Taxation as Public Health Policy

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Impuestos al Tobacco en Centro América
Ciudad de Guatemala, 14 Mayo, 2012
"Sugar, rum, and tobacco, are commodities which are nowhere necessaries of life, which have become objects of almost universal consumption, and which are therefore extremely proper subjects of taxation.

Overview

- Overview of tobacco and alcohol taxation
- Impact of taxes/prices on tobacco and alcohol use, consequences of use
- Industry price marketing & policy options
- Counterarguments – Myths & Facts
- Implications for obesity prevention
Overview of Tobacco and Alcohol Taxation
Why Tax?

- **Efficient revenue generation**
  - Primary motive historically and still true in many countries today
  - Very efficient sources of revenue given:
    - Historically low share of tax in price in many countries
    - Relatively inelastic demand for tobacco products, alcoholic beverages
    - Few producers and few close substitutes
    - One of many goods/services that satisfies the “Ramsey Rule”
  - “This vice brings in one hundred million francs in taxes every year. I will certainly forbid it at once – as soon as you can name a virtue that brings in as much revenue” – Napoleon III on tobacco tax
Federal Cigarette Tax and Tax Revenues
Inflation Adjusted, 1955-2010

Source: Tax Burden on Tobacco, 2011, and author’s calculations
Federal Beer Tax and Tax Revenues
Inflation Adjusted, 1940-2009

Source: Brewers Almanac, 2010, and author’s calculations
Why Tax?

- **Promote public health**
  - Increasingly important motive for higher tobacco taxes in many high income countries
    - Less so for alcoholic beverage taxes
  - Based on substantial and growing evidence on the effects of tobacco taxes and prices on tobacco use
    - Particularly among young, less educated, and low income populations

- “... We [...] have a package of six policy measures, known as MPOWER, that can help countries implement the provisions in the Convention. All six measures have a proven ability to reduce tobacco use in any resource setting. **But tobacco taxes are by far the most effective.**” Director General Dr. Margaret Chan, WHO, 2008

- **Number/adult/day**: cigarettes/adult/day
- **Lung Cancer Deaths**: males age 35-44/4
- **Relative Price**

Source: Jha, 2009
Why Tax?

- **Cover the external costs of tobacco and excessive alcohol use**
  - “Pigouvian” tax
  - Less frequently used motive
  - Account for costs resulting from tobacco, alcohol use imposed on non-users
    - Increased health care costs, lost productivity, property damage, criminal justice costs, etc. caused by exposure to tobacco smoke among non-smokers, harms incurred by non/moderate drinkers
  - Can also include “internalities” that result from addiction, imperfect information, and time inconsistent preferences
Types of Taxes

- **Variety of tobacco, alcohol taxes**
  - Taxes on value of production
  - Customs duties on tobacco leaf, tobacco products, alcoholic beverage imports and/or exports
  - Sales taxes/Value added taxes
  - Implicit taxes when government monopolizes production and/or distribution
  - Excise taxes (or similar taxes)
    - Many of these are applied to variety of agricultural and/or consumer goods and services
    - Excise taxes are of most interest given specificity to tobacco products, alcoholic beverages
Types of Taxes

- **Excise Taxes**
  - Two types of excises
    - **Specific Taxes**: excises based on quantity or weight (e.g. tax per pack of 20 cigarettes, wine gallons)
    - **Ad Valorem taxes**: excises based on value of products (e.g. a specific percentage of manufacturer’s prices for tobacco products, alcoholic beverages)
  - Federal, state, and local cigarette taxes and federal alcoholic beverage taxes all specific taxes
  - State taxes on other tobacco products, alcoholic beverages are mix of specific and *ad valorem*
Federal Cigarette Taxes, United States, 1954-2010
(August 2011 dollars)

Source: Burden on Tobacco, 2011, and author’s calculations
Federal Alcoholic Beverage Taxes per Drink
Inflation Adjusted, 1953-2009

Dollars per Drink (June 2007 dollars)

Year


Beer  Wine  Spirits
State Cigarette Excise Tax Rates – 2000

CDC, Office on Smoking and Health. State Tobacco Activities Tracking and Evaluation (STATE) System.
State Cigarette Excise Tax Rates – 2001

CDC, Office on Smoking and Health. State Tobacco Activities Tracking and Evaluation (STATE) System.
State Cigarette Excise Tax Rates – 2005

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State Cigarette Excise Tax Rates – 2009

- 50-99 cents per pack
- <50 cents per pack
- $2.00+ per pack
- $1.50-$1.99 per pack
- $1.00-$1.49 per pack

CDC, Office on Smoking and Health. State Tobacco Activities Tracking and Evaluation (STATE) System.
State Cigarette Excise Tax Rates – 2010

CDC, Office on Smoking and Health. State Tobacco Activities Tracking and Evaluation (STATE) System.
State Cigarette Excise Tax Rates – 2011

CDC, Office on Smoking and Health. State Tobacco Activities Tracking and Evaluation (STATE) System.
Number of State Cigarette and Beer Excise Tax Increases, 2000-2009
Source: Tax Burden on Tobacco, 2011, and author’s calculations
Impact of Tax and Price on Tobacco Use
Prices and Tobacco Use

- **Increases in tobacco product prices:**
  - Induce current users to try to quit
    - Many will be successful in long term
  - Keep former users from restarting
  - Prevent potential users from starting
    - Particularly effective in preventing transition from experimentation to regular use
  - Reduce consumption among those who continue to use
  - Lead to other changes in tobacco use behavior, including substitution to cheaper products or brands, changes in buying behavior, and compensation
Cigarette Prices and Cigarette Sales, United States, 1970-2009

Source: Tax Burden on Tobacco, 2009, and author’s calculations
Cigarette Prices and Adult Smoking Prevalence, United States, 1970-2008

Source: NHIS, *Tax Burden on Tobacco*, 2009, and author’s calculations
Note: green data points for prevalence are interpolated assuming linear trend
Monthly Quit Line Calls, United States
11/04-11/09

4/1/09 Federal Tax Increase
1/1/08 WI Tax Increase
### Cigarette Prices and Youth Smoking Prevalence US States & DC, 2009

![Graph showing the relationship between cigarette prices and youth smoking prevalence. The graph includes a linear regression line with the equation $y = -0.0129x + 25.34$, and an $R^2$ value of 0.1721.]

Taxes, Prices and Health: US, 1980-2005

- Cigarettes per adult per day
- Lung cancer death rates per 100,000 (divided by 4): men age 35–44
- Relative price

Source: Nat Rev Cancer © 2009 Nature Publishing Group
Impact of Tax and Price on Alcohol Use
Extensive econometric and other research shows that higher prices for alcoholic beverages significantly reduce drinking:

- 10 percent price increase would reduce:
  - Beer consumption by 1.7 to 4.6 percent
  - Wine consumption by 3.0 to 6.9 percent
  - Spirits consumption by 2.9 to 8.0 percent
  - Overall consumption by 4.4 percent
  - Heavy drinking by 2.8 percent
  - Generally larger effects on youth and young adults

Source: Wagenaar et al., 2009; Xu & Chaloupka, in press
Beer Taxes and Binge Drinking

Graph 7. Current beer excise taxes and the percentage of 18-20 year olds that binge drink.

Source: CSPI Factbook on State Beer Taxes
Extensive econometric and other research shows that higher prices for alcoholic beverages significantly reduce:

- Drinking and driving, traffic crashes, and motor-vehicle accident fatalities
- Deaths from liver cirrhosis, acute alcohol poisoning, alcohol-related cancers, cardiovascular diseases, and other health consequences of excessive drinking
- Violence, including spouse abuse, child abuse, and suicides
- Other consequences of drinking, including work-place accidents, teenage pregnancy, and incidence of sexually transmitted diseases
Popular Support for Tobacco & Alcohol Taxes
Popular with Voters

- Tobacco Excise Tax Increases:
  - Generally supported by voters
  - Supported by those likely to vote for either party
  - More support when framed in terms of impact on youth tobacco use
  - More support when some of new revenues are used to support tobacco control and/or other health-related activities
    - Comprehensive state tobacco control programs
    - Expanded public health insurance programs (e.g. S-CHIP; Arkansas)
  - Greater support than for other revenue sources
Would you favor or oppose an increase in the state tobacco tax? 

Would you favor or oppose an increase in the state tobacco tax... as part of an effort to help reduce smoking, particularly among kids... if part of the money is used to fund programs to reduce tobacco use, particularly among kids.

RWJF, National survey of registered Voters - June 2002
The Mellman Group/Market Strategies; from McGoldrick 2010
Some leaders in New York State are considering increasing the tax to 10 cents per drink on alcoholic beverages, including beer, wine and liquor, and using a portion of the money to prevent youth alcohol use and provide for the treatment of alcohol abuse. Based on what you know, would you support or oppose this new tax?
Industry Price Marketing
Cigarette Company Marketing Expenditures, by Type, 1975-2008

Source: author’s calculations from data reported in FTC (2011)
Cigarette Company Marketing Expenditures, % of Total by Type, 2008

- Advertising: 83.5%
- Public Entertainment: 2.5%
- Placement: 1.9%
- Price Discounts: 1.6%
- Merchandise: 1.1%
- Other: 9.4%

Source: author’s calculations from data reported in FTC (2011)
Tobacco Industry Efforts to Offset Tax Increase

On February 4th, 2009, the Federal Government enacted legislation to fund the expansion of the State Children's Health Insurance Program (SCHIP) that increases excise taxes on cigarettes by 158%.

As a result, you will see the price of all cigarettes, including ours, increase in retail stores.

We know times are tough, so we'd like to help. We invite you to register at Marlboro.com to become eligible for cigarette coupons and special offers using this code: MAR1558

Thank You,

Philip Morris USA
Restricting Marketing?

- Family Smoking Prevention and Tobacco Control Act, 2009
  - Eliminates federal pre-emption of stronger state, local restrictions on tobacco company marketing
  - Allows limits on time, place or manner of tobacco company marketing
  - Comprehensive state and/or local marketing bans possible?
Minimum Pricing Policies

• 25 states with minimum pricing policies

• Typically mix of minimum markups to wholesale and retail prices
  ■ Median wholesale markup 4%
  ■ Median retail markup 8%

• 7 states prohibit use of price promotions in minimum price calculation

• Little impact on actual retail prices
  ■ Greater impact where promotions excluded

Sources: CDC, 2010; Feighery, et al., 2005
Common Oppositional Arguments

Myths & Facts
Impact on Revenues

By J Scott Moody, 4/2/08, from an AP story:

AUGUSTA — “A coalition of health groups today urged lawmakers to increase the cigarette tax by a $1 per pack, saying the increase will encourage more people to quit smoking and generate more money for health programs.

Translation: Fewer people smoking equals more cigarette tax revenue? Someone needs a math lesson.”
Cigarette Tax and Tax Revenues
Georgia, 1965-2009

Tax Revenues (Millions)

Tax per Pack

Tax Revenues (Millions)


$0.00 $0.05 $0.10 $0.15 $0.20 $0.25 $0.30 $0.35 $0.40

$0.00 $50.0 $100.0 $150.0 $200.0
Positive Effect of Tax Increase on Revenue Results from:

Low share of tax in price:
- state taxes account for about 25% of price
- total taxes account for less than half of price
- *Implies large tax increase has much smaller impact on price*

Less than proportionate decline in consumption:
- 10% price increase reduces consumption by 4%
Positive Effect of Tax Increase on Revenues

Example – with significant tax avoidance
  • Price $4.00, State tax $1.00, Sales 500 million packs
    • Revenues: = $500 million
  • Double tax to $2.00; price rises to $5.00
    • 100% tax increase; 25% price increase
  • 25% price increase reduces sales by 20% (reduced consumption plus tax avoidance)
    • new sales 400 million packs
    • *80% of original sales at double the tax increases revenues by 60%*
    • new revenues = $800 million
Revenue Impact

- Increases in alcoholic beverage taxes:
  - Increase government tax revenues
    - Even smaller share of tax in price
    - Less than proportionate reductions in consumption in response to price increase
    - Broader tax base implies greater potential revenues
  - Revenue increases sustained over time
  - Changes in revenues gradual and predictable

Source: *Brewers’ Almanac*, 2009, and author’s calculations
Impact on Jobs

JULY, 14, 2010 – The Associated Press

- RICHMOND, Va. — The tobacco industry is running a full-court press ahead of a federal scientific panel's meeting to discuss how to regulate menthol cigarettes, a still-growing part of the shrinking cigarette market.

- The union representing nearly 4,000 tobacco workers sent a letter to the Food and Drug Administration committee examining the public health effects of the minty smokes, warning that a ban could lead to "severe jobs loss" and black market cigarettes.
Impact on Jobs

- Tobacco excise tax will lead to decreased consumption of tobacco products
  - Small loss of jobs in tobacco sector
- Money not spent on tobacco products will be spent on other goods and services
  - Gains in jobs in other sectors
- Increase in tax revenues will be spent by government
  - Additional job gains in other sectors
- Net increase in jobs in most states
A pack of premium cigarettes in New York City now costs $7 or $8; prices would rise to above $9. Opponents of the tax increase argue that higher prices would drive smokers to seek ways to evade the law and purchase cheaper cigarettes from smugglers or in neighboring states, blunting potential revenue gains for the state. "It's a black market gold mine," a senior fellow at the Manhattan Institute, E.J. McMahon, said of the proposed tax.
Tax Avoidance

US Smokers, Last Purchase, November 2002-June 2011

Source, ITC project, US survey, Waves 1-8
Tax Avoidance & Evasion Do NOT Eliminate Health Impact of Higher Taxes

Cigarette Prices and Adult Prevalence, New York, 1995-2007

Source: Tax Burden on Tobacco, 2008 and BRFSS
Combating Tax Evasion

- High-tech tax stamps
- Licensing of all involved in distribution and sale
- Strong enforcement
- Swift, severe penalties
- Focus on large scale, criminal activity
- Coordinated efforts
  - NAAG efforts targeting Internet
  - Agreements with tribes
Impact on the Poor

July 23, 2010 – San Francisco Examiner

• “Democrats are relying more heavily in their midterm 2010 election message that Republicans care nothing about the poor. Conveniently absent from this analysis is Republican opposition to President Barack Obama’s cigarette tax increase......

While higher cigarette taxes do discourage smoking, they are highly regressive. Analyzing a slightly less severe proposal in 2007, the Tax Foundation noted that ‘no other tax hurts the poor more than the cigarette tax.’” Peyton R. Miller, special to the Examiner.
Impact on the Poor

- Concerns about the regressivity of higher tobacco taxes
  - Tobacco taxes are regressive, but tax increases can be progressive
    - Greater price sensitivity of poor – relatively large reductions in tobacco use among lowest income populations, small reductions among higher income populations
    - Health benefits that result from tax increase are progressive
Who Pays & Who Benefits
Impact of Federal Tax Increase, U.S., 2009

Source: Chaloupka et al., in progress; assumes higher income smokers smoke more expensive brands
Impact on the Poor

• Need to consider overall fiscal system
  - Key issue with tobacco taxes is what’s done with the revenues generated by the tax
  - Greater public support for tobacco tax increases when revenues are used for tobacco control and/or other health programs
  - Net financial impact on low income households can be positive when taxes are used to support programs targeting the poor
  - Concerns about regressivity offset by use of revenues for programs directed to poor
Taxation and Obesity?
Selected Food Price & Adult Weight Trends
1961-2009, Inflation Adjusted

Selected Food Price & Adult Weight Trends
1961-2009, Inflation Adjusted

Selected Food Price & Youth Weight Trends
1971-2009, Inflation Adjusted

Food Prices and Consumption

Extensive economic research on the impact of food and beverage prices on consumption of various products; estimates suggest 10% own-price increase would reduce:

- Cereal consumption by 5.2%
- Fruit consumption by 7.0%
- Vegetable consumption by 5.9%
- Soft drink consumption by 7.8%
- Sweets consumption by 3.5%
- Food away from home consumption by 8.1%

Source: Andreyeva, et al., 2010
Relatively limited research to date on impact of food and beverage prices and weight outcomes:

• Higher prices for sugary foods would significantly reduce prevalence of overweight and obesity among adults (Miljkovic et al., 2008)

• 10% increase in fast food prices would reduce prevalence of adolescent obesity by almost 6% (Powell, et al., 2007)

• Weight outcomes among low-income populations and those with higher BMI more responsive to prices
  • BMI of kids in families below poverty level about 50% more responsive to F&V prices
  • BMI for kids at unhealthy weight levels 39% more responsive to F&V prices
  • BMI of adolescents at unhealthy weight levels about 4 times more responsive to F&V and fast food prices.

Source: Powell and Chaloupka, 2009; Chaloupka et al., 2009
Emerging evidence on prices suggests that significant changes in relative prices of healthy and unhealthy foods could reduce BMI and likelihood of obesity

- Increases in prices of less healthy foods and beverages
  - taxes
  - elimination of corn subsidies
  - disallow purchases under food assistance programs

- Reductions in prices of more healthy foods and beverages
  - subsidies
  - expanded or favored treatment under food assistance programs

Source: Powell and Chaloupka, 2009; Chaloupka et al., 2009
Sugar Sweetened Beverage Taxes
Public Health Rationale for SSB Taxes

- Link to obesity
  - Several meta-analyses conclude that increased SSB consumption causes increased weight, obesity
  - Increased calories from SSBs not offset by reductions in calories from other sources

- Other health consequences
  - type 2 diabetes, lower bone density, dental problems, headaches, anxiety and sleep disorders
Soda Consumption & Obesity
California Counties, 2005

$y = 16.44 \ln(x) + 6.1142$

$R^2 = 0.6656$

Source: Babey, et al., 2009 and authors' calculations.
Existing evidence

• Growing literature demonstrating the higher prices for SSBs lead to reductions in SSB consumption

• Andreyeva, et al.’s (2010) comprehensive review concluded that price elasticity of soft drink consumption was -0.78
  • Price elasticity: % change in consumption resulting from 1% price change
  • 10% increase in soft drink prices would reduce consumption by nearly 8%

• Limited, mixed evidence on impact of taxes/prices on weight outcomes
Empirically examine associations between state-level soda taxes and consumption and weight outcomes, using nationally representative data sets including:

- A.C. Nielsen Homescan Data
- Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K)
- Monitoring the Future (MTF)
- National Longitudinal Survey of Youth 1997 (NLSY97)
Policy Implications of Empirical Results

• Generally very small associations between soda taxes and consumption or weight outcomes based on the existing low tax rates which range up to just 7% in the study samples.

• Larger associations for populations at greater risk for obesity.

• *Substantial* increases in soda tax rates may have some measureable effects on outcomes and even greater effects at the population level.
Alternative SSB Tax Structures

- From a public health perspective, specific excise tax preferable to sales tax or ad valorem excise tax for several reasons:
  - More apparent to consumer
  - Easier administratively
  - Reduces incentives for switching to cheaper brands, larger quantities
  - Revenues more stable, not subject to industry price manipulation
  - Greater impact on consumption; more likely impact on weight outcomes
  - Disadvantage: need to be adjusted for inflation
Revenue generating potential of tax is considerable

- SSB Tax calculator at:
- Tax of one cent per ounce could generate:
  - $14.9 billion nationally if on SSBs only
  - $24.0 billion if diet included
- Tax of two cents per ounce:
  - $21.0 billion nationally, SSBs only
  - $39.0 billion if diet included
- Earmarking tax revenues for obesity prevention efforts would add to impact of tax
Voters Prefer Taxes on Alcohol and Sugar-Sweetened Beverages over Cuts in Government Services by Margins of More than 3 to 1

- As you may know, New York state faces a $14 billion budget shortfall. Let me read you some statements about possible new taxes to generate revenue and proposed cut-backs to deal with this crisis. Please tell me which statement comes closer to your view.

**Tax Sugar-Sweetened Beverages**

- **Cut Govt Services & Programs**
  - 21
  - 68

**Increase Alcohol Tax**

- **Cut Govt Services & Programs**
  - 17
  - 75

* I would prefer to tax sugar-sweetened beverages. / I would prefer to cut government services and programs.

* I would prefer to increase the alcohol tax. / I would prefer to cut government services and programs.
Voters Prefer Taxes on Alcohol and Sugar-Sweetened Beverages over Increased Property or Sales Taxes

<table>
<thead>
<tr>
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<th>Property Tax</th>
<th>Sales Tax</th>
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<tbody>
<tr>
<td>Sweetened Beverages</td>
<td>73% Property Tax: 9%</td>
<td>Sweetened Beverages: 65% Sales Tax: 16%</td>
</tr>
<tr>
<td>Alcohol</td>
<td>79% Property Tax: 6%</td>
<td>Alcohol: 78% Sales Tax: 7%</td>
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As you may know, New York state faces a $14 billion budget shortfall. Let me read you some statements about possible new taxes to generate revenue and proposed cut-backs to deal with this crisis. Please tell me which statement comes closer to your view.
Counterarguments

- Same as have been raised against tobacco and alcohol taxes
  - Employment impact
    - Ongoing research assessing impact of reduced SSB consumption on employment
  - Impact on the poor
  - Tax avoidance/evasion
For more information:  
[http://www.bridgingthegapresearch.org/research/sodasnack_taxes/](http://www.bridgingthegapresearch.org/research/sodasnack_taxes/)
Summary
Summary

- Tobacco tax increases have significantly reduced tobacco use in the US
- Similar evidence for effectiveness of higher alcoholic beverage taxes to reduce alcohol use and its consequences
  - Few governments have done so
- Potential for using excise taxes on sugar-sweetened beverages to curb SSB consumption and reduce obesity
Summary

- Taxes generate significant revenues and revenues increase when tax increases
  - Added reductions in use/consequences when revenues earmarked for prevention/control efforts

- Generally more public support than for other taxes or budget cuts
  - Particularly when revenues earmarked for prevention and control

- Adverse economic impact false or overstated
For more information:

www.bridgingthegapresearch.org

www.impacteene.org

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