Forecasting Colorado Sales Tax Revenues

Fiona Sigalla
2010 FTA Revenue Estimation & Tax Research Conference
Tuesday, September 21, 2010

Colorado Sales Tax Collections
EXTRACTING THE UNDERLYING ECONOMIC CHANGES

Evaluating Past Trends

Standardizing the Data for Changes in Rate

- to March 1983
  Rate = 3 Percent

- April 1983 to June 1984
  Rate = 3.5 Percent

- July 1984 to December 2001
  Rate = 3 Percent

- 2001 to Present
  Rate = 2.9 Percent

- Adjusted data to current tax rate of 2.9 percent
Standardizing the Data for Changes in Vendor Fee

- to June 2003
  Vendor Fee = 3.33 Percent
- July 2003 to June 2007
  Vendor Fee = 2.33 Percent
- July 2007 to February 2009
  Vendor Fee = 3.33 Percent
- March 2009 to June 2009
  Vendor Fee = 1.35 Percent
- July 2009 to July 2011
  Vendor Fee = 0
- July 2011 to
  Vendor Fee = 3.33 percent
- Adjust for changes in vendor fee
  - Neutralized data by assuming that the state kept all vendor fees

Changing tax base

- Temporary elimination of sales tax exemption for cigarettes
  July 2008 – July 2011

- Temporary and permanent base broadening
  - Direct Mail (permanent effective March 2010)
  - Energy Used for Industrial Purposes (March 2010 – June 2012)
  - Candy and Soda (permanent effective May 2010)
  - Online purchases (permanent effective March 2010)
  - Nonessential food containers (permanent effective March 2010)
  - Agricultural products (March 2010 to June 2013)
Budgetary Measures Affecting the General Fund Overview /A
(Millions of Dollars)

<table>
<thead>
<tr>
<th>Sales Taxes</th>
<th>2008-09</th>
<th>2009-10</th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB 09-121 Taxation of Restaurant Employee Meals</td>
<td>-</td>
<td>(0.4)</td>
<td>(0.4)</td>
<td>(0.4)</td>
<td>(0.4)</td>
</tr>
<tr>
<td>SB 09-212 Temporarily Repeal Vendor Fee—Part 1</td>
<td>12.9</td>
<td>37.5</td>
<td>23.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SB 09-275 Temporarily Repeal Vendor Fee—Part 2</td>
<td>-</td>
<td>25.5</td>
<td>42.8</td>
<td>8.00</td>
<td>-</td>
</tr>
<tr>
<td>HB 09-1935 Clean Technology/Medical Device Refund</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HB 09-1126 Exemption for Solar Thermal Installation</td>
<td>-</td>
<td>(0.3)</td>
<td>(0.3)</td>
<td>(0.3)</td>
<td>(0.3)</td>
</tr>
<tr>
<td>HB 09-1342 Temporarily Repeal Cigarette Exemption</td>
<td>-</td>
<td>31.0</td>
<td>32.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HB 10-1189 Repeal Exemption for Direct Mail</td>
<td>-</td>
<td>0.2</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>HB 10-1190 Temporarily Repeal Exemption for Industrial</td>
<td>-</td>
<td>7.2</td>
<td>37.1</td>
<td>60.2</td>
<td>-</td>
</tr>
<tr>
<td>HB 10-1191 Repeal Exemption for Candy and Soda</td>
<td>-</td>
<td>1.4</td>
<td>16.0</td>
<td>16.0</td>
<td>16.0</td>
</tr>
<tr>
<td>HB 10-1192 Repeal Software Regulation</td>
<td>-</td>
<td>4.6</td>
<td>23.7</td>
<td>24.1</td>
<td>25.4</td>
</tr>
<tr>
<td>HB 10-1193 Sales Taxes and Out-of-State Retailers</td>
<td>-</td>
<td>0.02</td>
<td>0.2</td>
<td>12.5</td>
<td>17.1</td>
</tr>
<tr>
<td>HB 10-1194 Repeal Exemption for Food Containers</td>
<td>-</td>
<td>0.4</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>HB 10-1195 Temporarily Repeal Exemption for Agricultural Products</td>
<td>-</td>
<td>0.9</td>
<td>4.0</td>
<td>4.6</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Total Sales Taxes: 12.9 108.1 184.8 110.4 67.2

- Revenue removed and added back after forecast

---

Smoothing Other Vibrations

- Audit Adjustments
- Seasonally Adjust
  - X12
  - Holiday and Trading Day adjustments
  - Correcting for outliers
FORECASTING
### Reviewing Anecdotal Information

<table>
<thead>
<tr>
<th>Store</th>
<th>August Same-Store Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target</td>
<td>↑3.4 percent</td>
</tr>
<tr>
<td>Kohl’s</td>
<td>↑4.5 percent</td>
</tr>
<tr>
<td>Macy’s</td>
<td>↑4.3 percent</td>
</tr>
<tr>
<td>J.C. Penney</td>
<td>↑2.3 percent</td>
</tr>
<tr>
<td>Nordstrom</td>
<td>↑6.3 percent</td>
</tr>
<tr>
<td>Limited Brands</td>
<td>↑10 percent</td>
</tr>
<tr>
<td>Costco Wholesale</td>
<td>↑7 percent</td>
</tr>
<tr>
<td>Abercrombie &amp; Fitch</td>
<td>↑6 percent</td>
</tr>
<tr>
<td>Family Dollar Stores</td>
<td>↑8 percent</td>
</tr>
</tbody>
</table>

### Independent Variables

- U.S. Personal Consumption Expenditures, Durable Goods
- U.S. Fixed Investment, Nonresidential Equipment and Software
- U.S. Household Cash Flow
- U.S. Net Worth
- U.S. Total Liabilities
- U.S. Debt Burden
- Foreclosures
- CO Personal Income
Independent Variables

- U.S. Retail Sales Lagged three times
- Co Sales Lagged three times
- All variables first differences of the natural log
- Eliminated outliers