Cracks in the Crystal Ball: Errors in States’ Revenue Estimating

Presentation by
Robert B. Ward
wardr@rockinst.org

Federation of Tax Administrators
October 19, 2011
Overview

- Errors in states’ revenue estimates have worsened during the fiscal crises following the last two recessions.
- From 1987 to 2009, the median estimating error (high or low) was 3.5%. In 2009, the median error was a 10.2% overestimate.
- Increased volatility of PIT (big jumps followed by declines) is a factor in higher error rates.
- What might states do differently?
Methodology

- Start with NASBO-NGA *Fall Fiscal Survey of the States* data and compare ‘original estimates’ (forecasts) to ‘current estimates’ (in the fall after end of the FY)
- Eliminate data with anomalies (estimates identical; errors implausibly large)
- Add analysis of Census data on tax revenues, BEA data on personal income
Data quality, and caveats

❖ NASBO-NGA data are useful because:
  ▪ States report data; ‘common’ definitions
  ▪ Cover all 50 states in most years
  ▪ Cover 20+ years, and 3 business cycles

❖ Still, any analysis such as this is imperfect
  ▪ Hard to correct for tax system variations
  ▪ By definition, forecasting is inexact
  ▪ Individual state findings require caution; there may be reporting inconsistencies
Estimating errors have grown larger
Median percentage error for state revenue estimates, 1987-2009
Why does this matter?

- When revenues fall below forecast, midyear cuts to important programs may be required.
- Even a 1% error makes a big difference – policymakers struggle over fractions of 1%.
  - E.g., in Montana, 1% = 1/2 of the judicial budget.
- Errors tend to bunch, 2-3 years in a row.
- ‘Positive’ errors can cause problems – unsustainable tax cuts & new programs.
More states have seen large errors
5% or larger shortfalls from forecast become more common

Fewer states getting it right

Percentage of forecasts off by 5% or more

<table>
<thead>
<tr>
<th>Period</th>
<th>1990 to 1992: 3 years of fiscal crisis</th>
<th>2001 to 2003: 3 years of fiscal crisis</th>
<th>2009: The first significant year of the ongoing fiscal crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortfalls</td>
<td>25%</td>
<td>45%</td>
<td>70%</td>
</tr>
<tr>
<td>Overage</td>
<td>8%</td>
<td>10%</td>
<td>6%</td>
</tr>
</tbody>
</table>

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Errors more often are underestimates

- Over our 23-year study period, the typical state underestimated revenue 16 times
- Average error was 1.5%, about $10B (2009 $)
- During most recent economic expansion, 36% of forecasts were under actual revenue by 5%+
- Budget staffs err on the conservative side, which is probably a good thing
FY 2009 shortfalls from forecast
Great Recession brought large shortfalls in each major tax

Scale of errors in 2009

- **PERSONAL INCOME TAX**
  - Received: $245.9 billion
  - Error: $23.9 billion

- **SALES TAX**
  - Received: $228.1 billion
  - Error: $17.3 billion

- **CORPORATE INCOME TAX**
  - Received: $40.3 billion
  - Error: $7.7 billion
Typically, a lagged impact on spending
State budgets respond 1-2 years after revenue turns

Expenditure adjustments follow trends in estimating errors

- Real change in general fund expenditures
- Median state revenue estimating error

[Graph showing the relationship between expenditure adjustments and revenue estimating errors over the years 1998 to 2010.]
A key factor: Rising reliance on PIT

States’ reliance on income tax is growing

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>25.7%</td>
</tr>
<tr>
<td>1988</td>
<td>30.3%</td>
</tr>
<tr>
<td>1998</td>
<td>33.8%</td>
</tr>
<tr>
<td>2008</td>
<td>35.6%</td>
</tr>
</tbody>
</table>
## Boyd’s index of state dependence on capital gains

<table>
<thead>
<tr>
<th>State</th>
<th>Capital gains as share of AGI, 2007</th>
<th>PIT as share of taxes, 2009</th>
<th>Rank, capital gains share &amp; top rate together</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>10.7%</td>
<td>44%</td>
<td>1</td>
</tr>
<tr>
<td>New York</td>
<td>13.5%</td>
<td>57%</td>
<td>2</td>
</tr>
<tr>
<td>Idaho</td>
<td>10.3%</td>
<td>37%</td>
<td>3</td>
</tr>
<tr>
<td>Oregon</td>
<td>8.9%</td>
<td>73%</td>
<td>4</td>
</tr>
<tr>
<td>New Jersey</td>
<td>7.9%</td>
<td>39%</td>
<td>5</td>
</tr>
<tr>
<td>Remainder of top 10: Maine, Connecticut, Massachusetts, Vermont, Nebraska</td>
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</tbody>
</table>

*Rhode Island had the lowest capital gains dependency among PIT states. Others in bottom 10: RI, WI, IN, NM, PA, ND, MI, MS, IL, WV*
Dependence on high-earning PIT payers

WSJ: Percentage of PIT receipts from top 1% of earners
Narrowing of the tax base

❖ Along with dependence on volatile PIT:
  ▪ Sales tax is more stable than PIT, but its base has narrowed as services become a larger share of the economy and many retail sales escape taxation
  ▪ States and businesses have both worked to narrow the base of corporate income taxes
  ▪ Some states depend heavily on natural resource taxes, which can be very volatile

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What about the estimating method?

- ‘The methods and systems states use to estimate revenue are not significantly linked to the size of errors,’ report finds
  - Regression analyses found little relationship between larger or smaller errors, and particular approaches to development of estimates or tax collection
  - Similarly, no significant relationship between use of consensus forecasting and size of errors – although data are limited
How to deal with inevitable errors?

- One best practice is engaging in ongoing analysis of errors, as CBO does
  - Rudolph Penner has written on this

- Adjusting estimates close to budget adoption

- Data available to us make it hard to determine whether consensus forecasting improves accuracy; but it can help policymakers focus on policy
The big issue: Managing volatility

- Revenue estimators can’t overcome volatility in the economy and tax systems

- Policy makers need to consider:
  - Boosting rainy-day funds
  - Fiscal devices to limit reliance on volatile taxes
  - Spending limits linked to revenues
    - DE, IA, MS, OK, RI limit budget to 95-98% of forecast

- How to educate policymakers and the public?
Obtaining a copy of the report

- Available on FTA conference website
- Go to www.rockinst.org and search “crystal ball”
- Send me an email or call:
  - Robert Ward, wardr@rockinst.org
  - 518-443-5831