wholesaler. Three states (NM, NC, WA) and DC impose a tax on the first purchaser (typically defined as the person engaged in business that manufacturers or purchases or receives e-cigarette products). One state, New York, imposes the tax on the retailer of vaping products. One state, PA, imposes a tax on whoever sells vaping products to retailers. Finally, 3 states (DE, LA, and WV) impose the tax on either the wholesaler or retailer that first acquires a vaping product. As described above, a majority of states impose a tax on wholesalers. Given the non-traditional distribution channels for vaping products, potentially many taxable transactions are being missed by states if the distribution channel bypasses wholesalers. For example, Minnesota expressed concern that manufacturers of vaping products were selling their products directly to retailers/customers and the state did not have tax provisions in place to cover these types of transactions – tax provisions were only in place for transactions that employed traditional wholesaler distribution.

Tax stamps and wholesale licenses have been used by states to prevent cigarette and other tobacco tax evasion. In 47 states and DC (ND, NC, and SC do not require tax stamps) licensed wholesalers typically pay the state excise tax for cigarettes and affix a stamp to the package as evidence that the tax has been paid. Currently no states require tax stamps for e-cigarette products. Without tax stamps, states are finding it difficult to monitor the distribution of vaping products. For example, the Louisiana Office of Alcohol and Tobacco Control (LOATC) stated that because tax stamps are not required to be purchased in advance and affixed to vaping products, monitoring distribution and tax collection efforts was much more challenging than cigarettes. Further, the LOATC stated that a traditional distribution system, presumably including tax stamps, would be met by resistance from vaping product wholesalers. For traditional tobacco products, wholesale operations are automated and designed to sort and ship products packaged in standard sizes. For vaping products, there is no standard packaging and taxpayers would be required to manually handle the products, or, invest in new technology to automate, both of which would be costly.

Licenses to distribute/sell vaping products are not required in all of the states that tax or will soon tax vaping products (NM and KS do to require a license to sell e-cigarettes). States that do not require a license to sell vaping products are having trouble determining who is actually distributing/selling them. The Kansas Department of Revenue (KDOR), for example, expressed a strong concern that it did not know exactly which businesses were distributing consumable material at any given point in time. The KDOR finds out who is distributing vaping products each month when they receive a required monthly report from wholesalers. Unfortunately, the KDOR has realized that many distributors of vaping products fail to submit the monthly reports, other distributors submit the required monthly reports periodically (i.e. not every month as required by law), and some distributors submit the monthly report each month, but sometimes do not pay the taxes due.

Even when states require licenses to sell vaping products, many challenges related to tax collection are faced by states. First, despite requiring licenses, states have had problems identifying their tax base (i.e. which businesses are in the business of selling vaping products). Despite informational campaigns aimed at manufacturers, distributors, and retailers and searches for business that sell vaping products, many revenue departments do not have complete lists of all sellers in their states. For example, despite doing a business key word search, meeting with North Carolina vape associations, and meeting with tobacco wholesale organizations, the North Carolina Department of Revenue (NC DOR) had trouble figuring out who their tax base was. The NCDOR sent letters to 3,550 retailers from their keyword searches informing them of license requirements and how to file their tax returns, but many vape dealers on their list were still not paying taxes. Another problem NCDOR faced trying to figure out their tax base was that some sellers had store names that were not related to vaping or tobacco and hence, did not make their list; others retailers would go in and out of business before they were caught by the NC DOR; and finally other businesses changed owners before taxes were paid. The District of Columbia is another example that struggles with the identification of a tax base. Sellers of vaping products in DC are required to obtain a license from the District of Columbia Department of Consumer and Regulatory Affairs (DCDCRA). The District of Columbia Department of Tax and Audit (DCDTA) receives the quarterly tax return from e-cigarette sellers. DCDCRA does not provide a list of vaping product sellers to DCDRTA on a regular basis. DCDRTA only finds out about who is selling vaping products when they receive quarterly tax returns. Taxes can be avoided by sellers if they do not submit a quarterly tax return because DCDRTA might not know they exist. Louisiana experienced a similar issue early on where the Louisiana Office of Alcohol and Tobacco Control (LOATC), not the Louisiana Department of Revenue (LDOR), issued permits to vaping product sellers and then shared this list of permits with the LDOR. From August 2015 through September 2017 less than 100 vaping product retailers were filing monthly tax returns with the LDOR. After September 2017, vaping product retailers are required to register with the LDOR. This has decreased tax evasion in Louisiana. Another challenge for states that require licenses to sell vaping products is that many sellers are manufacturers, wholesalers, and retailers at the same time. These sellers are unsure of which license they must obtain in order to conduct business. North Carolina faced this problem. Initially in North Carolina, sellers that engaged in the manufacture, distribution, and sale of vaping products to consumers were required to purchase 3 separate permits. Given the confusion among vaping product cigarette sellers, NC altered its policy so that only a wholesaler’s permit was required for firms that were manufacturers, wholesalers, and retailers at the same time.

Another challenge that states have encountered is an inexact definition of final consumable product to be taxed. In Minnesota the consumable product must contain nicotine. Some vaping product sellers in Minnesota pay taxes on only the nicotine solution that they acquire and not on the final consumable product that they sell. In an effort to avoid taxes, some distributors in Minnesota purchase and pay taxes on a specific volume of a concentrated nicotine solution. These distributors mix this highly concentrated nicotine solution with a non-nicotine non-taxed solution (i.e. flavoring liquids, etc.) to create a much larger volume of final consumable product of which much of the liquid is not taxed. Had the distributors paid taxes on the entire volume of the final consumable product, and not just the highly concentrated nicotine solution, the revenue generated would have been higher. A concern relating to the mixing of solutions was expressed by Louisiana. Louisiana stated that they were concerned about the safety of additives that were mixed at the retail level to form the final consumable liquid without any supervision or control. New Jersey has also expressed a concern regarding their recently implemented two-tier mixed tax, where bottled e-liquids are taxed on a new ad valorem basis of 10%. The concern is that there is likely to be significant under reporting of the retail sales made to consumers under the new container e-liquid tax. In some states, consumable product does not need to contain nicotine, but it is required to be consumed in an electronic vapor device. A challenge for Kansas and North Carolina, who do not require nicotine in their consumable product, is that some distributors are claiming they do not know what their customers are doing with the solutions they sell and they might not be using them in a vapor device and therefore they are not required to pay taxes on those solutions. Examples of solutions that Kansas and North Carolina have provided were Cannabidiol (CBD) oils and flavoring solutions.

Another challenge for states is vapor products purchased from other states. Pennsylvania identified out-of-state vapor companies as a problem for both enforcement and administration of the taxes. With respect to enforcement, Pennsylvania does not have the means to visit out-of-state companies, especially those across the country, and therefore reporting and taxation typically do not occur on products sold by these out-of-state companies. North Carolina reported a challenge collecting taxes and licensing sellers who sell vapor product over the internet, but do not have a physical presence in North Carolina. North Carolina noted that they rarely receive revenue from out of state internet sales.

Several states reported that the state legislatures passed the vapor tax suddenly which led to problems. For example, the North Carolina legislature passed the consumable products tax suddenly and without getting input from the NCDOR or other agencies. NCDOR scrambled to get everything ready to implement the tax and only had time to lump the consumable products tax with the other tobacco products (OTP) tax. Many tweaks and adjustments were required by NCDOR in order to lump consumable product with the existing OTP tax collection system. The problem of integrating consumable products within the existing tax collection system was not fully resolved and a new tax collection system exclusively designed to better fit the distribution system for consumable products was introduced in October 2018. The new tax collection system posed challenges as well, as many sellers of consumable products were still using old tax forms for some time. The NCDOR spent additional resources reaching out to consumable product sellers informing them that they were required to use the new forms going forward. Kansas also had initial problems with the consumable materials tax. In fact, the implementation of the tax was delayed as the Department of Revenue met with industry representatives to iron out regulations. The process was bogged down and the consumable material regulations did not get passed until 1/1/2017. Once the regulations were passed the industry provided enough resistance regarding the definition of consumable material that a new definition of consumable material went into effect on 7/1/2017. This posed a problem for a few e-cigarette vendors that paid taxes between 1/1/2017 and 7/1/2017. These vendors were given credits to be used after 7/1/2017.

Another challenge for states was making pertinent vaping product tax information available to all affected parties at the time the tax was enacted. Louisiana had challenges educating their staff and informing potential taxpayers of the upcoming changes. West Virginia had difficulties getting vapor dealers and wholesalers to register with the Department of Revenue and getting the wholesalers or dealers that first acquire or handle the e-juice to pay taxes. Much of the difficulty was related to a lack of information on the wholesaler and dealer levels. In Pennsylvania, manufacturers and wholesalers are required to file monthly tax returns both electronically and on paper. Despite information efforts by the Pennsylvania Department of Revenue, many of manufacturers only file electronically and not on paper causing problems for the Pennsylvania Department of Revenue.

Another challenge for states has to do with the floor tax that goes into effect when a vaping product tax is enacted. For example, when the tax was enacted in West Virginia, retailers' floor stock (i.e. stock on hand) as of June 20, 2016 could be depleted without paying taxes. However new purchases starting 7/1/2016 were subject to the new tax. Some manufacturers created very large stocks of e-liquids prior to the effective date in an effort to avoid making tax payments. This was the case if the manufacturer only sold at retail because the retail floor stock was exempt from taxes. If, however, the manufacturer sold wholesale from their floor stock, it was NOT exempt, but many manufacturers thought it was. Pennsylvania did not exempt floor stock from taxes when they enacted their vapor tax. The floor tax caused problems for many retailers, manufacturers, and wholesalers who had large inventory, but did not have enough money to pay their taxes on the floor stock.

Many states that tax vaping products are unable to determine how the quantity of products sold in their states and other states are unable to determine how much tax revenue is collected from the sale of vaping products, and still others are unable to determine both sales and revenue. The inability to determine sales and revenue is problematic because they cannot monitor trends in these products over time, which is important for public health and policy purposes. None of the states that apply a specific excise tax is able to determine how many e-cigarettes were sold in their state, some of these states are only able to determine the volume of ml of consumable product that is sold. Other states that apply an *ad valorem* tax on vaping products are unable to produce any measure of volume or quantity sold, and in some, even how much tax revenue is collected from the sale of vaping products. For example, the California Department of Tax and Fee Administration (CDTFA) does not obtain or keep sales or tax information regarding specific types of tobacco products. This is because the required Tobacco Products Distributor Tax Return submitted to the CDTFA by tobacco products distributors does not differentiate between the different types of tobacco products. Another example is Pennsylvania, where the Pennsylvania Department of Revenue does not maintain any records regarding sales volumes for e-cigarettes or other types of vapor products. Some state revenue departments, like Minnesota, do not collect revenue or sales data specifically for vaping products, but attempt to estimate the fraction of other tobacco product tax revenue that can be attributed to vaping product sales based on assumptions regarding the fraction of OTP revenue that is accounted for by these products.

Some states use words such as "nicotine derived from tobacco" in their definition of tobacco products. Some vaping product manufacturers argue that products that use synthetic nicotine (which is synthesized through chemical reactions in a lab and does not come from tobacco) do not meet the definition of tobacco products and therefore vaping products that use synthetic nicotine are not subject to taxation in states that use definitions based on nicotine derived from tobacco. Because of this, some states are changing their definition of tobacco products. For example, on January 1, 2020 Minnesota changed their definition of tobacco products. Prior to January 1, 2020 a tobacco product was defined as “any product containing, made, or derived from tobacco that is intended for human consumption” and “Tobacco products include nicotine solution products” as defined by “any cartridge, bottle,or other package that contains nicotine made or derived from tobacco” Since January 1, 2020 Minnesota defines nicotine solution products as “any cartridge, bottle, or other package that contains nicotine, including nicotine made or derived from tobacco or sources other than tobacco”. The new definition includes electronic cigarettes and vaping solutions that use synthetic nicotine in the definition of tobacco products.

A final challenge for states has to do with the vaping lobby who pressures legislators to change aspects of the vaping products tax. For example, in Pennsylvania the vapor lobby put a lot of pressure on the legislature to enact a specific (per ml of e-liquid) excise tax rather than an *ad valorem* tax. As mentioned above, lobbyist for the vaping industry were successful in changing the definition of a consumable product in Kansas. Moreover, in Washington, Representative Gerry Pollet blames pressure from lobbyists for ultimately getting lawmakers to change his proposal to a tiered per-milliliter rate. Further, Kansas had passed a 20-cent-per-milliliter tax on consumable product in 2015. But before it went into effect in 2017, representatives of the local vaping industry pushed for a 5-cent per-milliliter tax, which lawmakers ultimately passed. There is also evidence that a vaping tax proposal in Colorado in 2019 failed partly because of vaping lobbyists. JUUL Labs Inc and Altria Group sent lobbyists to oppose the legislation, according to Colorado lobbying disclosure reports.

Recommendations for Taxing Emerging Nicotine Products

Given the experiences of jurisdictions that have implemented taxes on vaping products in recent years, and the resulting challenges described above, guidance is needed on how to tax these products. This includes guidance on what type of tax to levy, what to tax, where to collect the tax, and at what level to tax. In this section, we provide some recommendations on these issues, noting that these recommendations are based on the current state of the market for and regulation of these products. These recommendations may change as the market evolves and as strong product regulations are implemented.

Specific vs. Ad Valorem Taxation

In general, the best practice for tobacco taxation is to levy specific excise taxes in order to reduce price gaps between different brands of a given tobacco product, limiting consumers ability to trade down to cheaper brands as taxes and prices rise. Research demonstrates that specific cigarette taxes are effective in reducing price gaps, producing more stable and higher tax revenues, and leading to greater reductions in tobacco use.

Specific excise taxes work well when levied on products that are highly similar, such as manufactured cigarettes or little cigars. However, specific taxes can be problematic when applied to highly heterogenous products in that they can lead to significant differences in the taxes applied. For example, smokeless tobacco taxes levied based on product weight can lead to relatively high taxes per unit on traditional smokeless tobacco products, lower taxes on lighter weight snus products, and minimal taxes on very low weight dissolvable tobacco products.

Given the extreme heterogeneity in vaping products, an *ad valorem* excise tax structure appears most appropriate and is most likely to avoid favoring some products over others. For example, a specific tax based on volume of vaping solution, as applied in many US jurisdictions, can lead to a relatively high effective tax on solutions used in open vaping systems, while resulting in a relatively low tax on low volume, high concentration nicotine salt based products like JUUL. Some jurisdictions have attempted to address this concern by levying tiered specific taxes. For example, Washington state levies a relatively low tax (nine cents per milliliter) on open container solutions, while levying a higher tax (27 cents per milliliter) on closed pods and cartridges. However, tiered tax structures are more difficult to administer and are likely to need to be frequently adjusted as diverse new products enter the market.

If, in the future, strong product standards that limit nicotine content and volume are implemented, reducing the heterogeneity among products, a specific tax based on volume may be more appropriate. In the European Union (EU), for example, the Tobacco Products Directive limits nicotine concentration to no more than 20 milligrams per milliliter, volume of nicotine solution to containers no larger than ten milliliters, and capacity of refillable tanks to no more than two milliliters. As a result, the range of products available in the EU is more limited than in the US and specific taxation may be more appropriate than *ad valorem* taxation.

In contrast, given the relatively homogeneous 'heat sticks' used in heated tobacco products, levying a specific tax per stick appears most appropriate.

Ad Valorem Tax Base

In the US, state and local *ad valorem* tobacco taxes are generally levied on wholesaler or distributor prices. As described above, many states and localities levy *ad valorem* taxes on other tobacco products, including, in some states, vaping products. This approach is consistent with collecting state and local cigarette excise taxes from wholesalers/distributors. While this works well for cigarettes and other traditional tobacco products, nearly all of which go through a three-tier distribution system (manufacturer/importer, wholesaler/distributor, and retailer), this approach results in considerable challenges for vaping products.

As described above, vaping products are often not distributed through the same type of three-tier distribution system used for traditional tobacco products. This is in part due to the more competitive nature of the vaping product market and the much larger number of firms involved. In some cases, vaping products are sold directly by manufacturers to retails, and in others, the retailer can be the manufacturer. Given this, it can often be nearly impossible to determine an appropriate wholesaler/distributor price.

Given this challenge, levying an *ad valorem* excise tax based on the tax-inclusive retail price for vaping products seems most appropriate. This minimizes the potential for tax avoidance resulting from transfer pricing schemes in which the tax is levied at an earlier stage (e.g. based on manufacturer's price) where the price is set artificially low resulting in a low tax. Levying the tax based on the tax-inclusive retail price ensures that the price the consumer sees includes the tax and, as a result, has the greatest impact on consumer behavior.

While no US jurisdiction implements this type of tax on vaping products, governments in other countries have done so. For example, Indonesia imposes an excise tax on vaping products that is 57 percent of the tax inclusive retail price. Others, such as Saudi Arabia, Bahrain, and the United Arab Emirates, levy the tax based on the pre-tax retail price. For example, Saudi Arabia imposes a 200 percent tax on the pre-tax retail price, which amounts to a 66.67 percent tax on the tax-inclusive retail price. In the US, New York's vaping product tax comes closest, levied as a tax of 20% on retail price.

Taxing Devices and/or Components

Most governments in the US and globally that levy taxes on vaping products do not tax vaping devices and/or their components. The relatively few governments that do tax devices and/or their components face enormous challenges defining exactly what is subject to the tax, given the diversity of devices and components available on the market. While some devices are well defined (e.g. disposable and re-useable e-cigarettes, JUUL vaporizers), others are not. Indeed, vaping enthusiasts have demonstrated endless creativity in developing open systems using a variety of components, ranging from soda cans and liquor flasks to cigarette lighters and handheld gaming devices. While all vaping devices use some type of battery, defining what batteries to tax to be inclusive enough to capture those used in vaping, but not so inclusive as to tax batteries that are used for other purposes seems particularly challenging.

Given the diversity of devices and components used in vaping, levying excise taxes on devices/components poses considerable tax administration challenges in defining exactly what is taxable and what is not taxable. Given these challenges, levying excise taxes on the devices and/or their components used in vaping is not recommended.

Taxing E-Liquids

Every jurisdiction that taxes vaping products levies a tax on some variation of the liquid used in vaping. That said, there is considerable variation in exactly what is taxed and what is not. Some tax only liquids containing nicotine, while others tax any liquid used in vaping. Of those that tax nicotine-containing liquids, some tax only those containing nicotine derived from tobacco, while others tax any nicotine-containing liquid regardless of the source of the nicotine. At least one government (Latvia) levies a tax based on nicotine content.

To date, there are no easily implemented tests to determine whether or not an e-liquid contains nicotine, how much nicotine it contains, and/or the source of that nicotine. Instead, rigorous laboratory testing is needed. Given the myriad varieties of e-liquids available in the market, laboratory testing of all products would be expensive and time-consuming and would need to be conducted frequently given how quickly new products are entering the market. Taxing only e-liquids containing nicotine is likely to generate substantial tax avoidance, with high-nicotine concentration liquids subject to the tax that can be diluted with non-nicotine containing e-liquids that are not subject to the tax.

Given the inherent difficulties with determining whether or not e-liquids contain nicotine, how much nicotine they contain, and/or the source of that nicotine, the most effective approach appears to be taxing all liquids used in vaping. This approach would ease the burden on tax administrators while reducing opportunities for tax avoidance and evasion. Again, if/when strong product standards are implemented that regulate the volume and nicotine concentration of liquids used in vaping, a different approach may be more appropriate.

For products that include both the device and e-liquid (e.g. disposable e-cigarettes or re-usable starter kits that include the vaping device and pods/cartridges), levying the tax on the retail price of the product seems most appropriate. This eliminates the need for tax administrators to try to determine the value of the e-liquid separately.

Where to Collect the Tax

As discussed above, the distribution chain for vaping products is quite different from the distribution chain for cigarettes and other traditional tobacco products. In contrast, given that most heated tobacco products are produced by large multinational tobacco companies, these products are much more likely to go through the same distribution chain used for their cigarettes and other products; this includes IQOS, the only heated tobacco product approved, to date, by FDA for distribution in US markets.

The non-traditional distribution chains for vaping products creates considerable challenges for collecting taxes on these products given that most of the taxes currently implemented in various US jurisdictions aim to collect these taxes from wholesalers/distributors. In the end, tax authorities need to collect at least some, if not most of the taxes on vaping products from retailers, given that many vaping products are sold directly from manufacturers/importers to retailers. This creates difficulties in trying to determine which products were already taxed earlier in the distribution chain and on which products the tax needs to be collected from the retailer.

To simplify tax collection, collecting the vaping products taxes from retailers appears to be the best option. To date, one state – New York – is doing this with its 20 percent 'supplemental sales tax'. This is also consistent with the recommendations above about levying an *ad valorem* tax based on the tax-inclusive retail price. Additionally, nearly all states levy sales taxes that are collected from retailers. In many states, there are complex sales tax systems that impose different tax rates on favored and disfavored products (e.g. exempting or imposing lower taxes on favored products, such as foods and beverages). In some states (e.g. Maryland), special sales taxes are applied to alcoholic beverages. The existence of these systems suggests that collecting excise taxes on vaping products at the point-of-sale based on retail price is highly feasible.

To facilitate this, taxing jurisdictions would ideally have policies requiring outlets selling vaping products to be licensed so that they would have a complete list of retailers from which to collect the tax.

On-line vendors pose a unique challenge in collecting these taxes, given the sizable market share for vaping products that are sold on-line. A similar challenge existed in the past with on-line cigarette sales. This problem was eventually resolved as a result of agreements between states' Attorneys General and shipping companies, credit card companies, and Internet payment services, as well as Federal legislation. Prior to that, however, various states used the Federal Jenkins Act to obtain customer lists from on-line cigarette vendors and used these lists to collect taxes from smokers buying on-line. Federal legislation has been introduced to update the Jenkins Act to include on-line and other direct sales of vaping products. In the absence of a nationally coordinated effort, taxing states could use the updated Jenkins Act, assuming it is eventually enacted, to obtain customer lists from on-line vendors and then collect taxes from users who bought on-line.

Tax Rates

Existing taxes on vaping products vary widely in terms of the effective tax rates. Several states impose very low specific taxes – as low as five cents per milliliter in Delaware, Kansas, Louisiana, North Carolina, and Wisconsin. Rarer are high specific taxes, such as the tax of $1.50 per container plus $1.20 per milliliter levied in Chicago. *Ad valorem* tax rates vary widely as well, from ten percent of wholesale price in Connecticut to 96 percent of wholesale price in Washington DC. Taxing jurisdictions also vary in the relative taxes on vaping products, with some states, such as California and Minnesota, setting tax rates to achieve parity with taxes on cigarettes, while others have no clear objective.

Proponents of a harm reduction approach suggest that taxing nicotine products based on their relative harms would benefit public health. This approach would tax the most harmful products at the highest rates, while taxing less harmful products at lower rates, in an effort to discourage use of the most harmful products and encourage substitution to less harmful products. To date, Connecticut is the only state to have explicitly adopted such a policy, taxing products that FDA determines are modified risk tobacco products at half the rate that it taxes cigarettes.

Effectively implementing a harm reduction approach that taxes products based on their relative harms is particularly challenging given the lack of evidence on the long-term consequences of emerging nicotine products. Indeed, the recent rash of deaths caused by vaping and the growing evidence of respiratory, cardiovascular, and other health consequences of vaping suggests that it will be decades before there is greater clarity on the relative risks from consuming alternative nicotine products. This is further complicated by the rapidly changing and continually evolving vaping product market.

In the short run, the approach Connecticut has taken – taxing products that FDA determines to be modified risk tobacco products at a lower rate – appears appropriate. For FDA to reach a modified risk tobacco product determination, it weighs the available evidence and concludes that the product in question will have a beneficial impact on public health. To date, FDA has considered several modified risk tobacco product applications, including for various snus products, heated tobacco products, and very low nicotine cigarettes. FDA recently issued its first modified risk tobacco product determination for eight smokeless tobacco products produced by Swedish Match; applications for several other products are pending.

Given this, taxing all non-pharmaceutical nicotine products at the same rate as cigarettes are taxed appears most appropriate until there is greater clarity about the relative harms of different products. The average tax burden on cigarettes is relatively easy to determine from existing data; the annual *Tax Burden on Tobacco* produced by Orzechowki and Walker, for example, includes data on average cigarette prices and state cigarette taxes, as well as the share of price accounted for by taxes. Following the recommendations above for vaping product taxes, the *ad valorem* tax rate on the tax-inclusive retail price could be set at the same rate as the share of price accounted for by the taxing jurisdictions tax. For heated tobacco products, the tax per 'heat stick' could be set at the same specific tax rate as the specific tax per cigarette. For other tobacco products that are taxed based on wholesale price, the tax could be set at the same rate as the cigarette tax is based on wholesale cigarette prices, a rate that the Campaign for Tobacco-Free Kids regularly updates based on wholesale cigarette prices and state taxes.

Table 14 contains estimates of the state tax rates for vaping products that would achieve parity with state cigarette taxes, as share of the tax-inclusive and tax-exclusive retail price, based on estimated current average cigarette prices and current state cigarette taxes. Cigarette price estimates are based on the average cigarette prices as of November 1, 2018 reported in the 2019 *Tax Burden on Tobacco*, updated to reflect industry price increases and state cigarette tax increases over the past year.[4] It also includes the *ad valorem* tax rate levied on the wholesale price of cigarettes, reported by the Campaign for Tobacco Free Kids.

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4 Estimated cigarette prices as of October 1, 2019 include two industry price increases since November 1, 2018, totaling 16.8 cents per pack. Estimated cigarette prices assume that there is a 20% markup up at both the wholesale and retail level for the industry price increases, based on past experiences. They similarly assume a 20% markup at the retail level on any state tax increases. For example, the Tax Burden on Tobacco reported an average cigarette price per pack of $7.604 for Illinois on November 1, 2018. The state's cigarette tax rate increased by $1.00 per pack on July 1, 2019. The resulting estimated price for Illinois on October 1, 2019 is $9.046, reflecting a $1.20 increase in prices due to the marked up increase in the cigarette tax (at the retail level), and a $0.242 increase in prices due to the marked up industry price increases (at both the wholesale and retail level). Given the state cigarette tax of $2.98, the share of the tax-inclusive retail price accounted for by the state tax in Illinois is 32.94%.

Table 14

Estimated *Ad Valorem* Tax Rates to Achieve Parity with Average Cigarette Tax Rates

Based on Estimated Average Cigarette Price, January 1, 2020

State	Parity Based on Retail Price	Parity Based on Wholesale Price
Alabama	11.65%	15%
Alaska	20.81%	43%
Arizona	26.30%	43%
Arkansas	18.26%	25%
California	35.41%	62%
Colorado	13.74%	19%
Connecticut	43.52%	94%
DC	48.89%	46%
Delaware	29.63%	97%
Florida	21.01%	29%
Georgia	6.76%	8%
Hawaii	33.48%	69%
Idaho	9.85%	13%
Illinois	32.94%	64%
Indiana	16.70%	22%
Iowa	20.84%	30%
Kansas	19.95%	28%
Kentucky	18.58%	24%
Louisiana	17.56%	24%
Maine	27.20%	43%
Maryland	27.96%	43%
Massachusetts	35.69%	76%
Michigan	28.60%	43%
Minnesota	39.38%	66%
Mississippi	12.15%	15%
Missouri	3.27%	4%
Montana	24.52%	37%
Nebraska	11.06%	14%
Nevada	25.91%	39%
New Hampshire	25.97%	39%
New Jersey	34.14%	58%
New Mexico	27.43%	43%

New York	41.08%	94%
North Carolina	8.31%	10%
North Dakota	8.03%	10%
Ohio	24.00%	35%
Oklahoma	27.50%	44%
Oregon	20.23%	29%
Pennsylvania	31.05%	56%
Rhode Island	43.20%	92%
South Carolina	10.24%	13%
South Dakota	22.58%	33%
Tennessee	11.23%	14%
Texas	21.49%	31%
Utah	24.22%	37%
Vermont	34.91%	67%
Virginia	5.28%	7%
Washington	35.35%	65%
West Virginia	19.12%	26%
Wisconsin	31.95%	55%
Wyoming	10.53%	13%
Federal	15.43%	22%

States that opt to set lower tax rates on products that FDA determines to be modified risk tobacco products can use these rates as a baseline and adjust accordingly. If, for example, other states follow Connecticut's lead, they could levy a tax that is half of the rate in Table 14.

To put these rates in context, Table 15 contains estimates of the dollar value of the tax applied to selected vaping products, based on prices observed on-line and using the cigarette-parity *ad valorem* tax rates on tax-inclusive retail price estimated in Table 14. These include the price of a four pack of JUUL pods ($15.99, JUUL website), a Blu disposable e-cigarette ($5.59, Blu website), a Blu Plus+ tank kit (device and 3 tanks, $10.49, Blu website), and 30 milliliters of the average price for low-cost e-liquids used in open systems ($0.32/ml, e-cigarette intelligence website).

Table 15

Estimated Tax on Selected Vaping Products, Based on Cigarette-Parity *Ad Valorem* Rates

October 2019

State	JUUL Pods, 4 pack	Blu Disposable E-Cigarette	Blu Plus+ Tank, with 3 tanks	E-Liquid, 30 ml
Alabama	$2.11	$0.74	$1.38	$1.27

Alaska	$4.20	$1.47	$2.76	$2.52
Arizona	$5.71	$2.00	$3.74	$3.43
Arkansas	$3.57	$1.25	$2.34	$2.14
California	$8.77	$3.07	$5.75	$5.26
Colorado	$2.55	$0.89	$1.67	$1.53
Connecticut	$12.32	$4.31	$8.08	$7.40
DC	$15.29	$5.35	$10.03	$9.18
Delaware	$6.73	$2.35	$4.42	$4.04
Florida	$4.25	$1.49	$2.79	$2.55
Georgia	$1.16	$0.41	$0.76	$0.70
Hawaii	$8.05	$2.81	$5.28	$4.83
Idaho	$1.75	$0.61	$1.15	$1.05
Illinois	$7.86	$2.75	$5.15	$4.72
Indiana	$3.21	$1.12	$2.10	$1.92
Iowa	$4.21	$1.47	$2.76	$2.53
Kansas	$3.98	$1.39	$2.61	$2.39
Kentucky	$3.65	$1.28	$2.39	$2.19
Louisiana	$3.41	$1.19	$2.23	$2.04
Maine	$5.97	$2.09	$3.92	$3.59
Maryland	$6.20	$2.17	$4.07	$3.73
Massachusetts	$8.87	$3.10	$5.82	$5.33
Michigan	$6.41	$2.24	$4.20	$3.85
Minnesota	$10.39	$3.63	$6.81	$6.24
Mississippi	$2.21	$0.77	$1.45	$1.33
Missouri	$0.54	$0.19	$0.35	$0.32
Montana	$5.19	$1.82	$3.41	$3.12
Nebraska	$1.99	$0.70	$1.30	$1.19
Nevada	$5.59	$1.95	$3.67	$3.36
New Hampshire	$5.61	$1.96	$3.68	$3.37
New Jersey	$8.29	$2.90	$5.44	$4.98
New Mexico	$6.04	$2.11	$3.97	$3.63
New York	$11.15	$3.90	$7.32	$6.69
North Carolina	$1.45	$0.51	$0.95	$0.87
North Dakota	$1.40	$0.49	$0.92	$0.84
Ohio	$5.05	$1.76	$3.31	$3.03
Oklahoma	$6.07	$2.12	$3.98	$3.64
Oregon	$4.05	$1.42	$2.66	$2.43
Pennsylvania	$7.20	$2.52	$4.72	$4.32
Rhode Island	$12.16	$4.25	$7.98	$7.30

South Carolina	$1.83	$0.64	$1.20	$1.10
South Dakota	$4.66	$1.63	$3.06	$2.80
Tennessee	$2.02	$0.71	$1.33	$1.21
Texas	$4.38	$1.53	$2.87	$2.63
Utah	$5.11	$1.79	$3.35	$3.07
Vermont	$8.57	$3.00	$5.62	$5.15
Virginia	$0.89	$0.31	$0.58	$0.54
Washington	$8.74	$3.06	$5.74	$5.25
West Virginia	$3.78	$1.32	$2.48	$2.27
Wisconsin	$7.51	$2.62	$4.93	$4.51
Wyoming	$1.88	$0.66	$1.23	$1.13
Federal	$2.92	$1.02	$1.91	$1.75

Conclusions

The emergence of a variety of new tobacco and nicotine products in recent years, including several products that are potentially less harmful than cigarettes and other traditional tobacco products, has raised several questions about how best to tax these products and about the possibility of setting taxes based on the relative harms of different products. Most governments have been slow to respond, with taxes on vaping products only starting to be implemented in recent years. Most states have yet to adopt these taxes and those that have are taking diverse approaches with respect to tax structure and tax rates. Earlier implementers largely followed the approach used for taxing traditional tobacco products but have faced a variety of challenges. Based on their experiences, it is becoming clearer how to most efficiently and practically implement these taxes. That said, as the markets for these products continue to evolve and new regulations are implemented, best practices for taxation are also likely to evolve.

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