Taxing E-Cigarettes – Options & Potential Impact

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Overview

- Brief introduction to e-cigarettes and other electronic nicotine delivery systems
- Trends in e-cigarette use
- Public health concerns about ENDS use
- Brief review of cigarette taxation
- Evidence on prices and ENDS use
- Current state and local approaches to taxing ENDS
- Challenges of implementing ENDS taxes
Funding & Collaborators
Acknowledgement

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• **Many Collaborators** – Jidong Huang, Sherry Emery, John Tauras, Jamie Chriqui, Camille Gourdet, Hilary DeLong, and more…..
Brief Introduction to E-Cigarettes
# Types of E-Cigarettes

Three main categories:

<table>
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<tr>
<th>1. Mini</th>
<th>2. Mid-Size</th>
<th>3. APVs, MODs or Open Tank</th>
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<tbody>
<tr>
<td>(Cig-a–Like)</td>
<td>(e-go)</td>
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Photo Sources:
- [mediad.publicbroadcasting.net](http://mediad.publicbroadcasting.net/p/michigan/files/201406/electronic-cigarette.jpg)
- [www.agistaterre.com](http://www.agistaterre.com/photo/p/1511180-lcd_display_150mm_ego_ce4_electronic_cigarette_kit_with_clearomizer.jpg)
- [cdn.shopify.com](http://cdn.shopify.com/s/files/1/0267/5951/products/spire_1_1024x1024.jpg?v=1386635557)
- [assets.hightimes.com](http://assets.hightimes.com/snoop-gpen-1.JPG)
Components

• Basic Components:
  • Battery
  • Heating Mechanism – Atomizer
  • Container – This piece houses the atomizer and e-juice, or e-liquid. Depending on design it can be called a cartomizer, clearomizer, or tank.
  • E-juice – Liquid used to crate the vapor, contains a mixture of propylene glycol, vegetable glycerin, flavorings and (usually) nicotine.

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Types of E-Cigarettes: Disposables

Picture Source:
- http://www.afws.net/wp-content/uploads/2014/01/Fin-Disposable-E-Cig.jpg (Fin)
- https://www.completevape.com/content/images/thumbs/0003115_aviator-disposable-e-cigarette.jpeg (Aviator)
Type of E-Cigarettes: Starter Kits (Reusable)

A started Kit usually contains:

- **Battery** – 1 or 2, though some can contain up to 10. Customization can allow for various lengths and colors.

- **Cartridge** – at least 1, usually regular flavor, though some manufacturers allow strength and flavor customization.

- **Battery Charger** – Most kits contain a USB charger, and a Wall charger. Some kits might contain an extra USB, Case, and or Car charger.

Types of E-Vapor Products: E-GOs
Types of E-Vapor Products: MODs & APV’s

Sources:
Additional Products

- Refills
- E-Juice
- E-cigars
- E-hookahs

Sources:
Cigar: [http://store.affordableecigs.com/content/210589/logic_cigar_2.jpg](http://store.affordableecigs.com/content/210589/logic_cigar_2.jpg)
Estimated Size of the Vapor Market

Vapor Market Size $3.5 B

- E-Cigarettes $1.5B
  - Tracked Channels (Nielsen) $700M
  - Non-Tracker Channels $800M
  - Online $400M
- Vapor/Tanks/Mods $2.0B
  - Vape Shops $1.2B
  - C-store, Food, Drug, Mass Retail Channels $400M

Other Non-Tracked channels include tobacco-only outlets and other e-cig retail locations.

Source: Presentation: Development of Premium E-Flavors and Market Analysis

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E-Cigarette Use
Ever Use of E-Cigarettes Among Adults 2010-2013

Source: King et al., 2015
Current Use of E-Cigarettes by Adults 2010-2013

Source: King et al., 2015
Youth E-Cigarette and Tobacco Use High School Students, 2011-2014

* Defined as preceding 30-day use of cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis.
† Defined as preceding 30-day use of two or more of cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis.

Source: CDC., 2015
Public Health Impact?

• Concerns:
  – Gateway to combustible tobacco products for youth?
  – Dual use, not cessation, among adult smokers?
  – Impact of ‘second-hand vaping’?
  – Nicotine poisoning
  – Use for vaping other substances (particularly THC)
  – Lack of evidence on long term health consequences of use
  – Impact of nicotine on the developing brain
  – Renormalization of smoking
“An expert review of the latest evidence concludes that e-cigarettes are around 95% safer than smoked tobacco and they can help smokers to quit.”
*E-cig companies say vaping will set you free. But nicotine addiction is the opposite of freedom. Wake up.

IT'S THE NEXT GENERATION CIGARETTE.*

*FOR THE NEXT GENERATION OF ADDICTS.

Source: California Department of Public Health, 2015
Cigarette Demand
Cigarette Prices and Cigarette Sales
United States, Inflation Adjusted, 1970-2012

Sales (million packs) vs. Price per Pack (114 Dollars)

Year
Price (114 Dollars)
$1.50 $2.00 $2.50 $3.00 $3.50 $4.00 $4.50 $5.00 $5.50 $6.00

Sources: Tax Burden on Tobacco, BLS, and author’s calculations

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Cigarette Price & Adult Smoking Prevalence
Inflation Adjusted, United States, 1970-2013

Source: Tax Burden on Tobacco, 2013, National Health Interview Survey, and author’s calculations

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Monthly Quit Line Calls, United States
11/04-11/09

4/1/09 Federal Tax Increase
1/1/08 WI Tax Increase

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Cigarette Price & Youth Smoking Prevalence
High School Seniors, United States, 1991-2013

Sources: Tax Burden on Tobacco, BLS, MTF, and author’s calculations

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State Cigarette Excise Tax Rates – February 2015

Chicago: $6.16
NYC: $5.85

[Map showing state cigarette excise tax rates with different color codes for various tax brackets]

- Greater than or equal to $3.00 per pack
- $2.00-$2.99 per pack
- $1.50-$1.99 per pack
- $1.00-$1.49 per pack
- 50-99 cents per pack
- Less than 50 cents per pack

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E-Cigarette Demand
Disposable ENDS
Sales Volume and Price, US 2010 - 2014

Sales Volume (Thousand of Pieces)
Sales Prices (Real 2014 Q4 Dollars)

Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

Real Price
Volume
Reusable ENDS

Sales Volume (Thousands of Pieces)
Sales Price (Real 2014 Q4 Dollars)

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E-Cigarette Prices & Sales

- Huang, Tauras and Chaloupka, *Tobacco Control*, 2014
  - Overall sales of e-cigarettes are sensitive to price changes
  - A 10% increase in price reduces sales of disposable e-cigarettes by approximately 12%, and by about 19% for reusable e-cigarettes.
  - Sales of disposable e-cigarettes were higher in markets with stronger SFA policies.
  - No consistent statistical significant relationship between cigarette prices and e-cigarette sales.
  - Increasing reusable e-cigarette price will lead to an increase in disposable e-cigarette sales.

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E-Cigarette Prices & Sales

• Stoklosa, Drope & Chaloupka (under review)
  • 2011-2014 monthly data on e-cigarette sales in six EU countries (Estonia, Ireland, Latvia, Lithuania, Sweden, and UK)
  • 10% increase in price reduces e-cigarette sales by 8-9%
  • E-cigarette sales generally positively associated with cigarette prices, but mostly not statistically significant

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Price and Adult E-cigarette Use

Huang, et al., (under review)

- Web-panel of adults and market-level price data
- Higher disposable e-cigarette prices correlated with lower odds of ever use
  - 10% increase in price reduces likelihood of ever use by 8-10%
- Neither rechargeable e-cigarette price nor combustible cigarette price was found associated with e-cigarette ever use
- No significant interactions were discovered between e-cigarette or cigarette price and e-cigarette current use.

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Impact of Price on E-cigarette Use

Pesko, et al. (in progress)

- 2014 Monitoring the Future data on youth use of e-cigarettes
- Nielsen scanner price data
- Preliminary estimates suggest very large effects of price on youth
- Next steps: add 2015 data
ENDS Taxation
Rationale for ENDS Taxation

- **Improve Public Health**
  - Encourage switching from combusted to potentially ‘less harmful’ products
  - Prevent youth initiation

- **Raise Revenue**
  - New source of revenues
  - Replacement source for declining tobacco tax revenues
State and Local ENDS Taxes

- Minnesota was first state to implement a tax on e-cigarettes in 2012
- North Carolina, Louisiana and DC taxes recently implemented
- Kansas tax beginning July 2016
- Many (most?) other states have discussed or are considering
- Local taxes in Petersburg and Juneau Alaska
  - Chicago tax recently adopted

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Minnesota ENDS Tax

- Minnesota taxes e-cigarettes at 95% of the wholesale price by determining that they fall in the definition of a tobacco product
- Based on Department of Revenue decision that e-cigarettes fit the state’s definition of a tobacco product
- Public health community not actively involved in the decision
Minnesota Language – Department of Revenue

• 2012 Minnesota Dept. of Revenue memo:
  • An electronic cigarette or e-cigarette is a device that simulates smoking tobacco. In Minnesota, e-cigarettes and e-juice which contain nicotine derived from tobacco meet the definition of a tobacco product found in (Minnesota Statutes, section 297F.01, subdivision 19).
  • E-Cigarettes are taxable.
  • E-cigarettes and e-juice are considered tobacco products and are subject to the Tobacco Tax, which is currently 95% of the wholesale cost of any product containing or derived from tobacco.

– Source: http://www.revenue.state.mn.us/businesses/tobacco/Pages/e-Cig.aspx
Minnesota ENDS Tax

• Minnesota tax based on value of the e-juice
  • But if sold as part of a package (e.g. reusable e-cigarettes or starter kits), tax applied to entire package
• Taxes collected from licensed ‘distributors’
  • Retailers, vape shops can get list of licensed distributors from state tax authorities
• Active enforcement
  • Compliance checks of retailers, vape shops to determine if taxes have been paid
  • Untaxed products subject to seizure
• Similar measure recently adopted in DC
Importance of Definitions

- State statutory definitions of e-cigarettes can be categorized as*
  - **Inclusive**: e-cigarettes are included in the statutory definitions of tobacco products (9 states)
  - **Neutral**: e-cigarettes are defined separately from tobacco products in statute, but not exempted from future inclusion in the definition of tobacco products or further application of tobacco control-related statutes (14 states)
  - **Exempting**: e-cigarettes are explicitly exempt from being defined or treated as a tobacco product by statute (6 states)

* Note these reflect definitions as of early 2014.
North Carolina ENDS Tax

- Tax on vapor products adopted May 2014; became effective July 1, 2015
  - RJR proposal; no public health input
- Five-cents per milliliter of ‘consumable product’
  - “any nicotine liquid solution or other material that is depleted as vapor product is used”
- Taxes collected from licensed distributors
  - Retailers, vape shops can be licensed as distributors
  - Similar to approach used for OTP tax
- Relatively passive enforcement
  - Efforts to increase awareness of tax among distributors, retailers
- Similar measure recently adopted in Louisiana
Kansas ENDS Tax

- Tax adopted June 2015; effective July 1, 2016
  - Part of a larger tobacco tax measure that increased cigarette and other tobacco product taxes effective July 1, 2015
- Twenty cents per milliliter of ‘consumable product’
- Implementation details unclear
Chicago ENDS Tax

- Combined cigarette taxes in Chicago are highest in the U.S.
  - $7.17 per pack; NYC second at $6.85
    - No taxes on other tobacco products
- $0.80 per container of e-juice + $0.55 per ml
  - Relatively larger effect on cost of using disposable and rechargeable products
    - Not as great as originally proposed $1.25/$0.25 tax
  - Implementation details unclear
Implementing ENDS Taxes
Mechanics of ENDS Taxes

- *Ad Valorem* vs. Specific Excise Tax
  - Diversity and rapid evolution of products suggests *ad valorem* tax would be easier to administer

- Disadvantages of *Ad Valorem Tax*:
  - Valuation problems
  - Tax depends on industry pricing strategies
  - Larger price gaps between high, low priced products
  - High tax on devices could discourage use

- Advantages of *Ad Valorem Tax*:
  - Is not eroded by inflation
Mechanics of ENDS Taxes

• What to tax?
  • All products/components vs. e-juice?
  • Only products that contain nicotine?
  • All nicotine vs. nicotine derived from tobacco?

• Where to collect tax?
  • Distributor vs. retailer?
  • Need for licensing
Level of ENDS Taxes

- Low tax relative to cigarette, OTP taxes
  - Little impact in reducing use, uptake
  - Encourages dual use
  - Maximize incentives to switch from combustibles to ENDS
  - Minimal new revenue
- ENDS tax equivalent to cigarette tax
  - Significant impact on use, uptake
  - Little incentive to switch from combustibles to ENDS
  - Modest new revenue
Level of ENDS Taxes

- Significant tax on ENDS coupled with increased taxes on cigarettes and other combustible tobacco products
  - Maintain or increase relative price of combustibles
  - Maximize switching while discouraging initiation and dual use
  - Generates significant new revenues
Summary
Summary

• Rapidly rising ENDS use, particularly among kids
• Unclear impact on public health
• Growing evidence that ENDS use is responsive to price
• Taxing ENDS products to prevent initiation among youth and never smokers
  • Combine with increased taxes on combustibles to promote cessation, switching
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