Forecasting Sales Tax Revenue in Tennessee

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Revenue Forecasting in TN

- UT's Center for Business and Economic Research (CBER) provides economic and revenue forecasts for the state
- Revenue forecasts updated regularly and presented to F&A and state’s Fiscal Review Committee
  - State-generated projections
  - Representatives from other universities
  - Committee adopts a forecast
Economic Forecast

- Foundation for CBER revenue projections
- Quarterly and annual models
  - Lags and projections of state variables
  - Global Insight data/projections on national drivers
- Most important projection is personal income
  - By statute, revenue growth < personal income growth
  - Most important economic factor affecting revenue

Revenue Forecast

- Ongoing updates and revisions to models
- Separate equations for each tax
- Projections of component aggregates
  - Aggregate sales v. disaggregated sales
  - Judgment
- Projections generally quite accurate when economic conditions are stable
Turning Points

- Always problematic with economic and revenue projections
- Each business cycle is a unique event
  - Changes behavior and tax elasticities
  - Requires additional judgment
- Great Recession
  - Nothing close to this in the historical data
  - Forecasting is like trying to drive forward while looking out your rear-view mirror

Potentially Large Changes in Short-Run and Long-Run Elasticities

- Sources of income
  - Weak employment growth
  - Significant structural unemployment for many years to come
  - Weak real income gains
  - Low inflation so low nominal income growth
    - Deflation risks
    - Inflation risks
Changing Elasticities (cont.)

• Household wealth effects
  ▫ Falling home and potentially other asset values
  ▫ Stock market and bond market risks
• Uses of income
  ▫ Rising savings rate—how much and for how long?
  ▫ Stagnant housing mkt and light vehicle sales
    • Housing mkt recovery “incomplete” by 2019

Changing Elasticities (cont.)

• Business sales tax base
  ▫ Ring study: roughly 1/3 of revenue
• Excess capacity, especially in the near term, so little revenue from construction
  ▫ Commercial
  ▫ Industrial
• Business equipment purchases showing vibrant growth
  ▫ States may have broad or targeted exemptions
Tax Collections by Source: FY2007-FY2011

(billions of dollars)

<table>
<thead>
<tr>
<th>Source</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>Est. FY10</th>
<th>Est. FY11</th>
<th>Ann. Avg. Growth FY07–FY11</th>
<th>Percentage of FY11 TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>6.83</td>
<td>6.87</td>
<td>6.34</td>
<td>6.13</td>
<td>6.25</td>
<td>-2.2</td>
<td>61.1%</td>
</tr>
<tr>
<td>Franchise &amp; Excise</td>
<td>1.74</td>
<td>1.65</td>
<td>1.32</td>
<td>1.45</td>
<td>1.48</td>
<td>-4.0</td>
<td>14.5%</td>
</tr>
<tr>
<td>Gas, Motor Fuel, Gas Inspect.</td>
<td>0.85</td>
<td>0.85</td>
<td>0.82</td>
<td>0.82</td>
<td>0.83</td>
<td>-0.6</td>
<td>8.1%</td>
</tr>
<tr>
<td>Motor Vehicle Registrations</td>
<td>0.26</td>
<td>0.26</td>
<td>0.25</td>
<td>0.24</td>
<td>0.25</td>
<td>-1.0</td>
<td>2.4%</td>
</tr>
<tr>
<td>Privilege</td>
<td>0.32</td>
<td>0.29</td>
<td>0.26</td>
<td>0.23</td>
<td>0.24</td>
<td>-6.9</td>
<td>2.3%</td>
</tr>
<tr>
<td>Gross Receipts</td>
<td>0.27</td>
<td>0.30</td>
<td>0.31</td>
<td>0.34</td>
<td>0.32</td>
<td>4.3</td>
<td>3.1%</td>
</tr>
<tr>
<td>Other Tax Revenue</td>
<td>0.71</td>
<td>0.94</td>
<td>0.87</td>
<td>0.85</td>
<td>0.86</td>
<td>4.9</td>
<td>8.4%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>10.98</td>
<td>11.16</td>
<td>10.17</td>
<td>10.06</td>
<td>10.23</td>
<td>-1.8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Tennessee Monthly Sales & Use Tax Revenue Indexed to Beginning of Recession

Source: Calculated by CBER using data from the Tennessee Department of Revenue.
Growth in Tennessee Total Tax Collections: 1971-2010
Sales tax performance drives overall revenues

Tennessee Tax Revenues, Total and as a Share of Personal Income: 1988-2011
Total Tennessee Tax Revenues Fully Rebound in 2012/13

Base Funding Reductions: FY2009-FY2010

(millions of dollars)

<table>
<thead>
<tr>
<th></th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>TOTAL</th>
<th>Percentage of Appropriations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education (K-12)</td>
<td>-9.4</td>
<td>-68.9</td>
<td>-34.8</td>
<td>-113.1</td>
<td>-3.0%</td>
</tr>
<tr>
<td>Higher Education</td>
<td>-56.0</td>
<td>-181.7</td>
<td>-69.8</td>
<td>-307.5</td>
<td>-19.2%</td>
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<tr>
<td>TennCare</td>
<td>-87.7</td>
<td>-255.6</td>
<td>-200.5</td>
<td>-543.8</td>
<td>-20.2%</td>
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<tr>
<td>Human Services</td>
<td>-5.8</td>
<td>-11.8</td>
<td>-5.4</td>
<td>-23.0</td>
<td>-12.5%</td>
</tr>
<tr>
<td>Mental Health</td>
<td>-4.0</td>
<td>-22.8</td>
<td>-6.2</td>
<td>-33.0</td>
<td>-18.4%</td>
</tr>
<tr>
<td>Correction</td>
<td>-17.3</td>
<td>-64.3</td>
<td>-6.4</td>
<td>-88.0</td>
<td>-13.2%</td>
</tr>
<tr>
<td>Other Programs</td>
<td>-98.5</td>
<td>-148.8</td>
<td>-88.1</td>
<td>-335.4</td>
<td>-15.9%</td>
</tr>
<tr>
<td></td>
<td><strong>-278.7</strong></td>
<td><strong>-753.9</strong></td>
<td><strong>-411.2</strong></td>
<td><strong>-1443.8</strong></td>
<td><strong>-12.9%</strong></td>
</tr>
</tbody>
</table>

Note: Discretionary Base excludes K-12 Basic Education Program, dedicated funds, statutory positions, and various poverty programs.
Rainy Day Fund Balance

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