Looking Backward and Looking Forward: Lessons Learned from Alcohol and Tobacco Taxes and Implications for Obesity Prevention

Frank J. Chaloupka, Ph.D
Lisa M. Powell, Ph.D.
Jamie F. Chriqui, Ph.D., M.H.S.

Bridging the Gap Program
Health Policy Center
Institute for Health Research and Policy
University of Illinois at Chicago

Presentation at the American Public Health Association Annual Meeting
Philadelphia, PA November 10, 2009
Presenter Disclosures
Frank J. Chaloupka

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No Disclosures to make
Presentation Overview

• Brief review of the evidence on the impact of tobacco taxes on tobacco use and its consequences
• Brief review of the evidence on the impact of alcoholic beverage taxes on drinking and its consequences
• Potential for using taxes to promote healthy eating and reduce obesity
TOBACCO TAXES AND TOBACCO USE
Cigarette Taxes in the US, 2009

Source: CDC, Office on Smoking and Health. State Tobacco Activities Tracking and Evaluation (STATE) System.
State and Federal Cigarette Taxes, 1990-2009
Inflation Adjusted, September 2009 Dollars

Source: Burden on Tobacco, 2009, and author’s calculations
State Cigarette Taxes and Prices
November 1, 2008

y = 1.2066x + 3.1132
R² = 0.9214

Source: Tax Burden on Tobacco, 2009, and author’s calculations
Cigarette Taxes and Prices, 1976-2008
Inflation Adjusted (Feb. 2009 dollars)

Year
Dollars per Pack
State Tax Federal Tax MSA Costs Net Price

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

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
Cigarette Prices and Adult Prevalence, 50 States & DC, 2007

\[ y = -1.7038x + 27.473 \]

\[ R^2 = 0.1756 \]

Source: BRFSS, *Tax Burden on Tobacco*, 2009, and author’s calculations
Cigarette Prices and Non-Daily Smoking Rates, 50 States & DC, 2007

\[ y = 0.019x + 0.1767 \]

\[ R^2 = 0.0989 \]

Source: BRFSS, *Tax Burden on Tobacco*, 2009, and author’s calculations
Cigarette Prices and Former Smoking Rates, 50 States & DC, 2007

\[ y = 1.6826x + 17.443 \]

\[ R^2 = 0.2317 \]

Source: BRFSS, *Tax Burden on Tobacco*, 2009, and author’s calculations
Cigarette Price and Youth Smoking Prevalence, United States, 1991-2008

Source: MTF, *Tax Burden on Tobacco*, 2009, and author’s calculations
Based on our estimates, the recent $0.6167 per pack increase in the Federal cigarette tax will:

- Reduce cigarette sales by over 900 million packs
- Generate almost $9 billion in new revenues
- Lead over 1.15 million current smokers to quit
- Prevent over 1.45 million youth from taking up smoking
- Prevent almost 720,000 premature deaths caused by smoking
- Generate significant reductions in spending on health care to treat diseases caused by smoking

Source: Chaloupka and Tauras, 2009
ALCOHOLIC BEVERAGE TAXES, DRINKING, AND CONSEQUENCES
Federal Alcoholic Beverage Taxes per Drink

Source: Bureau of Labor Statistics, and author’s calculations
Erosion of Beer Excise Tax
1968 - 2000 (adjusted for inflation)

None   (6)
Less than 25% erosion   (1)
25% to 49% erosion   (9)
50% to 74% erosion   (25)
More than 75% erosion   (10)

Source: Wagenaar et al. 2000
Inflation Adjusted Alcoholic Beverage Prices
1953-2007

Source: Bureau of Labor Statistics, and author’s calculations
### Price Index (1982-84=1.00)

<table>
<thead>
<tr>
<th>Year</th>
<th>beer, at home</th>
<th>spirits, at home</th>
<th>wine, at home</th>
<th>alcohol, at home</th>
<th>all alcohol</th>
<th>alcohol, away from home</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>1.25</td>
<td>1.14</td>
<td>1.05</td>
<td>1.12</td>
<td>1.11</td>
<td>1.20</td>
</tr>
<tr>
<td>1981</td>
<td>1.22</td>
<td>1.12</td>
<td>1.01</td>
<td>1.10</td>
<td>1.09</td>
<td>1.19</td>
</tr>
<tr>
<td>1984</td>
<td>1.20</td>
<td>1.11</td>
<td>0.99</td>
<td>1.09</td>
<td>1.08</td>
<td>1.17</td>
</tr>
<tr>
<td>1987</td>
<td>1.19</td>
<td>1.10</td>
<td>0.98</td>
<td>1.08</td>
<td>1.07</td>
<td>1.16</td>
</tr>
<tr>
<td>1990</td>
<td>1.18</td>
<td>1.09</td>
<td>0.97</td>
<td>1.07</td>
<td>1.06</td>
<td>1.15</td>
</tr>
<tr>
<td>1993</td>
<td>1.17</td>
<td>1.08</td>
<td>0.96</td>
<td>1.06</td>
<td>1.05</td>
<td>1.14</td>
</tr>
<tr>
<td>1996</td>
<td>1.16</td>
<td>1.07</td>
<td>0.95</td>
<td>1.05</td>
<td>1.04</td>
<td>1.13</td>
</tr>
<tr>
<td>1999</td>
<td>1.15</td>
<td>1.06</td>
<td>0.94</td>
<td>1.04</td>
<td>1.03</td>
<td>1.12</td>
</tr>
<tr>
<td>2002</td>
<td>1.14</td>
<td>1.05</td>
<td>0.93</td>
<td>1.03</td>
<td>1.02</td>
<td>1.11</td>
</tr>
<tr>
<td>2005</td>
<td>1.13</td>
<td>1.04</td>
<td>0.92</td>
<td>1.02</td>
<td>1.01</td>
<td>1.10</td>
</tr>
<tr>
<td>2008</td>
<td>1.12</td>
<td>1.03</td>
<td>0.91</td>
<td>1.01</td>
<td>1.00</td>
<td>1.09</td>
</tr>
</tbody>
</table>

**Source:** Bureau of Labor Statistics, and author’s calculations
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
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

Source: Chaloupka, 2009
FOOD PRICES, OBESITY TRENDS AND POLICY OPTIONS
Selected Food Price Trends, 1978-2009
Inflation Adjusted

Source: Bureau of Labor Statistics, 2009 and authors’ calculations
Food Prices and Obesity Prevalence
Inflation Adjusted

Source: BRFSS 2009, BLS 2009 and authors’ calculations
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., in press
Food Prices and Weight Outcomes

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
Policy Options: Soda Taxes

State Soda Sales Tax Rates (as of January 1, 2009)

- 0% (n=17 states plus DC)
- ≥ 1 to < 3% (n=3 states)
- ≥ 3 to < 5% (n=7 states)
- ≥ 5 to < 7% (n=19 states)
- 7% (n=4 states)

Source: Bridging the Gap Program, Health Policy Center, University of Illinois at Chicago with data compiled by The MayaTech Corporation. In addition to sales taxes, the following states currently apply excise taxes to bottles, syrups, and/or powders/mixes at the manufacturer, distributor or retail level: Alabama, Arkansas, Rhode Island, Tennessee, Virginia, Washington, and West Virginia.
Policy Options: Soda Taxes

• Recent and ongoing research suggests
  • Household soda purchases lower in states where higher sales tax applies to sodas
  • Children’s soda consumption lower where sales taxes are higher
  • Likelihood of obesity not associated with presence/level of tax
    • Current taxes too low to significantly reduce calorie intake
  • Considerable revenue generating potential of soda taxes

Source: Chaloupka et al., 2009; Brownell, et al., 2009; Bridging the Gap, work in progress
For more information:

www.bridgingthegapresearch.org

www.impacteen.org

www.yaleruddcenter.org/sodatax.aspx

fjc@uic.edu