Does My State Have a Structural Deficit?

Bruce Gates & Fred Thompson
Atkinson Graduate School of Management
Willamette University, Salem OR

The Federal Budget
State Budgets
The Oregon Case
THE COURSE
MOST POLITICIANS
FLUNKED...

HOME
ECONOMICS
101

LESSON #1
DON'T SPEND MORE THAN
YOU HAVE.

LESSON #2
SAVE FOR INEVITABLE
EMERGENCIES.
Cash Deficits

• Surplus/Deficit = Revenue - Outlays

• Deficits have two components
  • Cyclical = revenue shortfall due to the business cycle
  • Structural = revenue shortfall at full employment
The Distinction between Cyclical and Structural Deficits is Important Because

- State governments can make up cyclical revenue shortfalls in a variety of ways.
- Real structural deficits can be repaired only by *permanent reductions in outlays* or *permanent increases in taxes*. 

*permanent reductions in outlays* or *permanent increases in taxes*. 
Literature on State Structural Deficits

- Making California’s State Budget More User-Friendly and Transparent  
  WZ Hirsch, DJB Mitchell - California Policy Options, 2002
- Making California’s State Budget More User-Friendly and Transparent:  
  Further Thoughts. WZ Hirsch, DJB Mitchell - California Policy Options 2003
- Wisconsin's Structural Deficit: Our Fiscal Future at the Crossroads  
  Andrew Reshovsky, Robert M. Lafollette School of Public Affairs, University of Wisconsin-Madison. 8p. May 2002  (Also State Tax Notes, Vol. 25, No. 6, August 12, 2002)
- Idaho’s Structural Deficit: A Problem that Won’t Go Away  
  Judith Brown and Don Reading, Idaho Center on Budget and Tax Policy, March 2005
- It’s Not Just the Recession: The Budget Crisis and Washington State’s  
  Structural Deficit M.P. Watkins and Jason Smith, Economic Opportunity Policy Institute, Seattle WA, July 2003

Many analysts define a structural deficit as not having enough revenue to meet current needs -- argument for more taxes

Some (Reshovsky, Watkins & Smith) distinguish between structural deficits and cyclical deficits but implicitly compute the former in terms of data series that run from peak to trough of the business cycle -- this extrapolation is also usually an argument for more or different taxes
The Business Cycle

The phases of the business cycle are:

- Expansion,
- Peak (*or* boom),
- Contraction, and,
- Recessionary trough.

The duration of business cycles is irregular and the magnitude of the swings varies.
• In the past, ups and downs have often characterized aggregate business activity.

• Despite these fluctuations, there has been an upward trend in real GDP in the United States and other industrial nations.
The Business Cycle

![Graph showing annual growth rate of real GDP from 1960 to 2000. The long-run growth rate is approximately 3%.]

The Economics of Revenue Growth

- Nominal increase have averaged over 10 percent per year over the past century. However, inflation accounts for two-thirds of the total increase.
- During the last 50 years (1950-2000), federal government revenues grew at an average annual rate of 3.5 percent.
- Double-digit nominal occurred increases during 32 of the 50 years, while the increases were negative during only 11 of the years.
Here are the annual inflation rates for the last 48 years.

Between 1953 and 1965, the general price level increased at an average annual rate of only 1.3%.

In contrast, the inflation rate averaged 9.2% from 1973 to 1981, reaching double-digits during several years.

Since 1982, the average rate of inflation has been lower (about 3.2% from 1983-2001) and more stable.
In 2000, government revenue as a share of national income rose to the highest level since World War II.
Real Federal Expenditures Per Capita: 1792-2000

- Real federal spending per person (measured in 2000 dollars) grew slowly during the first 125 years of U.S. history, but it soared throughout most of the 20th century.
Federal Expenditures and Revenues

*Federal Government Expenditures and Revenues (as a share of GDP)*


- The federal deficit or surplus as a share of the economy is shown here. Note the growth of budget deficits during the 1980s and the movement to surpluses during the 1990s.
• Through most of the 1950s & 1960s, federal budget deficits were small as a % of GDP; occasionally there was a surplus.
• During this period, the national debt declined as a % of GDP.
During 1974-1995, budget deficits were quite large, causing the national debt to increase as a % of GDP.

During the 1992-2002 period, the national debt fell as a share of the economy.
Conclusions

• About half of the federal government’s deficits over the past fifty years were cyclical in nature.

• Between 1976-1993, structural deficits were between 1 and 3 percent of GDP.

• After 1994, the federal deficit was eliminated by a combination of spending restraint, revenue increases, and boom.
State Deficits

- Most states have less volatile revenue structures than the federal government
- Even so they often experience substantial cyclical fiscal effects
- Because most are required to balance their budgets, structural deficits mean something different for states: Surpluses must equal deficits over the course of the business cycle
  - Rainy day funds
  - Countercyclical borrowing
  - Hedging

Oregon’s Fiscal Gap
Primarily (but not entirely) Driven by Revenues (actual revenues - CSB)

Budget Shortfall/Surplus over Time

Magnitude of Shortfall/Surplus (in Millions, Real 2002$)

Year
Oregon’s Deficits Have a Cyclical Component

Budget Shortfall/Surplus over Time

Magnitude of Shortfall/Surplus (in Millions, Real 2002$)

Year


-400 -300 -200 -100 0 100 200 300

Jump to first page
Analytical Problems

• We used negative job growth as a recession identifier because we lacked a formal mechanism to date recessions at the state level.

• That’s not entirely satisfactory.
Evidence of A Structural Deficit?

Frequency Histogram of Budget Shortfall/Surplus

Magnitude of Shortfall or Surplus (in Millions, Real $ [2002 CPI=100])

- Normal Distn: Mean = -20, Std Dev = 140
- Triangular Distn: Min = -350; Max = 250; ML = 69
- Observed Cum Freq
Problem

• Doesn’t adjust for scale, just inflation

• Positive correlation between budget gap and time could be due to structural deficit or to selection bias
Analytical Solution

- Monte Carlo Simulation
- Weiner Process
- Trough to Trough Revenue and Spending
- Trough to Trough Spending, Peak to Peak Revenues
Results of Monte Carlo Simulation

Weiner process, Peak to Peak Revenue, Trough to Trough Outlays, Constant 2002$

$r = 4\%; \, \Sigma = 260; \, \Delta t = 0.01; \, \text{E-O-Y} = 5,116$

$$y = 5006.6e^{0.0002x}$$

$R^2 = 0.2254$
Implications

- Other things equal, revenue growth is faster than outlay growth
- Oregon doesn’t need to increase taxes to offset a structural budget deficit
- Oregon could rely on a rainy day fund of sufficient size to mitigate the adverse consequences of cyclical revenue shortfalls (if it had one) or mitigate them via a program of countercyclical borrowing
- Hedging
**Warning** This Analysis is Concerned with Cash Deficits and is Based on the Assumption that the Future will be like the Past

This implies that OR should increase taxes or reduce spending by about 15 percent