

Vaping Products Duty consultation response (abridged)

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Please note I have declared no conflicts with respect to the tobacco, nicotine, or pharmaceutical industries.

This abridged document includes only the questions to which I have provided a substantive response – 5-10 and 58-59.

The consultation document and response template with all 59 questions are available via .gov.uk: [Vaping Products Duty consultation](#)

Structure of the duty

5. Do you agree that the rates and structure outlined in Chapter 3 will achieve the stated objectives of the duty?

Yes

No

Please provide any reasons for your answer.

Preliminary remarks. I am wholly opposed to the imposition of Vape Duty based on its likely negative impact on public health and, hence, the NHS. The critical at-risk population is middle-aged adult smokers, disproportionately from poorer or disadvantaged groups. They face rapidly increasing and imminent smoking-related risks and significant financial strain. Youth vaping has minimal health effects and not for decades, if at all – most youth vaping is either inconsequential experimentation or displacing smoking, and hence beneficial. Disincentivising vaping via the tax system is among the government's most ill-conceived ideas. In short, the proposed Vape Duty imposes an approximately £1,000 annual tax on the most popular and effective way for adults to quit smoking, a change in behaviour that the government values at £70,000.

Should there be interest in the policy-relevant evidence, I have produced four evidence briefs on safety, switching, youth and policymaking [\[link\]](#) and some additional comments and recommended sources at [Question 59](#).

Objectives of the duty. There are problems with both the selection of policy objectives and the likelihood that the Vape Duty proposal will contribute to meeting them. I will consider each stated objective in brief.

The government establishes six objectives.

1. To reduce the number of non-smokers and young people that vape by reducing the affordability of vaping products in recognition that vaping is not risk free. Vaping is an economic substitute for smoking. The duty may have the effect of increasing smoking among youth, causing an increase in the availability of illicit products to serve the much larger adult market and triggering workarounds, such as the illegal trade in nicotine concentrates. In terms of societal costs and benefits, the Vape Duty effects on smoking will dominate its overall impacts. Any effect it has on reducing vaping in youth and non-users will likely be overwhelmed by unintended public consequences.

2. To encourage consumers to choose lower strength or nicotine-free vaping products over higher strength ones due to the harms from nicotine addiction. The choice of this objective is based on a simplistic

misunderstanding of nicotine-using behaviours. Higher-strength nicotine does not mean “more addictive”. Users generally “titrate” nicotine to absorb the dose they want – using larger volumes of weaker liquids and lesser volumes of stronger liquids. Officials will be familiar with this concept: drinkers consume smaller quantities of whiskey than beer, but equivalent inebriation is possible with both. Users compensate for liquid strength by subconsciously varying the depth, duration and frequency of puffs. This basic understanding of nicotine-seeking behaviour is missing throughout the consultation. Users of weaker liquids will generally consume larger volumes with higher energy input and will be more exposed to toxicants, contaminants and products of pyrolysis. In general, it is better for health if users are encouraged to use stronger liquids – especially when they make the initial switch and need to replicate the effects of smoking. The incentives established by the Vape Duty are mixed, and the response is indeterminate – see answers 6 & 7 below. The headline price incentive to move to weaker liquids will be moderated or reversed by the costs to users, which is a function of strength *and* volume consumed. The Vape Duty also creates an inappropriate implicit risk communication and creates incentives to switch away from taxed vapes to other nicotine products or untaxed vapes.

3. To encourage manufacturers of vaping products to reduce the nicotine content of their products. The manufacturers will respond to consumers’ preferences (see 2. Above) and maintain the current lawful choices from 0-20 mg/ml. There is no valid analogy with the intention of the Soft Drinks Industry Levy to promote product reformulation. As discussed above, the duty does not, in fact, encourage migration to lower-strength liquids because a given user will consume larger volumes if switching to a lower-strength liquid. The government should not promote the consumption of larger liquid volumes in higher-powered devices as this will likely lead to greater exposures to contaminants and products or pyrolysis. Once the volume of liquid consumed is considered, it is far from clear that Vape Duty incentivises the use of weaker liquids. It is possible, therefore, that a poorly specified objective is matched with an approach that will not achieve it, and therefore, the two failures may cancel each other out.

4. To raise revenue to fund vital public services such as the NHS and smoking initiatives supporting a smokefree generation. This claim is a baseless emotive play and would only apply if the Vape Duty was funding activity that would not be funded in the counterfactual world without the vape duty – in other words, the lowest priority spending. It is more likely to reflect a *redistribution* within the tax base and likely to be strongly regressive, given that smoking and vaping concentrate in low-SES and otherwise disadvantaged populations. It may help to protect revenue from tobacco duties by reducing the propensity to switch or increasing the tendency to relapse, though that will also be felt as a burden on the NHS. It will also depend on how the Vape Duty stimulates illicit trade in vapes, behaviour change and the products on the market. There is no sign that the public finance consequences have been worked through.

5. To ensure the duty is proportionate to administer for both businesses and HMRC. The design means the duty must be collected from importers or the last entity that mixes a liquid for onward sale. Some small businesses are

likely to drop out to avoid tax administration costs. No estimates were presented for consultative purposes, but it should be for HMRC/HMT to present estimates for the administrative burden of a policy to assess value-for-money and viability before it is announced as an irrevocable policy.

6. To ensure the introduction of the duty does not make smoking more attractive. A substantial body of literature shows a positive price cross elasticity between smoking and vaping products as these are economic substitutes [see [answer to Q59](#)]. Even if some price gap is maintained, the price differential will narrow under the proposed duty regime, and the price increase for vapers will be substantial and non-marginal. Some additional smoking should be assumed, and because of the high cost attributable to a change in smoking status, then high unintended costs are likely. £70,000 per smoker is used in the [Impact Assessment for the Plain Packing Legislation](#). “223. [...] For every additional adult smoker who quits, there is a lifetime benefit through increased life expectancy of 2.0 years (1.2 years discounted), valued at around £70,000 (£60,000 per year).”

The problem is that there should have been a proper consultation on Vaping Products (and tobacco) duty focussed on achieving the appropriate public policy goals. But as often with budget announcements, it was produced on Budget Day with only cursory and incidental prior discussion.

6. Do you agree that the rates and structure will encourage manufacturers to reduce the nicotine content of their products?

Yes

No

Please provide any reasons for your answer.

Manufacturers will follow market demand, which will be determined by consumer behavioural responses to the Vape Duty.

The specification of this objective betrays a misunderstanding of nicotine-seeking behaviour. Three clarifying insights may be helpful:

1. Users generally vary their behaviour (frequency, depth, duration of puffs and time spent vaping or smoking) to achieve their desired nicotine exposure. The vape is not a metered dose device. If they use a weaker liquid, they will generally consume a higher volume. This is somewhat like alcohol: people can become equally inebriated on a large volume of beer or a smaller volume of whiskey. This is sometimes known as “titration” or “compensation”. It should never be assumed that users are absorbing nicotine in proportion to the strength they use. Some users will take small amounts from strong liquids, and some users of weak liquids will be heavy nicotine users.
2. To the extent that any risks are associated with vaping, they arise from contaminants and products of thermal breakdown (pyrolysis) in the liquid. This means that vaping with higher volume and greater energy input (i.e., lower-strength liquids) is likely to have somewhat higher

vaping risks than stronger liquids. The appropriate policy should be to *incentivise the use of stronger liquids*, especially among people making the initial switch from smoking to vaping.

3. The greatest danger – by far – with the vape duty levels and structure is that they will incentivise users of liquids of any strength to switch to try products that are less successful as alternatives to cigarettes. Most vapers start on stronger liquids and taper down strength as they become more adept at vaping. The danger of incentivising the use of weaker liquids is that those making the initial switch from smoking to vaping will be inclined to start on weaker liquids and be more likely to fail and, therefore, continue to smoke.

It is unclear whether the Vape Duty structure will incentivise reduced nicotine-strength products, but it would be unfortunate if it did. The reason that it is ambiguous is fourfold, arising from clashing incentives:

1. It sets up a *price signal* that encourages the use of lower-strength liquids. Stronger liquids would increase more in price. If users were responsive to headline price rather than their personal expenditure per week, it would incentivise the use of weaker liquids. This would tend to have two harmful effects: (1) increasing toxic exposures to an unknown degree and (2) making it more likely that smokers making an initial switching attempt will use liquids that are too weak and so increase the likelihood they will fail and continue to smoke.
2. It sets up an *economic incentive* that discourages the use of lower-strength liquids. Because users of weak liquids use higher volumes of liquid (see next question for real-world user data), the weekly cost burden on users of weaker liquids is likely higher (except around the immediate vicinity of the rate step at 11 mg/ml), creating an incentive to use stronger liquids.
3. It sets up a *false risk communication*, implying that the government believes stronger liquids are more dangerous or that it is desirable to use weaker liquids. However, the reverse is true.
4. It sets up a series of *perverse incentives* at the category level: it will encourage defection from the legal market, risky home mixing, informal trade in potent nicotine concentrates, reduced switching or increased relapse to smoking, and uptake of different nicotine products – such as pouches. The tobacco-nicotine marketplace needs to be understood as a *complex adaptive system* in which simple interventions trigger a wide range of adaptive responses by consumers, legitimate suppliers, and criminal networks. So, giving a conclusive answer to question 6 is impossible. Still, it is possible to at least identify the range of likely behavioural responses – including how these might vary between youth and adults. I recommend HMT and HMRC develop a more sophisticated model of the behavioural economics at work in the recreational nicotine market.

7. What do you think the likely impact the rate structure will have on consumers' vaping behaviours?

Yes

No

Using real-world consumption data to estimate the burden of Vape Duty on consumers. To estimate how Vape Duty will impact users, it is necessary to have real-world data on the strengths of liquids used and quantities consumed. We can use existing surveys of vapers to provide a first-pass estimate. Several surveys have the requisite information (volume of liquid in ml/day and strength of liquid in mg/ml). I have drawn on data from the European Tobacco Harm Reduction Advocates (ETHRA) survey from 2020, which reached over 30,000 users across Europe. The survey is available from ETHRA: [The nicotine users survey 2020](#), 2021. A specific UK report ([download](#)) covers the 966 UK vapers who answered questions about consumption and strength – see page 52 of the UK-specific report. I have provided estimates of the impact of the vape duty on these users, accounting for the liquid volume they consume.

Strength mg/ml reported range in the UK survey	Strength mg/ml midpoint used to calculate cost	Average vol/day from UK survey ml	Number of UK users giving data (966 in total) from survey	Estimated Nicotine per day mg	Duty rate £/10ml	Duty £ per day	Duty + VAT on duty £ per day	Additional cost per year
< 3	1.5	12.1	99	18.2	£2.00	£2.42	£2.90	£1,060
3-6	4.5	14.1	456	63.3	£2.00	£2.81	£3.37	£1,232
6-9	7.5	9.1	156	68.2	£2.00	£1.82	£2.18	£796
9-15	12.0	6.6	162	79.7	£3.00	£1.99	£2.39	£872
15-20	17.5	5.4	93	94.2	£3.00	£1.61	£1.94	£707
Weighted average								£1,033

Caveats:

- I have characterised each range using the midpoint of each of the five strength ranges used in the survey. So, the calculation is illustrative.
- It assumes full pass-through of duty into prices and does not assess behaviour change.
- The survey uses a convenience sample rather than a sample that reflects the structure of the vaping population and, therefore, cannot be assumed representative.
- The data were collected in 2020, and since then, there have been significant changes in the market, including the illicit market and the rise of high-strength disposables.

Overall, the economic incentive would be towards stronger liquids – the opposite direction to the price signal. The data show clearly that users of strong liquids use much lower volumes of liquid. However, “compensation” is not 100% complete; there may be higher nicotine consumption with stronger liquids, or it may be the conversion of nicotine consumption (volume of liquid x

strength) does not translate proportionately to nicotine *exposure* (nicotine absorbed into the blood).

This bears out the discussion of incentives above. The duty structure sends a *price signal* and *risk communication* to (inappropriately) favour weaker liquids. In contrast, its *economic effect* on user expenditure will generally favour the use of stronger liquids. The worst result seems the most likely: that new switchers will make their initial decisions based on price, choose liquids that are too weak, and so fail and return to smoking.

Above all, the estimate above shows the most threatening aspect of the Vape Duty – an approximately £1,000 annual tax on quitting smoking. This is the most significant feature of the proposal, and it is, to put it mildly, reckless with the health and finances of people who have quit smoking on their own initiative and at their own expense without any call on the NHS. This contrasts with the favourable tax treatment offered to other strategies for quitting smoking: nicotine replacement therapy attracts the lower rate of VAT (5%) when sold over the counter even though it is less effective and popular than vaping. Prescription smoking cessation treatments attract no VAT.

The attempt to draw a parallel with cigarette taxes is far from realistic. Table 3A in the consultation document asserts that the Vape Duty would represent 4.7% and 7.1% for the lower (£2.00 per 10 ml) and higher (£3.00 per 10 ml) bands of the equivalent cigarette duty, respectively. The methodology for estimating this equivalence calculation is opaque to me. But it does not appear to be grounded in reality. The average cigarette smoker consumes 12 cigarettes per day. The annual duty +VAT on consumption of 12 Mayfair budget cigarettes per day is £2,419 per year (based on a retail price of £14.20 at Tesco). The estimated vape duty weighted average costs calculated above is £1,033 or about 43% of the duty burden paid by the typical cigarette smoker – an order of magnitude greater than the relative estimates presented in Table 3A. This underlines the importance of making comparisons *based on actual use*, not hypothetical estimates based on the nicotine content of tobacco sticks, nicotine yields or some other novel method.

Question 6 is not a yes/no binary question. It is impossible to say what effect it will have, but HMRC and HMT should brace for a range of responses that can be expected:

1. Adverse behaviour change, for example, reduced switching from smoking to vaping, relapse from vaping to smoking, reduced youth diversion from smoking to vaping, and uptake of other substances such as cannabinoids. It may promote less successful switching by encouraging the initial use of weaker liquids.
2. Various forms of illicit trade and risky workarounds. The already sizeable illicit trade in disposables is likely to increase. I expect to see a new business model that sells zero-nicotine liquids in concentrated flavour form to attract the lowest duty. Users would then add bulk PG/VG diluent (easily purchased on Amazon) and fortify with illicitly supplied high-strength nicotine from concentrates sourced online, which I have tried on a test purchase basis. The maximum nicotine strength allowed in the UK is 20mg/ml or around 2%. Nicotine in concentrated form, up to 99% purity, can be purchased online

and couriered to the UK. Concentrated nicotine is a hazardous and toxic substance and should only be handled by specialists, but the Vape Duty will incentivise users or informal producers to source nicotine concentrates. I expect definitional issues to arise – when would a flavoured liquid be for cooking, aromatherapy, bathing, or vaping?

3. It is possible that for youth, the vape duty will be a case of fighting the last war, and young people who are less habituated to the behavioural, sensory, and ritual aspects of smoking will move into using nicotine pouches instead of vaping. The vape duty is more likely to (adversely) affect adults who are more habituated to non-nicotine aspects of smoking. I would say that youth uptake of pouches will be preferable to youth uptake of vaping, but I doubt that is the behaviour change intended by the measure.

Scope of the duty

8. Should production of vaping products by individuals for their own use be within scope of the duty?

Yes

No

Please explain any reasons for your answer.

It should only apply to products in commerce—i.e., products for onward sale. The government does not apply alcohol duties to home brew or homemade wines. Of course, the government will stimulate a great deal more home “DIY” mixing, and some of this will be sold through informal networks, but I can see no practical way to bring this form of illicit trade into the duty regime.

9. Are there any other factors concerning home production/blending that should be considered?

Yes

No

Please specify.

Yes, it should be discouraged on health, hygiene, and safety grounds. Some vapers currently mix their own liquids, but they are generally experienced enthusiasts. However, the vape duty will increase the number of vapers incentivised to try it and reduce the experience and capabilities of those willing to have a go. There is a range of serious risks associated with inept home mixing, for example, adding oil-based flavourings, handling nicotine concentrates, and the cleanliness of home facilities used.

Chapter 5: Liability for the duty

10. Do you agree with the proposals on how liability would work?

Yes

No

Please provide any reasons for your answer.

The proposal is highly distorting. It will create incentives to modify the product after the duty point – for example, dilution of flavour concentrates and the addition of nicotine. It may also stimulate technological innovation to facilitate this. So-called squonk-mods, shortfills and ‘big puff’ devices represent innovations created to overcome ill-judged regulation that works against the consumers’ interests as they see them.

Chapter 9: Understanding commercial practices

Alternative Nicotine Products

58. Do you believe the introduction of the new duty would lead to consumers switching to alternative nicotine containing products?

Yes

No

Please add which products you believe would be a realistic switch.

Yes. Many of the supposed beneficiaries of this measure, young people, will switch to oral nicotine pouches because they are less habituated to the non-nicotine aspects of smoking (sensory, behavioural, ritual) that are well-replicated in vaping but not necessary for new users of nicotine.

I expect innovative producers to bring inhalation products to market that do not meet the definition of electronic cigarettes.

I would also expect switching to non-nicotine vaping, for example, more cannabis use.

Chapter 10: Assessment of Impacts

59. Unless already covered in your responses to other questions within this document, is there anything else you would like us to note about the impact of the duty?

Perverse unintended consequences will dominate the effects of the measure:

- More smoking.

- More illicit trade.
- Risky workarounds.
- Market distortions and “tax-efficient innovations”
- Increased market concentration favouring the tobacco industry.
- Small business closures.
- A greater reliance on relatively ineffective and unpopular pharmaceutical nicotine replacement therapy, which benefits from reduced rate VAT.

The benefits to youth will be negligible, and the risks to adult smokers and vapers will be significant.

It is a matter of concern that the basic scope of this life-threatening measure was decided without consultation and with only a cursory mention in the call for evidence and general consultation on tobacco and vape policy. Even so, the government was provided with in-depth evidence from the world’s pre-eminent expert on the economic interaction of vape and tobacco markets, Michael Pesko, an American academic. In his evidence, Dr Pesko outlines the evidence and states:

“Because of these well-documented large unintended effects of e-cigarette taxes in terms of higher rates of smoking, I believe e-cigarette taxes to have a negative effect on population health and recommend avoiding them.”

Pesko, M. F. Youth Vaping – response to Call for Evidence, UK Department of Health and Social Care, 2023. [\[link\]](#)

Other recommended sources:

1. Selya, A., et al (2023). Meta-analysis of e-cigarette price elasticity. *F1000Research* 2023 12:121, 12, 121. [\[link\]](#) “Policies that tax ENDS more heavily than cigarettes have the opposite incentive structure and are likely to exacerbate the tobacco-related health burden.”
2. Abouk, R. et al. (2023). Intended and unintended effects of e-cigarette taxes on youth tobacco use. *Journal of Health Economics*, 87, 102720. [\[link\]](#) “We conclude that the unintended effects of ENDS taxation may considerably undercut or even outweigh any public health gains.”
3. Friedman, A. S., & Pesko, M. F. (2022). Young Adult Responses to Taxes on Cigarettes and Electronic Nicotine Delivery Systems. *Addiction*. [\[link\]](#) “In the United States, higher ENDS tax rates are associated with decreased ENDS use, but increased cigarette smoking among 18- to 25-year-olds, with associations reversed for cigarette taxes.”
4. Pesko, M. F., Courtemanche, C. J., & Maclean, J. C. (2020). The effects of traditional cigarette and e-cigarette tax rates on adult tobacco product use. *Journal of Risk and Uncertainty*, 60(3), 229–258. [\[link\]](#) “Using two-way fixed effects models, we find evidence that higher traditional cigarette tax rates reduce adult traditional cigarette use and increase adult e-cigarette use. Similarly, we find that higher e-cigarette tax rates increase traditional cigarette use and reduce e-cigarette use.”
5. Cotti, C., Courtemanche, C., Maclean, J. C., Nesson, E., Pesko, M. F., & Tefft, N. W. (2022). The effects of e-cigarette taxes on e-cigarette prices and tobacco product sales: Evidence from retail panel data. *Journal of Health Economics*, 86, 102676. [\[link\]](#) “We document a cigarette own-price elasticity of -0.4 and positive cross-price elasticities of demand between e-cigarettes and cigarettes, suggesting economic substitution.”
6. Saffer, H., Dench, D., Grossman, M., & Dave, D. (2020). E-cigarettes and adult smoking: Evidence from Minnesota. *Journal of Risk and Uncertainty*, 60(3), 207–228. [\[link\]](#) “The taxation of e-cigarettes at the same rate as cigarettes could deter more than 2.75 million smokers nationally from quitting in the same period.”