

Dietary Supplements for Weight Loss: Legal Basis for Excise Tax and Other Government Action to Protect Consumers from a Public Health Menace

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Abstract

Purpose: *Dietary supplements sold for weight loss pose a risk to public health due to deceptive claims and unscrupulous manufacturing practices in the context of weak federal regulation. Efforts to strengthen U.S. federal oversight have not been successful, thus action at the state and local levels should be explored. This study investigates proposed action to impose excise taxes on weight-loss supplements.*

Methods: *We reviewed U.S. federal law on taxation at federal, state, and local levels and precedent for taxation of harmful consumer products to promote public health. We assessed the rationale, legal viability, and potential effectiveness of proposed excise taxes on weight loss supplements.*

Results: *Taxation of tobacco and sweetened beverages is effective in reducing consumer use. Imposition of excise taxes on weight-loss supplements is within the authority of federal, state, and local governments, though is least politically feasible at the federal level. State or local taxation of these products has clear rationale, legal*

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viability, and likelihood of effectiveness in reducing the public health burden posed by these products.

Conclusions: Excise taxation is an effective policy intervention to reduce consumer use, particularly among youth, and is a promising public health strategy to decrease consumer exposure to noxious weight-loss supplements.

I. INTRODUCTION

Dietary supplements sold for weight loss are commonly used in the United States. In 2007, one in five women and one in ten men reported using these products at least once.¹ In 2019, American households spent over \$2.5 billion on weight-loss supplements, and the sector is estimated to increase annual revenue to \$4 billion by 2027.² Broadly, the U.S. dietary supplement industry is rapidly growing: the industry was estimated to have generated \$41.4 billion in revenue in 2020 and is projected to be valued at \$56.7 billion by 2024.³ However, this growing business is loosely regulated and is increasingly creating a public health burden. Dietary supplements for weight loss, in particular, present numerous health concerns.

Despite widespread use, dietary supplements sold for weight loss have not been shown to be effective for healthful or safe weight loss or sustained weight maintenance.⁴ Rather, weight-loss supplements have repeatedly been found to be adulterated with dangerous ingredients, including prohibited pharmaceuticals, anabolic steroids, and methamphetamine analogues.⁵ Such ingredients are associated with a wide range of serious health risks, such as chronic gastrointestinal symptoms, cardiac arrhythmia, hemorrhagic and ischemic stroke, and renal failure.⁶ From 2007 to 2016, the U.S. Food and Drug Administration (“FDA”) identified 776 adulterated dietary supplements, forty-one

¹Heidi Michels Blanck et al., *Use of Nonprescription Dietary Supplements for Weight Loss is Common Among Americans*, 107 J. AM. DIETETIC ASS’N. 441, 445 (2007).

²HIMANSHU VIG & ROSHAN DESHMUKH, WEIGHT LOSS AND WEIGHT MANAGEMENT DIET MARKET BY PRODUCT TYPE (BETTER-FOR-YOU, MEAL REPLACEMENT, WEIGHT LOSS SUPPLEMENT, GREEN TEA, AND LOW-CALORIE SWEETENERS) AND SALES CHANNEL (HYPERMARKET/SUPERMARKET, SPECIALTY STORES, PHARMACIES, ONLINE CHANNELS, AND OTHERS): GLOBAL OPPORTUNITY ANALYSIS AND INDUSTRY FORECAST, 2021–2027 (2021), <https://www.alliedmarketresearch.com/weight-loss-management-diet-market> [<https://perma.cc/D2TL-SFBY>].

³Total U.S. Dietary Supplements Market Size From 2016 to 2024, STATISTA, (Sept. 19, 2019), <https://www.statista.com/statistics/828481/total-dietary-supplements-market-size-in-the-us/> [<https://perma.cc/FP9W-U53K>].

⁴Blanck et al., *supra* note 1, at 446; Sean Wharton et al., *The Safety and Effectiveness of Commonly-Marketed Natural Supplements for Weight Loss in Populations With Obesity: A Critical Review of the Literature From 2006 to 2016*, 60 CRITICAL REV. FOOD SCI. & NUTRITION 1614, 1626 (2020).

⁵Neilson M. Mathews, *Prohibited Contaminants in Dietary Supplements*, 10 SPORTS HEALTH 19, 22-24 (2018); Pieter A. Cohen et al., *Four Experimental Stimulants Found in Sports and Weight Loss Supplements: 2-Amino-6-Methylheptane (Octodrine), 1,4-Dimethylamylamine (1,4-DMAA), 1,3-Dimethylamylamine (1,3-DMAA) and 1,3-Dimethylbutylamine (1,3-DMBA)*, 56 CLINICAL TOXICOLOGY 421, 424 (2018); Jenna Tucker et al., *Unapproved Pharmaceutical Ingredients Included in Dietary Supplements Associated with US Food and Drug Administration Warnings*, 1 JAMA NETWORK OPEN, Oct. 2018, at 1, 6.

⁶Mathews, *supra* note 5, at 22-24; Cohen et al., *supra* note 5, at 425; May Yen & Michele Burns Ewald, *Toxicity of Weight Loss Agents*, 8 J. MED. TOXICOLOGY 145, 146-47 (2012); James L. Roerig et al., *The Eating Disorders Medicine Cabinet Revisited: A Clinician’s Guide to Appetite Suppressants and Diuretics*, 33 INT’L J. EATING DISORDERS 443, 445, 448-50 (2003); Bénédicte Vanderperren et al., *Acute Liver Failure With Renal Impairment Related to the Abuse of Senna Anthraquinone Glycosides*, 39 ANNALS PHARMACOTHERAPY 1353, 1355-56 (2005).

percent of which were weight-loss supplements.⁷ Of these weight-loss supplements, eighty-five percent were adulterated with sibutramine, a pharmaceutical drug that was withdrawn from the market in 2010 due to elevated risk of stroke and myocardial infarction.⁸

The use of dietary supplements among Americans is estimated to result in approximately 23,000 emergency room visits per year, with over twenty-five percent directly attributed to weight-loss supplements in particular.⁹ According to the FDA's adverse event reporting on dietary supplement use, weight-loss supplements are nearly three times more likely than vitamins to be linked with severe adverse events among people up to twenty-five years of age, including hospitalization, disability, or death.¹⁰ Use of these products by youth also has been linked prospectively with the development of body dissatisfaction, disordered eating behaviors,¹¹ and new eating disorder diagnoses.¹² Two longitudinal cohort studies of adolescent and young adult women have prospectively linked use of these products to a three-to-six times increased risk of receiving a first-time eating disorder diagnosis within five years.¹³

Further, it is plausible that use of these products may have some "gateway" drug or dependence effects akin to other harmful consumer products, such as tobacco.¹⁴ For example, using supplements for weight control may be considered a "gateway" behavior that habituates users to unhealthy weight control practices that can render users more willing to escalate to other disordered weight-control behaviors as initial efforts at weight control fail to lead to lasting weight reduction.¹⁵ In addition, use of these products can lead to dysregulation of normal digestive functioning, resulting in greater physiologic dependence on products with laxative ingredients, more disordered eating and purging behaviors, and emotion dysregulation due to reliance on unhealthy and ineffective coping methods (e.g., use of weight-loss supplements) to manage negative affect.¹⁶

A growing body of research also demonstrates that dietary supplements for weight loss exacerbate health inequities by driving consumers, especially those from marginalized social groups, toward ineffective and dangerous products deceptively sold with false claims to promote healthy weight loss. Among adults who have tried to lose weight, nearly forty-nine percent of Black and forty-two percent of Latinx Americans have

⁷Tucker et al., *supra* note 5 at 3.

⁸*Id.* at 5.

⁹Andrew I. Geller et al., *Emergency Department Visits for Adverse Events Related to Dietary Supplements*, 373 NEW ENG. J. MED. 1531, 1537 (2015).

¹⁰Flora Or et al., *Taking Stock of Dietary Supplements' Harmful Effects on Children, Adolescents, and Young Adults*, 65 J. ADOLESCENT HEALTH 455, 457 (2019).

¹¹Janet M. Liechty & Meng-Jung Lee, *Longitudinal Predictors of Dieting and Disordered Eating Among Young Adults in the U.S.*, 46 INT'L J. EATING DISORDERS. 790, 794-95 (2013); Marita P. McCabe & Lina A. Ricciardelli, *Extreme Weight Change Behaviours: Are Overweight and Normal Weight Adolescents Different, and Does this Vary Over Time?*, 17 EUR. EATING DISORDERS REV. 301, 310-11 (2009).

¹²Jordan A. Levinson et al., *Diet Pill and Laxative Use for Weight Control and Subsequent Incident Eating Disorder in US Young Women: 2001-2016*, 110 AM. J. PUB. HEALTH 109, 110 (2020); Vivienne M. Hazzard et al., *Diet Pill and Laxative Use for Weight Control Predicts First-Time Receipt of an Eating Disorder Diagnosis Within the Next Five Years Among Female Adolescents and Young Adults*, 54 INT'L J. EATING DISORDERS 1289, 1291-92 (2021).

¹³Levinson et al., *supra* note 12, at 109-10; Hazzard et al., *supra* note 12, at 1290-91.

¹⁴*See, e.g.*, Levinson et al., *supra* note 12, at 109 ("[A] causal relationship may exist, as using diet pills and laxatives for weight control could serve as a 'gateway' behavior to escalating weight-control practices . . .").

¹⁵*See, e.g.*, Press Release, Am. Psych. Ass'n, *Excessive Workout Supplement Use: An Emerging Eating Disorder in Men?* (2015), <https://www.apa.org/news/press/releases/2015/08/eating-disorder> [<https://perma.cc/C9T5-YGWP>] (citing research by Richard Achiro & Peter Theodore finding 40 percent of participants increased their weight loss supplement use over time and 22 percent replaced their meals with supplements).

¹⁶Levinson et al., *supra* note 12, at 109.

used weight-loss supplements compared to thirty-one percent of white Americans.¹⁷ Furthermore, individuals who live in low-income households are at a substantially elevated risk of using weight-loss supplements and spend up to four times more proportionate to household income on these products compared to those in higher-income households.¹⁸ Across age groups, girls and women are nearly two times more likely to use weight-loss supplements than boys and men,¹⁹ and prevalence of use has been increasing faster in Latinx than in white girls in recent years, leading to worsening inequities.²⁰

Given the well-documented physical and mental health harms of weight-loss supplements,²¹ particularly among youth,²² there is an urgent need for policy interventions to decrease their use among Americans. This Article will outline the legal rationale and potential strategies for an excise tax on dietary supplements sold for weight loss in the United States.

II. FDA REGULATION OF DIETARY SUPPLEMENTS FOR WEIGHT LOSS

The FDA has regulatory and enforcement authority over dietary supplements under the Dietary Supplement Health and Education Act (“DSHEA”).²³ Under DSHEA, however, which was passed in 1994, the FDA’s ability to take proactive steps to protect consumers is highly constrained. The Act stripped the FDA of premarket authority so that the Agency cannot require rigorous prescreening of dietary supplements for safety or efficacy before the products enter the market.²⁴ Given the weak regulatory framework for dietary supplements at the federal level, new strategies to strengthen regulation at the state and local levels are warranted to protect consumers.

A. REGULATORY AUTHORITY OF THE FDA

DSHEA prohibits dietary supplements from making “disease claims,” which are explicit or implicit claims that a product is “intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease.”²⁵ Significantly, dietary supplements are subject to a lower standard of regulation than drugs, and marketers are allowed to make structure/function claims, which “[describe] the role of a nutrient or dietary ingredient intended to affect the structure or function in humans”²⁶ Federal law requires that

¹⁷Janine L. Pillitteri et al., *Use of Dietary Supplements for Weight Loss in the United States: Results of a National Survey*, 16 *OBSIDITY* 790, 792 (2008).

¹⁸*Id.* (Roughly 42 percent of households with income under \$40,000 have used dietary supplements, compared to 30 percent in households with income \$40,000 and above); S. Bryn Austin et al., *Household Expenditures on Dietary Supplements Sold for Weight Loss, Muscle Building, and Sexual Function: Disproportionate Burden by Gender and Income*, 6 *PREVENTATIVE MED. REPS.* 236, 238 (2017).

¹⁹Pillitteri et al., *supra* note 17, at 792; Karen M. Wilson et al., *Use of Complementary Medicine and Dietary Supplements Among U.S. Adolescents*, 38 *J. ADOLESCENT HEALTH* 385, 391 (2006).

²⁰Julia A. Vitagliano et al., *Disproportionate use of Over-the-Counter Diet pills Among Latinx Youth and Increased use Over Time Among Latinx Females: Results of U.S. National Study*, *J. ADOLESCENT HEALTH* at 2-3 (Epub ahead of print 2022).

²¹*See supra* notes 6–16 and accompanying text.

²²*See supra* notes 10–13 and accompanying text.

²³Pub. L. No. 103-417, § 3(a) 108 Stat. 4325, 4327 (1994).

²⁴Jennifer L. Pomeranz, Grant Barbosa, Caroline Killian & S. Bryn Austin, *The Dangerous Mix of Adolescents and Dietary Supplements for Weight Loss and Muscle Building*, 21 *J. PUB. HEALTH MGMT. PRAC.* 496, 496 (2015).

²⁵Federal Food, Drug, and Cosmetic Act of 1938, 21 U.S.C. § 321(g)(2) (defining “drug”).

²⁶21 U.S.C. § 343(r)(6)(A).

dietary supplements bearing structure/function claims include the disclaimer: “This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.”²⁷ Further, the FDA requires manufacturers of dietary supplement products to have “competent and reliable scientific evidence” to substantiate their structure/function claim.²⁸ If a manufacturer of a dietary supplement product makes a disease claim, false claim, or misleading claim, the FDA can take enforcement action against the manufacturer.²⁹

In 2000, the FDA promulgated rules clarifying that a statement is a disease claim if it purports that the product has an effect on a disease; treats the characteristic signs of a disease; is a substitute for a therapeutic product meant to treat the disease; treats, prevents, or mitigates symptoms of the disease; or has an effect on an abnormal condition associated with a natural state or process, if the abnormal condition is uncommon or can cause significant or permanent harm.³⁰ Further, in another regulation promulgated in 2000, the FDA recognized obesity as a disease in the context of disease claims and structure/function claims.³¹ However, at that time, the FDA reduced the potential implications of its regulation by also concluding that not all weight-loss claims are necessarily disease claims based on the following rationale:

Being overweight, *i.e.*, being more than one’s ideal weight but less than obese, however, is not a disease. FDA believes that it is commonly understood that ‘weight loss plans’ relate to a broad range of overweight statuses. Therefore, weight loss plans are not so narrowly associated with disease treatment that a reference to use as part of a weight loss plan should be considered a disease claim.³²

The agency has not updated its guidance on weight-loss claims since the 2000 rule.³³

B. CURRENT FDA REGULATION OF DIETARY SUPPLEMENTS FOR WEIGHT LOSS

Over the past twenty years, there have been three notable attempts to address the challenging marketplace of weight-loss supplements. First, in 2003 to 2004, the Federal Trade Commission (“FTC”) launched a multi-pronged effort to combat deceptive weight-loss advertising. Part of this approach included a scientific convening concluding that

²⁷21 U.S.C. § 343(r)(6)(C).

²⁸U.S. FOOD & DRUG ADMIN., FDA-20004-D-0303, GUIDANCE FOR INDUSTRY: SUBSTANTIATION FOR DIETARY SUPPLEMENT CLAIMS MADE UNDER SECTION 403(R)(6) OF THE FEDERAL FOOD, DRUG, AND COSMETIC ACT (2009), <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-substantiation-dietary-supplement-claims-made-under-section-403r-6-federal-food#:~:text=The%20FTC%20standard%20of%20competent,qualified%20to%20do%20so%2C%20using> [<https://perma.cc/UK8L-ZXXZ>].

²⁹*Id.*

³⁰FDA Certain Types of Statements for Dietary Supplements, 21 C.F.R. § 101.93(g)(2) (2000).

³¹“FDA agrees with these comments that obesity is a disease, and that obesity claims are not acceptable structure/ function claims.” Regulations on Statements Made for Dietary Supplements Concerning the Effect of the Product on the Structure or Function of the Body, 65 Fed. Reg. 1000, 1027 (Jan. 6, 2000) (to be codified at 21 C.F.R. pt. 101).

³²*Id.*

³³*Dietary Supplements Guidance Documents & Regulatory Information*, U.S. FOOD & DRUG ADMIN. (Mar. 7, 2022), <https://www.fda.gov/food/guidance-documents-regulatory-information-topic-food-and-dietary-supplements/dietary-supplements-guidance-documents-regulatory-information#labeling> [<https://perma.cc/7FGM-DCLR>].

eight specific weight-loss claims were scientifically impossible.³⁴ The findings from the convening were followed with a report by the FDA, which issued a number of enforcement letters against dietary supplement manufacturers.³⁵

Next, in 2008, a citizen petition filed by the American Dietetic Association, the Obesity Society, Shaping America's Health, and GlaxoSmithKline Consumer Healthcare was submitted to the FDA arguing that weight-loss claims on dietary supplements should be treated as disease claims because overweight is a significant risk factor for disease.³⁶ The FDA issued an interim response letter later that year indicating the agency was unable to reach a decision on the petition by the administrative deadline due to other agency priorities and no additional action took place.³⁷

Finally, in 2012, the Office of the Inspector General released a report, "Dietary Supplements: Structure/Function Claims Fail to Meet Federal Requirements," which primarily focused on dietary supplements for weight-loss and immune-system support.³⁸ The report concluded that twenty percent of the dietary supplements surveyed featured disease claims on the label and did not meet substantiation requirements.³⁹ Following the release of the report, the FDA sent out warning letters to dietary supplement manufacturers in 2013.⁴⁰

These three attempts have not been sufficient to protect the public health from the dangers of dietary supplements for weight loss. Despite increasing reports to the FDA of adulteration, the FDA has issued few warning letters to firms since 2013 and instead increasingly has relied on the relatively weak mechanisms of public notification of adulteration without voluntary or compulsory withdrawal of dangerous products from the consumer market.⁴¹ Further, given the limited federal funding for FDA enforcement and regulation of dietary supplements for weight loss and current agency focus on addressing the COVID-19 pandemic, it is unlikely that the FDA will strengthen regulation of weight-loss dietary supplements in the near future.

Given the need for additional protections, however, the following Section provides recommendations should the FDA move toward strengthening regulations.

³⁴FED. TRADE COMM'N, DECEPTION IN WEIGHT-LOSS ADVERTISING WORKSHOP: SEIZING OPPORTUNITIES AND BUILDING PARTNERSHIPS TO STOP WEIGHT-LOSS FRAUD 3 (2003), <https://www.ftc.gov/sites/default/files/documents/reports/deception-weight-loss-advertising-workshop-seizing-opportunities-and-building-partnerships-stop/031209weightlossrpt.pdf> [<https://perma.cc/SGK2-D6AV>].

³⁵List of manufacturers and warning letters available as archived content. U.S. Food & Drug Admin., Advisory Letter to Dietary Supplement Manufacturers About Unsubstantiated Weight Loss Claims (Oct. 22, 2004), <http://wayback.archive-it.org/7993/20170113101236/http://www.fda.gov/Food/ComplianceEnforcement/WarningLetters/ucm188917.html>; List of Distributors and Manufacturers Receiving Warning or Advisory Letters for Unsubstantiated Weight Loss Claims, U.S. FOOD & DRUG ADMIN. (Nov. 4, 2004), <http://wayback.archive-it.org/7993/20170406024556/https://www.fda.gov/Food/ComplianceEnforcement/WarningLetters/ucm189675.htm>.

³⁶CITIZEN PETITION OF THE AM. DIETETIC ASSOC., OBESITY SOC'Y, SHAPING AM.'S HEALTH, & GLAXOSMITHKLINE CONSUMER HEALTHCARE, FDA-2008-P-0248-0001, REQUESTING THE FOOD & DRUG ADMINISTRATION TO DETERMINE THAT CLAIMS THAT DIETARY SUPPLEMENTS PROMOTE, ASSIST, OR OTHERWISE HELP IN WEIGHT LOSS ARE DISEASE CLAIMS UNDER SECTION 403(R)(6) OF THE FEDERAL FOOD, DRUG, AND COSMETIC ACT (2008).

³⁷U.S. Food & Drug Admin., Opinion Letter on Citizen Petition Requesting Section 403(r)(6) Determination on Dietary Supplement Claims (Oct. 17, 2008) [hereinafter Interim Response Letter] (Letter from Barbara O. Schneeman, Off. Nutrition, Labeling, & Dietary Supplements Director, to Bruce S. Manheim, Jr., Ropes & Gray LLP) (Docket no. FDA-2008-P-0248-0857).

³⁸U.S. DEP'T HEALTH & HUM. SERVS., OFF. OF INSPECTOR GEN. DIETARY SUPPLEMENTS: STRUCTURE/FUNCTION CLAIMS FAIL TO MEET FEDERAL REQUIREMENTS (2012), <https://oig.hhs.gov/oei/reports/oei-01-11-00210.pdf> [<https://perma.cc/LKE3-ZAB4>].

³⁹*Id.* at 16-17.

⁴⁰Natasha Singer & Peter Lattman, *F.D.A. Issues Warning on Workout Supplement*, N.Y. TIMES (April 12, 2013), <https://www.nytimes.com/2013/04/13/business/fda-issues-warning-on-workout-booster.html> [<https://perma.cc/4RD5-9UCS>].

⁴¹Tucker et al., *supra* note 5, at 6.

C. RECOMMENDED FDA ACTION TO STRENGTHEN REGULATION OF WEIGHT-LOSS DIETARY SUPPLEMENTS

To improve the current dietary supplement regulatory scheme, the FDA should promulgate rules and guidance establishing characteristics, examples, and criteria that designate specific types of weight-loss claims as *per se* false and misleading and/or as disease claims. Weight-loss science and drugs have advanced appreciably since the structure/function rule was promulgated in 2000. FDA has approved several prescription weight-loss drugs for obese or overweight individuals who have at least one weight-related comorbid condition.⁴² The claims made on these drugs are FDA-approved and appropriately qualified for relevant populations.⁴³ Conversely, claims on dietary supplements for weight-loss are similar to the approved prescribed indications, but are exaggerated and lack the limitations required for their prescription counterparts. For example, every evidence-based therapy for weight-loss, including surgery,⁴⁴ stipulates that diet and/or exercise behavioral modifications are also required, but weight-loss supplements are not required to include similar stipulations on their packaging.

In addition to classifying certain claims as *per se* false and misleading and/or as disease claims, the FDA should issue regulations to require disclaimers and additional guidance for all other weight-loss claims that do not meet the requirements of the final rulemaking noted above. The standard FDA disclaimer has not stopped supplement manufacturers from misleading consumers. Studies have found that the existing dietary supplement disclaimer fails to effectively communicate the intended message⁴⁵ and has no effect on consumer perception of safety and efficacy.⁴⁶ Statements should be prominently displayed on the label in clear, bold typeface in a font size as large as any weight-loss claim made on the same label and positioned on the front of the package to ensure consumers receive the information they need to make informed decisions. Further, the FDA should require that these supplements include in the disclaimer on the front of the package clear instructions for consumers on how to report adverse events to the FDA.

As detailed above, while the FDA has some authority over dietary supplements, due to constraints imposed by DSHEA, the Agency's ability to ensure a safe marketplace for consumers is woefully inadequate. As a result, responsibility falls to state and local governments to seek novel strategies within their authority to strengthen protections for

⁴²See generally, BEVERLY G. TCHANG ET AL., PHARMACOLOGIC TREATMENT OF OVERWEIGHT AND OBESITY IN ADULTS (2021) in ENDOTEXT (Kenneth R. Feingold ed. 2022) (ebook), <https://www.ncbi.nlm.nih.gov/books/NBK279038/> [<https://perma.cc/KK39-HXCT>].

⁴³See, e.g., U.S. Food & Drug Admin., Prescribing Information (2020) loc. 1 INDICATIONS AND USAGE (2020), https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/206321s012s013s014lbl.pdf [<https://perma.cc/V74K-9GYJ>] (indicating Saxenda as a weight management medication for adults and pediatric patients who meet age or body weight criteria and/or have a weight-related comorbid condition).

⁴⁴The Lap-band is an FDA-approved medical device that is surgically implanted around the stomach to help patients with severe obesity lose weight. Its patient information sheet notes that "[p]atients who elect to have this surgery must make the commitment to accept significant changes in their eating habits for the rest of their lives." *Important Safety Information*, LAP BAND, <https://www.lapband.com/safety/> [<https://perma.cc/H8SQ-DLSX>] (last visited Apr. 11, 2022).

⁴⁵Aaron S. Kesselheim et al., *Mandatory Disclaimers on Dietary Supplements Do Not Reliably Communicate the Intended Issues*, 34 HEALTH AFFS, 438, 445 (2015).

⁴⁶Marlys J. Mason et al., *The Impact of Warnings, Disclaimers, and Product Experience on Consumers' Perceptions of Dietary Supplements*, 41 J. CONSUM AFFS, 74, 94 (2007).

consumers. One such novel strategy could be to impose an excise tax on weight-loss supplements, as argued below, which may be particularly impactful for adolescent consumers.⁴⁷

III. RATIONALE FOR GOVERNMENT ACTION TO RESTRICT OR REDUCE ACCESS TO HARMFUL CONSUMER PRODUCTS

To address the growing public health burden of dietary supplements sold for weight loss, researchers have called for increased regulation of these products. As discussed in Part II, the FDA has some regulatory authority over dietary supplements and the capacity to improve their regulation. Accordingly, researchers have called for reforms from requiring all supplements be registered with the FDA before entering the market to banning sales to minors.⁴⁸

Another proposed policy strategy is to enact state or local excise taxes on weight-loss supplements like those for harmful consumer products.⁴⁹ Having a tax on a specific product that has a negative effect on public health can deter use of that product. Imposition of added taxes on products associated with a high public health burden, such as tobacco and sweetened beverages, have been shown to be an effective strategy to reduce consumer use,⁵⁰ especially among youth.⁵¹ Government action to restrict or reduce consumer access to products that have negative public health ramifications is a common feature of the U.S. regulatory environment, such as with prescription drugs, tobacco, and alcohol.⁵²

For example, states currently tax tobacco products because tobacco has been shown to impose a significant public health burden, leading to short-term effects like respiratory and non-respiratory effects, addiction to nicotine, and the associated risk of

⁴⁷Pomeranz, Barbosa, Killian, & Austin, *supra* note 24, at 500.

⁴⁸Or et al., *supra* note 10, at 460 (After a retrospective observational study of adverse event reports of dietary supplements, the authors opined that the “[Dietary Supplement Health and Education Act], which prevents the FDA from robustly regulating the dietary supplements market, should be revised or repealed.”); Pieter A. Cohen & Scott Bass, *Injecting Safety into Supplements - Modernizing the Dietary Supplement Law*, 381 NEW ENG. J. MED. 2387, 2387–88 (2019); S. Bryn Austin, Kimberly Yu, Alvin Tran & Beth Mayer, *Research-to-Policy Translation for Prevention of Disordered Weight and Shape Control Behaviors: A Case Example Targeting Dietary Supplements Sold for Weight Loss and Muscle Building*, 25 EATING BEHAV. 9, 11 (2017); Jennifer L. Pomeranz, Lisa M. Taylor, & S. Bryn Austin, *Over-the-Counter and Out-of-Control: Legal Strategies to Protect Youths from Abusing Products for Weight Control*, 103 AM. J. PUB. HEALTH 220, 222-23 (2013); Pomeranz, Barbosa, Killian & Austin, *supra* note 24 at 499-500.

⁴⁹Pomeranz, Barbosa, Killian & Austin, *supra* note 24, at 500.

⁵⁰Christina A. Roberto et al., *Association of a Beverage Tax on Sugar-Sweetened and Artificially Sweetened Beverages With Changes in Beverage Prices and Sales at Chain Retailers in a Large Urban Setting*, 321 JAMA 1799, 1805-06 (2019); see also Kathryn Backholer et al., *The Impact of a Tax on Sugar-Sweetened Beverages According to Socio-Economic Position: A Systematic Review of the Evidence*, 19 PUB. HEALTH NUTRITION 3070, 3074 (2016) (finding a statistically significant reduction in sugary beverage consumption among children from low-income families following a 1% beverage tax increase); Zachary J. Ward & Steven L. Gortmaker, *Sugar-Sweetened Beverage Taxes Are a Sweet Deal: Improve Health, Save Money, Reduce Disparities, and Raise Revenue*, 4 JNCI CANCER SPECTRUM (SOLICITED EDITORIAL) 1, 2 (2020); Chad Cotti et al., *The Effects of Tobacco Control Policies on Tobacco Products, Tar, and Nicotine Purchases Among Adults: Evidence From Household Panel Data*, 8 AM. ECON. J.: ECON. POL’Y 103, 113-14 (2016); M Arantxa Colchero et al., *In Mexico, Evidence of Sustained Consumer Response Two Years After Implementing a Sugar-Sweetened Beverage Tax*, 36 HEALTH AFFS. 564, 567 (2017); Alexander C. Wagenaar et al., *Effects of Alcohol Tax and Price Policies on Morbidity and Mortality: A Systematic Review*, 100 AM. J. PUB. HEALTH 2270, 2273 (2010); Alexandra Wright, et al., *Policy Lessons From Health Taxes: A Systematic Review of Empirical Studies*, 17 BMC PUB. HEALTH, June 2017, at 1, 7 (2017).

⁵¹Eugene M. Lewit et al, *Price, Public Policy, and Smoking in Young People*, 6 TOBACCO CONTROL (Supplement) S17, S22 (1997).

⁵²See, e.g., 21 C.F.R. § 201.5(a) (2021) (“Drugs; adequate directions for use.”).

other drug use and long-term effects like heart disease and stroke. A primary reason that cigarette taxes are so effective is that young people are particularly sensitive to price increases,⁵³ leading to delays in onset of tobacco use, reduced risk of addiction, and lower risk of resulting negative health consequences.⁵⁴ The Congressional Budget Office (“CBO”) summarized the existing research and concluded that a ten percent increase in cigarette prices will lead people under age eighteen years to reduce their smoking by five to fifteen percent. Among adults eighteen years old or older, CBO concluded the decline would be three to seven percent.⁵⁵

This same type of reasoning supports imposing a tax on dietary supplements sold for weight loss to reduce use among consumers of all ages and especially adolescents. Like tobacco, the use of dietary supplements for weight loss can lead to significant public health burdens, as noted in Part I, warranting an excise tax on such products to reduce usage amongst youth.

Further, such a tax is likely to work for the same reasons cigarette taxes are effective. Our microsimulation study previously found that a twenty percent added tax on weight-loss supplements would result in about seventeen percent lower purchases of these products in households with children ages twelve to seventeen years.⁵⁶ In another microsimulation modeling study estimating the comparative cost-effectiveness of several proposed policy and program strategies for eating disorders prevention, we found an excise tax on weight-loss supplements would be cost saving, meaning that in as much as a tax reduces consumer use of these harmful products, it will correspondingly reduce costs of treating harms caused by the products.⁵⁷

These findings, and those demonstrating the dangers of weight-loss supplements support the call for increased regulation. The next Part discusses potential taxation schemes to reduce the usage of dietary supplements for weight loss.

IV. FEDERAL, STATE, AND LOCAL GOVERNMENT’S ABILITY TO TAX DIETARY SUPPLEMENTS FOR WEIGHT LOSS

In the United States, states and local governments cannot enact laws that conflict with federal law. The Supremacy Clause of the U.S. Constitution⁵⁸ establishes that the federal constitution, and federal law generally, take precedence over state laws and even state constitutions. The Supremacy Clause prohibits states from interfering with the federal government’s exercise of its constitutional powers and from assuming any functions that are exclusively entrusted to the federal government. It does not, however, allow the federal government to review or veto state laws before they take effect.

⁵³Frank J. Chaloupka et al., *The Use of Excise Taxes to Reduce Tobacco, Alcohol, and Sugary Beverage Consumption*, 40 ANN. REV. PUB. HEALTH 187, 189 (2019); CHUCK MARR & CHYE-CHING HUANG, CTR. ON BUDGET & POL’Y PRIORITIES, HIGHER TOBACCO TAXES CAN IMPROVE HEALTH AND RAISE REVENUE 2-3 (2014), <https://www.cbpp.org/sites/default/files/atoms/files/6-19-13tax.pdf> [<https://perma.cc/K6LE-7CS6>].

⁵⁴V. Zagà et al., *Are the School Prevention Programmes - Aimed at De-normalizing Smoking Among Youths - Beneficial in the Long Term? An Example From the Smoke Free Class Competition in Italy*, 29 ANNALI DI IGIENE 572, 578-79 (2017).

⁵⁵MARR & HUANG, *supra* note 53, at 2.

⁵⁶S. Bryn Austin, Selena Hua Liu & Nathan Tefft, *Could a Tax on Unhealthy Products Sold for Weight Loss Reduce Consumer Use? A Novel Estimation of Potential Taxation Effects*, 114 PREVENTIVE MED. 39, 42 (2018).

⁵⁷MW Long et al., *Comparative Cost-Effectiveness of Five Strategies for Primary and Secondary Prevention of Eating Disorders: Results of a Microsimulation Study* (Under review) (on file with author).

⁵⁸U.S. CONST. art. VI, cl. 2.

The U.S. Constitution allows the federal government to tax and spend “to pay the Debts and provide for the common Defence and general Welfare of the United States.”⁵⁹ State and local governments, on the other hand, have a reserved right to impose nearly any type of tax.⁶⁰ Still, state and local government tax powers are limited in one key manner: state and local taxes may not impose unreasonable burdens on interstate commerce⁶¹ or international trade.⁶²

State and local governments need expansive tax powers because they are responsible for the administration of many aspects of public governance. As a matter of constitutional jurisdiction, they are responsible for the protection of residents’ lives and property. This includes the obligation to maintain important public safety services, such as police, fire, and emergency responders.⁶³ State and local governments must also maintain in-state transportation, utility services, and other infrastructure while also providing for the general welfare such as public health.⁶⁴ They also must provide basic social services to their residents, such as public education and assistance for the disabled or elderly.⁶⁵ States and local governments use the revenue they collect from taxes, fees, and licenses to maintain their governments and fund the public services that they provide.⁶⁶

A tax on dietary supplements sold for weight loss would be appropriate through a tax called an excise tax. “Excise taxes are narrowly based taxes on consumption that are levied on specific goods, services and activities. They can be either a per unit tax (such as the per gallon tax on gasoline) or a percentage of price (such as the airline ticket tax).”⁶⁷ Generally, excise taxes are collected from producers or wholesalers, but the cost of the tax is then passed through to the final consumers via an increased price, though the retailer decides how much of the tax to pass through to prices.⁶⁸

D. FEDERAL TAXATION OF DIETARY SUPPLEMENTS FOR WEIGHT LOSS

A federal excise tax would be an efficient way to reduce consumer use of dietary supplements sold for weight loss. Such a tax would be appropriately incorporated into the Internal Revenue Code under Subtitle D—Miscellaneous Excise Taxes.⁶⁹ Within this section, the U.S. Congress can create a new subtitle ‘Dietary Supplements Sold for Weight Loss.’ Alternatively, the tax could be included under Chapter 49—Cosmetic Services.⁷⁰ As a result of the Patient Protection and Affordable Care Act (“ACA”), Chapter 49, section 5000B, now provides an excise tax on indoor tanning services.⁷¹ Another option

⁵⁹U.S. CONST., art. I, § 8, cl. 1.]

⁶⁰U.S. CONST., amend. X (“The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.”).

⁶¹*Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1, 189 (1824) (establishing the doctrine of the Dormant Commerce Clause).

⁶²U.S. CONST. art. I, § 10, cl. 2.

⁶³*What are Government Entities and Their Federal Tax Obligations?*, INTERNAL REVENUE SERV. (Mar. 29, 2022), <https://www.irs.gov/government-entities/federal-state-local-governments/government-entities-and-their-federal-tax-obligations> [<https://perma.cc/7MEE-2UER>].

⁶⁴*Id.* See also *State and Local Taxes*, U.S. DEP’T OF THE TREASURY (Dec. 5, 2010, 10:24 AM), <https://www.treasury.gov/resource-center/faqs/taxes/pages/state-local.aspx> [<https://perma.cc/S5TF-3X2W>].

⁶⁵*What are Government Entities and Their Federal Tax Obligations?*, *supra* note 63.

⁶⁶U.S. DEP’T OF THE TREASURY, *supra* note 64.

⁶⁷*Key Elements of the U.S. Tax System*, TAX POL’Y CTR. (May 2020), <https://www.taxpolicycenter.org/briefing-book/what-are-major-federal-excise-taxes-and-how-much-money-do-they-raise> [<https://perma.cc/57Z2-NEPZ>].

⁶⁸*Id.*

⁶⁹26 U.S.C. §§ 4041-5000C.

⁷⁰26 U.S.C. § 5000B.

⁷¹*Id.*

would be to include an ‘Imposition of Tax on Weight-Loss Dietary Supplements’ within this chapter.

A federal excise tax imposed on dietary supplements sold for weight loss would be administered by the government and collected from the manufacturer of the product that sells to merchants. The manufacturer would be responsible for paying the excise tax; therefore, as with other taxed consumer products such as tobacco and sweetened beverages, the manufacturer is likely to pass on some or all the cost of the tax by raising the price of the product which would ultimately affect the consumer who purchases the product from a merchant, whether online or in a brick-and-mortar store. The manufacturer collecting the excise tax must then remit the tax to the Secretary of the Treasury of the Internal Revenue Service (“IRS”) quarterly, at such time and in such manner as provided by the Secretary. The manufacturer must keep books and records to substantiate the merchant’s purchase and sale of the supplements. If the tax is not paid to the Treasury by the manufacturer, the manufacturer is ultimately liable for the excise taxes.

E. STATE TAXATION OF DIETARY SUPPLEMENTS FOR WEIGHT-LOSS

Another option would be to implement a state-level excise tax on dietary supplements for weight loss, which could be included in the same area of the tax code as the cigarette tax or within an existing excise tax section within the state tax code. This tax could be on the manufacturers, wholesalers, or distributors of dietary supplements, similar to the potential federal tax on manufacturers or going beyond by taxing wholesalers or distributors. States’ excise taxes amount to a relatively small portion of state and local tax collections—about eleven percent.⁷² Excise taxes are levied on cigarettes, alcoholic beverages, sweetened beverages, gasoline, insurance premiums, amusement activities, and pari-mutuels (*e.g.*, betting), among other goods and activities. Therefore, an appropriate place to include an excise tax on dietary supplements for weight loss would be in the state’s area of the tax code where these similar items are located.⁷³

Since the Supremacy clause of the US Constitution⁷⁴ established that state laws cannot conflict with federal laws, many federal laws and regulations evince an intent to establish a regulatory “floor.” This means that the federal government is intending to create a basement of protections or regulations in a certain area; therefore, individual states cannot enact laws that give protections or regulate items below this floor.⁷⁵ However, states are permitted to go above and beyond the federal floor and create laws and regulations that provide additional guidelines or protections so long as they at least encompass the federal floor guidelines or regulations. The legality of this scheme is again based upon the Supremacy clause. When specific laws or regulations are called into question, courts will examine the legislative intent of the federal law to determine whether the intent was to create a regulatory floor.

Further, it is important to note that the federal and state governments share the power to tax. In *McCulloch v. Maryland*,⁷⁶ the Supreme Court held that since the ability to tax “is essential to the very existence of government,” it is to be “concurrently exercised”

⁷²Janelle Cammenga, *How Much Does Your State Collect in Excise Taxes Per Capita?*, TAX FOUND. (Apr. 3, 2019), <https://taxfoundation.org/excise-taxes-per-capita-2019/> [<https://perma.cc/5LEC-3MUS>].

⁷³*Id.* (“[M]any proposed excise taxes come in the form of ‘sin’ taxes on specified activities (such as smoking or drinking or gambling), so advocates can make a case around the health benefits that result when higher prices lead to reduced consumption.”).

⁷⁴See *supra* note 58 and accompanying text.

⁷⁵Barry Latzer, *Four Half-Truths About State Constitutional Law*, 65 TEMP. L. REV. 1123, 1125 (1992).

⁷⁶*McCulloch v. Maryland*, 17 U.S. (4 Wheat.) 316, 425, 428 (1819).

by the federal and state governments. The Supreme Court has not set boundaries on federal preemption of state taxes. However, Congress has typically exercised its ability to preempt state taxes using two rationales: (1) when a state tax interferes with the funding of national programs and (2) when a state tax improperly regulates interstate commerce.⁷⁷ It does not appear that an excise tax on dietary supplements would interfere with funding of national programs, as there does not exist a national welfare program for dietary supplements.⁷⁸ Additionally, a tax on the production, wholesale, or distribution of dietary supplements within a state should not interfere with interstate commerce as, historically, Congress has “focused on safeguarding cross-state travel, commerce, and communication, and not businesses responsible for the sale of products within the taxing state.”⁷⁹ Thus, a dietary supplement tax should not lead to Congress attempting to preempt such a tax.

F. LOCAL TAXATION OF DIETARY SUPPLEMENTS FOR WEIGHT-LOSS

Local municipalities could also offer a separate tax within their jurisdiction. This would be done at the local level by enacting an ordinance, approved by each municipality’s board of supervisors or council. Notably, not all localities would impose such a tax. Rather, it is likely only localities with higher populations in more urban areas would impose such a tax. The tax could be included in the local government’s finance, taxes, and collections chapter. For example, the municipality of Philadelphia enacted a sweetened beverage tax and included the tax within its “finance, taxes, and collections” section of the code and added a new chapter entitled “sugar-sweetened beverage tax.”⁸⁰ A similar new chapter would be warranted for a tax on dietary supplements for weight loss.

As discussed above, the federal government can preempt state taxes; states can in turn preempt local taxes. State preemption of local taxes differs in the sense that state preemption efforts of local taxes is primarily funded and supported by the industry that would ultimately be taxed.⁸¹ For example, since 2017, at least four states have approved preemption laws prohibiting local taxes on sweetened beverages.⁸² Moreover, beverage companies spent \$30 million to oppose local taxes on sweetened beverages in California in 2016 alone.⁸³ As such, there will likely be large push back and efforts by the dietary supplement industry to oppose such taxes. State preemption efforts by the dietary supplement industry would impede public health efforts to address the problems by way of taxing.⁸⁴

G. REVENUE FOR PUBLIC HEALTH INITIATIVES

For federal, state, and local taxation, one unifying option to help the public good would be to dedicate such taxation revenue to advance public health initiatives. Analyses of successful sweetened-beverage tax efforts highlight the benefit of framing a proposed

⁷⁷Jennifer L. Pomeranz et al., *The Potential for Federal Preemption of State and Local Sugar-Sweetened Beverage Taxes*, 53 AM. J. PREVENTIVE MED. 740, 741-42 (2017).

⁷⁸*Supplemental Nutrition Assistance Program (SNAP): What can SNAP Buy?*, U.S. DEP’T OF AGRIC. (Apr. 14, 2021), <https://www.fns.usda.gov/snap/eligible-food-items> [<https://perma.cc/5N2A-AAVL>].

⁷⁹Pomeranz et al., *supra* note 78, at 742.

⁸⁰PHILA., PA., PHILADELPHIA CODE CHAPTER 19-4100 (2016), <https://export.amlegal.com/api/export-requests/5c9d6209-8b86-4500-a506-9a47bacdebb6/download/> [<https://perma.cc/WM4H-ZFJK>].

⁸¹Eric Crosbie et al., *State Preemption to Prevent Local Taxation of Sugar-Sweetened Beverages*, 179 JAMA INTERNAL MED. 291, 291 (2019).

⁸²*Id.*

⁸³Liam Dillon, *California bans local soda taxes*, LA TIMES (June 28, 2018), <https://www.latimes.com/politics/la-pol-ca-soda-tax-ban-20180628-story.html> [<https://perma.cc/W8S4-MS4F>].

⁸⁴Jennifer L. Pomeranz et al., *State Preemption of Food and Nutrition Policies and Litigation: Undermining Government’s Role in Public Health*, 56 AM J PREVENTATIVE MED. 47, 54-56 (2019).

new tax as a mechanism to support a popular program, such as universal access to pre-kindergarten education, regardless of the particular health risk behavior the tax itself is meant to address.⁸⁵ The government can direct the excise tax funds for public health purposes within statute or through an agreement with the executive branch of that jurisdiction. Some local ordinances and codes such as the Philadelphia sweetened beverage tax have not directed the funding within the excise tax statute, but instead included the public health funding within their annual budgets.⁸⁶ This allows lawmakers flexibility in utilizing the remittance funding for emerging public health needs. Whereas, stipulating in statute how funds from taxes must be spent reduces flexibility for lawmakers.

Taxation on harmful consumer products has been scrutinized for potentially resulting in regressive taxation placing added burden on low-income consumers, though in the case of sweetened-beverage taxes, the difference in burden between high and low income households has been found to be modest.⁸⁷ Beyond the question of regressive taxation concerns, the ethical implications of taxation on consumer harmful products can be considered in light of broader impacts for social good, such as through allocation of revenue generated to beneficial social programs.⁸⁸ In the case of sweetened beverage taxation in U.S. jurisdictions, revenue has been allotted to a wide range of government programs, including community college tuition assistance, public school nutrition education, dental services, universal prekindergarten, healthful beverage promotion, public parks and recreation, and improvements in accessibility of physical activity, healthful foods, and safe drinking water, particularly for children and low-income communities.⁸⁹

H. POLITICAL FEASIBILITY OF TAXATION OPTIONS

1. Challenges

Each government level of taxation presents feasibility challenges. Federally, laws that impose taxation on a product or service are politically cumbersome and rare. For example, the ACA included a federal excise tax on tanning salons⁹⁰ that was successfully passed because of a Democratic supermajority in Congress. Subsequent Republican health reform bills included repeal provisions to remove this tax, arguing that it failed to collect the approximate \$1 billion estimate in revenue to offset the costs of other provisions with the ACA and ostensibly resulted in the loss of thousands of jobs. However, these repeal attempts were unsuccessful.⁹¹

⁸⁵Wright et al., *supra* note 50, at 9 (citing studies in which ministerial and public support for taxes increased when funds were earmarked for public initiatives); Luc L. Hageaars et al., *Six Lessons From Introducing Sweetened Beverage Taxes in Berkeley, Cook County, and Philadelphia: A Case Study Comparison in Agenda Setting and Decision Making*, 124 HEALTH POL'Y 932, 935 (2020) (quoting policymakers' and stakeholders' views on the passage of the Philadelphia sugary beverage tax and the impact of its framing as a revenue source for statewide preschool).

⁸⁶"Since FY17, the majority of Beverage Tax revenue has gone to the General Fund, where it remains untracked and can be used for other spending purposes." *Data Release: Beverage Tax Revenue and Expenditures*, OFF. OF THE CONTROLLER, CITY OF PHILA. (Jan. 12, 2022), <https://controller.phila.gov/philadelphia-audits/data-release-beverage-tax/> [<https://perma.cc/V8QE-38KR>].

⁸⁷Backholer et al., *supra* note 50, at 3080-81.

⁸⁸Jennifer Falbe, *The Ethics of Excise Taxes on Sugar-Sweetened Beverages*, 225 PHYSIOLOGY & BEHAV., at 2 (2020).

⁸⁹*Id.*

⁹⁰Pub. L. No. 111-148, § 10907(b), 124 Stat. 119, 1020-21 (2010) (codified as amended at 26 U.S.C. § 5000B).

⁹¹Elisabeth Ryan, *The 'Tanning Tax' Is A Public Health Success Story*, HEALTH AFFS. BLOG (Aug. 15, 2017), <https://www.healthaffairs.org/doi/10.1377/hblog20170815.061547/full/> [<https://perma.cc/4HDR-WA83>].

It should be noted that research on tobacco and sweetened beverage taxes has demonstrated that when implemented, any employment declines in the taxed industry are offset by jobs created in other sectors; consumers spend the money they would have spent on the taxed products on other goods and services and the tax revenue creates additional jobs.⁹² Yet, this has not eliminated the job-reduction rhetoric.

Other detractors argue that these types of taxes signify federal government overreach that should ultimately be left to states and localities to decide. Passing a tax on dietary supplements for weight loss at the federal level would require substantial political will.

Further, the immense lobbying power of the dietary supplement industry may challenge the implementation of an excise tax on weight-loss supplements. Since the passage of DSHEA in 1994, the U.S. dietary supplement industry has grown from 4,000 products to over 80,000 products worth over \$40 billion.⁹³ The U.S. weight-loss supplements market generated over \$2.5 billion in revenue in 2019 and is projected to earn nearly \$4 billion by 2027.⁹⁴ According to lobbying disclosure reports, the dietary supplement industry spent an estimated \$1.65 million on nutritional and dietary supplement lobbying activities in 2020.⁹⁵ Any attempts to tax part of the industry's product line would likely be met with opposition from its lobbying arm, making it increasingly challenging at any level of government to pass a tax.

Even state-level legislation on dietary supplements for weight loss, unrelated to a tax, has been met with fierce opposition. For example, lobbyists have opposed a Massachusetts bill, *An Act Protecting Children From Harmful Diet Pills and Muscle-Building Supplements*, despite support of public health advocates. This legislation, sponsored by Rep. Kay Khan,⁹⁶ would restrict the sale of dietary supplements for weight loss and muscle building to adults ages 18 years and over. Tens of thousands of lobbying dollars from pharmaceutical and dietary supplement trade associations have been spent over the years⁹⁷ against this state-level legislation. At minimum, similar opposition to legislation related to taxing these products can be expected.

Lastly, despite repeated calls for the FDA to take meaningful action on supplements generally and those sold for weight loss specifically,⁹⁸ including a citizen

⁹²Chaloupka et al., *supra* note 53, at 193 (citing research showing no net impact on jobs due to tobacco, alcohol, or sugary beverage cessation efforts); Lisa M. Powell et al., *Employment Impact of Sugar-Sweetened Beverage Taxes*, 104 AM. J. PUBLIC HEALTH 672, 675 (2014) (a macroeconomic simulation model found a net employment increase after a 20 percent tax on sugar sweetened beverages).

⁹³U.S. GOV'T ACCOUNTABILITY OFF., GAO-17-416, MEMORY SUPPLEMENTS: CLARIFYING FDA AND FTC ROLES COULD STRENGTHEN OVERSIGHT AND ENHANCE CONSUMER AWARENESS 8 (2017), <https://www.gao.gov/assets/690/684620.pdf> [<https://perma.cc/62ZP-B5FY>].

⁹⁴VIG & DESHMUKH, *supra* note 2.

⁹⁵*Nutritional & Dietary Supplements: Lobbying*, OPENSECRETS, <https://www.opensecrets.org/industries/lobbying.php?ind=H4600> [<https://perma.cc/7U4V-JDEZ>] (last visited Apr. 11, 2022).

⁹⁶Austin, Yu, Tran, & Mayer, *supra* note 48, at 11 (The article refers to the original name of H.B. 3471, as introduced in September 2015: *An Act Regulating the Sale of Dietary Supplements for Weight Loss or Muscle Building*.) Rep. Kahn introduced this bill once more in 2021. H.B. 2331, 192nd Gen. Ct., Reg. Sess., (Mass. 2021), <https://malegislature.gov/Bills/192/HD1309> [<https://perma.cc/2YFP-SADA>].

⁹⁷*Lobbyist Public Search*, SEC'Y OF THE COMMONWEALTH OF MASS., <https://www.sec.state.ma.us/LobbyistPublicSearch/Default.aspx> [<https://perma.cc/DPD7-QLZV>] (last visited Apr. 14, 2022) (choose "Activity or Bill"; then select any of the years from 2017 – 2021 in the "Select registration year:" dropdown; then enter "An Act Protecting Children From Harmful Diet Pills and Muscle-Building Supplements" in the "Enter bill name or description:" field and click "search"). Click on a lobbyist's name to view specific details about each lobbyist's compensation from individual clients.

⁹⁸Cohen & Bass, *supra* note 48, at 2388; Akshay Kapoor & Joshua M. Sharfstein, *Breaking the Gridlock: Regulation of Dietary Supplements in the United States*, 8 DRUG TESTING & ANALYSIS 424, 426-72

petition filed in 2008,⁹⁹ the agency has not updated its regulations or issued new guidance related to dietary supplements for weight loss since 2000. Nevertheless, a track record of inaction by the federal agency responsible for the regulation of these products may make it more difficult to convince decisionmakers in other areas of government, such as in Congress or state and local governments, to act on products in the absence of FDA leadership.

2. Opportunities

Despite the challenges above, the success of past public health endeavors to improve regulation of harmful consumer products suggests that change is possible. For example, although the tanning salon tax provision within the ACA fell short of tax revenue expectations, the creation of the tax was a “clear signal from the federal government that indoor tanning is a dangerous and potentially lethal activity that Americans should avoid.”¹⁰⁰ Further, the Centers for Disease Control and Prevention reported that the percent of high school students who engage in indoor UV tanning has decreased by more than half since the enactment of the ACA along with other state-level restrictions on youth access.¹⁰¹

Another example of success is the tax on sweetened beverage taxes. Studies examining large chain food retailer scanner data have found that these taxes have increased prices on sweetened beverages and led to substantial reductions in the sales of taxed beverages. Philadelphia’s 1.5 ¢/oz. tax led to a thirty-nine percent decline in taxed beverage sales after accounting for some consumers crossing city lines to purchase drinks outside the taxed jurisdiction.¹⁰² Seattle’s 1.75 ¢/oz. beverage tax led to a twenty-two percent decline in taxed beverage sales with no meaningful cross-border shopping,¹⁰³ while Chicago’s 1 ¢/oz. tax (which was repealed shortly after introduction) led to a twenty-one percent decline in taxed beverage sales after adjusting for cross-border shopping.¹⁰⁴

Given the precedent of successful tax policies at the federal and local levels of government illustrated above, the evidence is clear that excise taxes can influence consumer behavior and deter at-risk populations from engaging in behaviors that put their health at risk.

V. CONCLUSION

Dietary supplements sold for weight loss are commonly used in the United States and generate over \$2.5 billion in annual revenue—a sum expected to nearly double in less than a decade. At the same time, these products, which are not medically recommended,

(2016); Ranjani Starr, *Should States and Local Governments Regulate Dietary Supplements?*, 8 DRUG TESTING & ANALYSIS 402, 402 (2016).

⁹⁹See *supra* notes 36-37 and accompanying text.

¹⁰⁰Bruce A. Brod, *Health Care Reform Produces Both Heat and Light With the Indoor Tanning Tax*, 91 CUTIS 221, 221 (2013).

¹⁰¹Dawn M. Holman et al., *Prevalence of Indoor Tanning Among U.S. High School Students From 2009 to 2017*, 44 J. CMTY. HEALTH 1086, 1087 (2019).

¹⁰²Roberto et al., *supra* note 50, at 1805.

¹⁰³Lisa M. Powell & Julien Leider, *The Impact of Seattle’s Sweetened Beverage Tax on Beverage Prices and Volume Sold*, 37 ECON. HUM. BIOLOGY, May 2020 at 1, 5.

¹⁰⁴Lisa M. Powell et al., *The Impact of a Sweetened Beverage Tax on Beverage Volume Sold in Cook County, Illinois, and its Border Area*, 172 ANNALS INTERNAL MED. 390, 394 (2020).

have been documented in multiple studies to be adulterated with undisclosed illegal ingredients linked with serious liver injury, stroke, and death. Because repeated calls for strengthening federal oversight have not resulted in change, cities and states should step in to improve regulation, including by enacting excise taxes on weight-loss supplements. Excise taxation is an effective policy intervention to reduce consumer use, particularly among youth, and is a promising public health strategy to decrease consumer exposure to noxious weight-loss supplements.