## **Micro Economic Analysis on E-Cigarette Tax in Vermont**

**Article Title:** Sorry, Vermont vapers. E-cigarettes are about to get a lot more expensive

## Full URL of the article:

https://edition.cnn.com/2019/06/28/us/e-cigarette-tax-vermont-trnd/ind ex.html

## **Commentary:**

Due to the popularity of e-cigarettes in Vermont a 92% tax has gone into effect. This dangerous trend of e-cigarette consumption has caused an increase in the amount of teens addicted to nicotine due to the asymmetric information between the producer and the consumer.



E-cigarettes are a demerit good, meaning they're over-consumed as the MPB of consumption is greater than the MSB, causing negative spillover effects towards society indicated by the difference between Q\* and Q<sup>fm</sup> (overconsumption). E-cigarettes are highly demanded in the youth due to them being a cheaper alternative than cigarettes and due to the ambiguity of health effects. This asymmetric information between consumer and producer causes the overconsumption of e-cigarettes amongst the youth. The point E\* on the graph above depicts the social optimal level of production and consumption of e-cigarettes where the market is allocatively efficient. Overconsumption causes a welfare loss towards society showing that the market is operating inefficiently and is indicated by E\*, E<sup>1</sup>, B. The new demand curve (MPB=D) is more inelastic than MSB due to nicotine being a highly addictive substance, causing demand for e-cigarettes to be relatively inelastic when compared to the socially optimal demand curve (MSB). Although nicotine is an addictive substance, teens are particularly sensitive to price which is why the government thinks this tax will be effective. The point E<sup>1</sup> represents free market demand and supply of e-cigarettes where they are demanded

at  $B^{fm}$  and supplied at  $Q^{fm}$ , causing negative externality of consumption. The area between  $Q^*$  and  $Q^{fm}$  is the overconsumption of e-cigarettes in Vermont.

To combat the overconsumption of e-cigarettes, Vermont has decided to place a 92% tax on it. This causes a reduction in supply due to the increased cost of production causing the inward shift of MSC=MPC to MSC=S+Tax. This reduction in supply causes the price to increase from B<sup>fm</sup>/P<sup>fm</sup> to P<sup>+tax</sup>, resulting in a contraction on the MPB=D curve from E<sup>1</sup> to E<sup>2</sup> as the market is susceptible to price changes, resulting in the QD to reduce from Q<sup>fm</sup> to Q<sup>fm+tax</sup>. This change causes the welfare loss to decrease from E<sup>\*</sup>, E<sup>1</sup>, B, to E<sup>\*</sup>, C, A, as the market is more allocatively efficient due to the reduction in overconsumption (from Q<sup>fm</sup> to Q<sup>fm+tax</sup>). Due to the price inelasticity of demand for e-cigarettes, the welfare loss will be reduced by perhaps less than the government had intended.

The solution of taxing e-cigarettes has positive short-run effects towards the government as there will be a healthier working population which increases their productivity as a country. The government will also receive an increased tax revenue which could be allocated towards merit goods such as education, but this causes an opportunity cost as they won't be able to spend on other things such as infrastructure. The tax could have drawbacks as well, in the long-run hidden markets could arise. This is due to the increase in price and decrease in quantity of e-cigarettes causing transactions to be made without the payment of tax. Due to the inelasticity of the good, consumers will still be willing to purchase it making hidden markets the best viable option to them as they have greater consumer surplus as opposed to the legal vendors.

For consumers, the solution would cause a decrease in the consumption of e-cigarettes in the short-run which is beneficial towards the health and standard of living of the consumer, but in the long-run, it could cause consumers to go back to traditional cigarettes, which would further worsen their health and would cause great negative externalities of consumption, especially towards the health of 3rd party members and towards the environment.

In the short-run the QD for e-cigarettes will decline impacting the sales revenue for producers. However, in the long-run, producers would be able to adapt their firms to produce other nicotine products and maximize revenue as teen tobacco usage in Vermont is higher than the national average which would lead to unintended consequences of the tax.

For society, this solution poses positive effects in the short-run as the spillover will be reduced, although in the long-run this solution could cause more harmful spillover effects as e-cigarette smokers could revert back to traditional cigarettes which causes second-hand smoke.

In conclusion, the coupling of a tax increase along with increasing the legal purchase age in Vermont will help reduce demand for e-cigarettes within the youth, helping correct the market failure and reduce the overconsumption.