Comparing Self-Report and Archival Cigarette Prices: Evidence from the United States and Canada

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Presenter Disclosures

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No relationships to disclose
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bridging the gap
Overview

• Comparison of self-reported and archival prices for the United States
  • Tax Burden on Tobacco (TBOT)
  • Tobacco Use Supplement to the Current Population Survey (TUS-CPS)

• Comparison of self-reported and archival prices for the US and Canada
  • Official prices series
    • US – Consumer Price Index, Bureau of Labor Statistics
    • Canada - Statistics Canada, cigarette price series
  • International Tobacco Control Policy Evaluation Surveys (ITC)
Tax Burden on Tobacco vs. Tobacco Use Supplement to the Current Population Survey
US – TBOT vs. TUS-CPS

- Tax Burden on Tobacco
  - Originally produced by Tobacco Institute
  - More recently by Orzechowski & Walker

- Mail-based survey of ~16,000 cigarette retailers
  - Prices reported as of Nov. 1 each year
  - Weighted average of single pack, carton, and vending machine sales; generic and branded cigarettes
  - Include state excise tax but not sales taxes applied to cigarettes
  - Prices are list prices that do not reflect price-reducing marketing
  - Sample excludes retailers on Native American reservations
  - Prices do not reflect opportunities for tax avoidance/evasion
State and Local Cigarette Taxes and Average Price per Pack
November 1, 2010

Source: Tax Burden on Tobacco, 2011, and author’s calculations

y = 1.209x + 4.023

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US – TBOT vs. TUS-CPS

• Tobacco Use Supplement
  • Use 2003 and 2006/07 waves
  • State representative samples

• Self-reported cigarette prices from following questions:
  • “What price did you pay for the LAST pack (carton) of cigarettes you bought? Please report the cost after using discounts or coupons.”
  • Respondents report state in which purchase was made or if purchase made through direct channels (e.g. Internet, phone, mail)
  • More recent waves identify purchases made on Native American reservations
  • Prices will reflect price-reducing marketing and tax avoidance/evasion efforts
**US – TBOT vs. TUS-CPS**

- Compared:
  - TBOT prices for comparable months
    - Estimated based on timing of state/federal tax changes and trend in industry (net-of-tax) prices
  - TUS self-reported prices
    - Weighted average prices based on single-pack and carton purchases reported by smokers in a given state

- Differences in prices attributable to:
  - Price reducing marketing (in TUS, not in TBOT)
  - Cross-border shopping (in TUS, not in TBOT)
  - Internet, reservation and other tax avoiding purchases (in TUS, not in TBOT)
  - Tax evasion (in TUS, not in TBOT)
Cigarette Marketing Expenditures per Pack, by Type, 1975-2008
Inflation Adjusted (August 2011 dollars)

Source: author’s calculations from data reported in FTC (2011)

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Difference in TBOT and TUS Prices, 2003

Source: Tax Burden on Tobacco and TUS-CPS
Difference in TBOT and TUS Prices, 2006/07

Source: Tax Burden on Tobacco and TUS-CPS
TUS, % Tax Avoiders, 2003

Source: Tax Burden on Tobacco and TUS-CPS
TUS, % Tax Avoiders, 2006/07

Source: Tax Burden on Tobacco and TUS-CPS
Cross Border Tax Avoidance and State Cigarette Taxes, TUS 2006/07

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Other Tax Avoidance and State Cigarette Taxes, TUS, 2006/07

% Tax Avoiders

State Tax per Pack

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US – TBOT vs. TUS-CPS

• Summary
  • TBOT prices overstate actual prices smokers face for cigarettes
    • do not capture opportunities for tax avoidance, sales that have evaded taxes, and price-reducing promotions
  • Prices based on self-report survey data
    • TUS average cigarette prices appear to be valid measures of the prices smokers actually face for cigarettes
  • Relying on archival prices from TBOT may lead to biased estimates of the impact of price
    • Improving measures of price used in demand analysis a focus of our NCI-funded SCTC project
Official Price Series vs. International Tobacco Control Policy Evaluation Surveys
Official Statistics vs. ITC

• Official Statistics
  • Canada: Cigarette Price Series, Statistics Canada
    • Selected cigarette brands
    • Includes price-reducing promotions
    • Unlikely to include prices for cigarettes that evade/avoid taxes

• ITC Prices
  • Reported by representative sample of smokers based on last purchase
  • Includes price-reducing promotions and purchases that avoid/evade taxes
## Comparisons of Cigarette Prices in Canada Between Statistics Canada and the ITC Canada Survey Over Eight Waves of Survey Data Collection (October 2002 to June 2011)

<table>
<thead>
<tr>
<th>Survey Dates</th>
<th>Statistics Canada</th>
<th>Percent Change</th>
<th>ITC</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/30/02-12/30/02</td>
<td>131.3</td>
<td>4.7%</td>
<td>$7.43</td>
<td></td>
</tr>
<tr>
<td>5/15/03-9/28/03</td>
<td>137.4</td>
<td>4.7%</td>
<td>$7.69</td>
<td>3.5%</td>
</tr>
<tr>
<td>6/3/04-12/27/04</td>
<td>143.9</td>
<td>4.7%</td>
<td>$7.35</td>
<td>-4.4%</td>
</tr>
<tr>
<td>10/10/05-1/31/06</td>
<td>144.3</td>
<td>0.3%</td>
<td>$7.21</td>
<td>-1.9%</td>
</tr>
<tr>
<td>10/11/06-2/17/07</td>
<td>147.8</td>
<td>2.5%</td>
<td>$6.92</td>
<td>-4.0%</td>
</tr>
<tr>
<td>9/21/07-2/12/08</td>
<td>149.9</td>
<td>1.4%</td>
<td>$6.81</td>
<td>-1.6%</td>
</tr>
<tr>
<td>10/25/08-7/28/09</td>
<td>151.6</td>
<td>1.2%</td>
<td>$6.89</td>
<td>1.2%</td>
</tr>
<tr>
<td>7/13/10-6/24/11</td>
<td>157.1</td>
<td>3.6%</td>
<td>$7.13</td>
<td>3.4%</td>
</tr>
<tr>
<td><strong>Average Change</strong></td>
<td><strong>2.6%</strong></td>
<td></td>
<td><strong>Percent Change</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Change</strong></td>
<td><strong>19.7%</strong></td>
<td></td>
<td></td>
<td><strong>-4.0%</strong></td>
</tr>
</tbody>
</table>

Notes: The Statistics Canada price reflects an inflation-adjusted measure of the cigarette prices reported by Statistics Canada indexed to January 2000. The ITC price reflects a consumption-weighted average of the prices reported by smokers in the ITC Canada Survey, adjusted for inflation.
Cigarette Prices and Illicit Cigarette Market Share, Canada, 2000-2010

Source: Euromonitor, 2011, Statistics Canada, and ITC project. Note that the two price measures are indexed to 1.0 in November 2002
## Comparisons of Cigarette Prices in US Between BLS and the ITC US Survey Over Eight Waves of Survey Data Collection (October 2002 to June 2011)

<table>
<thead>
<tr>
<th>Survey Dates</th>
<th>BLS-CPI</th>
<th>Percent Change</th>
<th>ITC</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/30/02-12/30/02</td>
<td>1.180</td>
<td></td>
<td>$4.10</td>
<td></td>
</tr>
<tr>
<td>5/15/03-9/28/03</td>
<td>1.148</td>
<td>-2.7%</td>
<td>$3.85</td>
<td>-6.2%</td>
</tr>
<tr>
<td>6/3/04-12/27/04</td>
<td>1.141</td>
<td>-0.6%</td>
<td>$3.61</td>
<td>-6.1%</td>
</tr>
<tr>
<td>10/10/05-1/31/06</td>
<td>1.166</td>
<td>2.2%</td>
<td>$3.73</td>
<td>3.3%</td>
</tr>
<tr>
<td>10/11/06-2/17/07</td>
<td>1.186</td>
<td>1.7%</td>
<td>$3.89</td>
<td>4.2%</td>
</tr>
<tr>
<td>9/21/07-2/12/08</td>
<td>1.218</td>
<td>2.7%</td>
<td>$3.86</td>
<td>-0.7%</td>
</tr>
<tr>
<td>10/25/08-7/28/09</td>
<td>1.420</td>
<td>16.6%</td>
<td>$4.29</td>
<td>11.0%</td>
</tr>
<tr>
<td>11/2/09-1/10/10</td>
<td>1.644</td>
<td>15.8%</td>
<td>$4.76</td>
<td>11.1%</td>
</tr>
<tr>
<td>7/13/10-6/24/11</td>
<td>1.709</td>
<td>4.0%</td>
<td>$5.12</td>
<td>7.5%</td>
</tr>
<tr>
<td><strong>Average Change</strong></td>
<td></td>
<td>5.0%</td>
<td></td>
<td>3.0%</td>
</tr>
<tr>
<td><strong>Total Change</strong></td>
<td></td>
<td>44.9%</td>
<td></td>
<td>24.7%</td>
</tr>
</tbody>
</table>

Notes: Bureau of Labor Statistics inflation adjusted price indexed to one in January 2000. The ITC price reflects a consumption-weighted average of the prices reported by smokers in the ITC Canada Survey, adjusted for inflation.
Cigarette Prices and Illicit Cigarette Market Share, United States, 2000-2010

Source: Euromonitor, 2011, Bureau of Labor Statistics, and ITC project. Note that the two price measures are indexed to 1.0 in November 2002.
Official Statistics vs. ITC

• Summary
  • Official price series may misrepresent trends in prices over time
    • do not capture changes in the availability of untaxed, illegal cigarettes that lead to lower prices
  • Prices based on self-report survey data
    • ITC average cigarette prices appear to be valid measures of the prices smokers actually face for cigarettes
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Research Informing Policies & Practices for Healthy Youth

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