

The Increasing Cyclicality of State Tax Revenues: Implications for New England

Yolanda K. Kodrzycki

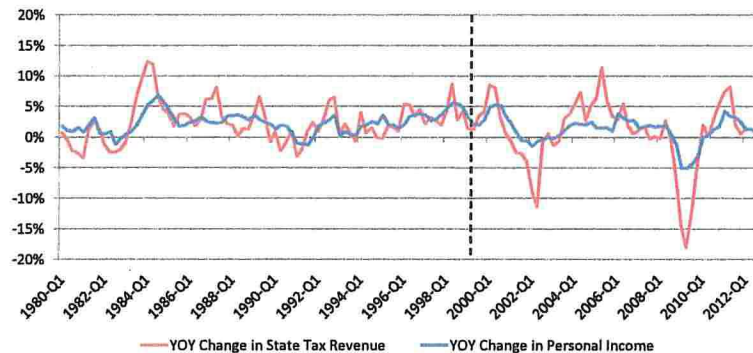
New England Fiscal Leaders Meeting
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The views expressed in this presentation are those of the speaker and do not necessarily represent positions of the Federal Reserve Bank of Boston or the Federal Reserve System.



State tax revenues became more cyclical in the 2000s.

Year-Over-Year Change in Personal Income and State Tax Revenue, U.S. Totals



Source: Author's calculations based on data from the Census Bureau/Haver Analytics and the BEA/Haver Analytics.
Note: Personal Income and tax revenue figures are in real, per-capita terms.

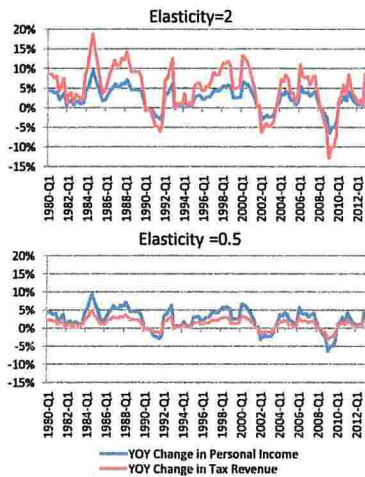
For every 1% change in personal income, total state tax revenues changed by 1.76% and state income tax revenues changed by 2.23%.

Cyclicality of State Tax Revenue Relative to Personal Income, 1980-2012		
All States		
	1980-1999	2000-2012
Total	0.83	1.76
Personal Income	0.50	2.23
General Sales	1.02	1.40
Selective Sales	n.a.	0.46
Corporate Income	1.08	2.00
All Other	n.a.	1.67

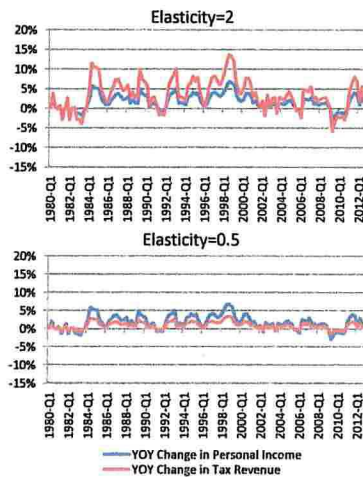
Source: Author's calculations based on data from the Census Bureau/Haver Analytics and the BEA/Haver Analytics.

Comparing states: revenue cyclicality depends on the state economy and tax elasticity.

Year-Over-Year Tax Revenue:
State with More Cyclical Economy



Year-Over-Year Tax Revenue:
State with Less Cyclical Economy



Source: Author's calculations based on data from the Census Bureau/Haver Analytics and the BEA/Haver Analytics.
Note: Personal income and tax revenue figures are in real, per-capita terms.

What determines a state's tax elasticity?

- Total tax elasticity depends on:
 - Revenue mix
 - Tax design
 - Legislated responses to budget shortfalls and surpluses
- Income tax elasticity also depends on:
 - Federal tax law
 - Sources of taxpayer incomes

Massachusetts had a higher total tax elasticity than the other New England states in the 2000s.

Total Tax Revenue Elasticity Relative to Personal Income	
	2000-2012
50-State Average	1.76
40-State Average (Ex. Mining-Intensive States)	1.53
Connecticut	1.45
Massachusetts	1.91
Maine	0.59
New Hampshire	0.72
Rhode Island	1.36
Vermont	1.12

Source: Author's calculations based on data from the Census Bureau and BEA/Haver Analytics
Note: New Hampshire and Vermont include property tax adjustment.

California and New York had among the highest total tax elasticities nationwide.

Distribution of Total Tax Elasticity by State, 2000-2012	
Total Tax Elasticity in 2000s	
50-State Average=1.76	
Elasticity of 1.94 – 4.32	AK, AL, CA, GA, ID, LA, MD, MI, MT, ND, NM, NY, OH, OK, OR, SC, VA, WY
Elasticity of 1.85 – 1.94	CO, MA, TN
Elasticity of 1.67 – 1.85	AZ, IL, KS, MS, UT
Elasticity of 1.59 – 1.85	NC
Elasticity of 0.56 – 1.59	AR, CT, DE, FL, HI, IA, IN, KS, ME, MN, MO, NE, NH, NJ, NV, PA, RI, SD, TX, VT, WA, WI, WV

Source: Author's calculations based on data from the Census Bureau and BEA/Haver Analytics
 Note: New Hampshire and Vermont include property tax adjustment.

Connecticut, Massachusetts, and Vermont had the highest income tax elasticities among the New England states in the 2000s.

Personal Income Tax Revenue Elasticity Relative to Personal Income	
2000-2012	
50-State Average	2.23
40-State Average (Ex. Mining-Intensive States)	2.64
Connecticut	3.02
Massachusetts	3.06
Maine	1.24
New Hampshire	n.a.
Rhode Island	2.69
Vermont	3.16

Source: Author's calculations based on data from the Census Bureau and BEA/Haver Analytics
 Note: New Hampshire and Vermont include property tax adjustment

These three New England states had among the highest income tax elasticities nationwide.

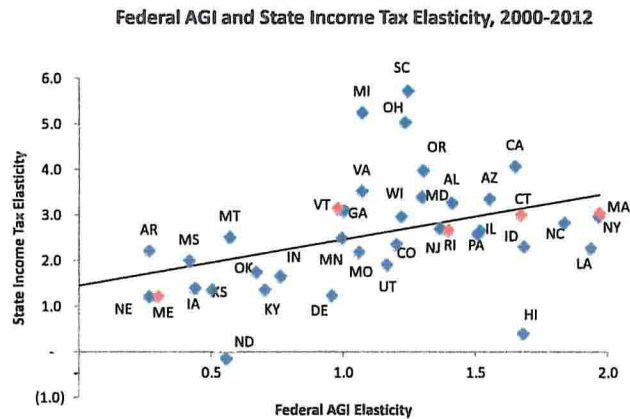
Distribution of Income Tax Elasticity by State, 2000-2012	
	Income Tax Elasticity in the 2000s
	50-State Average=2.23
Elasticity of 2.73 – 5.74	AL, AZ, CA, CT, GA, MA, MD, MI, NC, NM, NY, OH, OR, SC, VA, VT, WI
Elasticity of 2.48 – 2.73	IL, MN, MT, NJ, PA, RI
Elasticity of 1.98 – 2.48	AR, CO, ID, LA, MO, MS
Elasticity of 1.74 – 1.98	OK, UT
Elasticity of -0.14 – 1.74	DE, HI, IA, IN, KS, KY, ME, ND, NE, WV

Source: Author's calculations based on data from the Census Bureau and BEA/Haver Analytics
 Note: Nine states (Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas, Washington, and Wyoming) have no broad-based income tax. Vermont includes property tax adjustment.

Why did some states have higher income tax elasticities than others during 2000-2012?

- Past income tax elasticity had little predictive power.
- Most important factor was cyclical volatility of AGI on state residents' federal tax forms.
- Less important were what state tax policy makers control (rates, deductions, exemptions).

There was a strong relationship between federal AGI and state income tax elasticity.



Source: Author's calculations based on data from the Census Bureau/Haver Analytics and the BEA/Haver Analytics.
Note: Nine states (Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas, Washington, and Wyoming) have no broad-based income tax. Vermont includes property tax adjustment.

Specific factors for the New England states included capital gains income and tax breaks for seniors.

- Capital gains share of federal AGI (uncontrollable):
 - 8% in CT and MA
 - 7% in VT
 - Remaining New England states more in line with 5% average for all states with personal income tax
- Tax preferences for seniors (controllable):
 - Sizeable in RI and VT
 - More modest in the remaining New England states

Key takeaways

- Short of taking the “New Hampshire pledge” there is not much that New England state tax policymakers can do to significantly stabilize tax revenues over the business cycle.
 - Tax treatment of retirees is a possible exception
 - Worth examining in other states, esp. RI and VT
- Best solution is to improve rainy day fund design.
 - MA now setting aside excess capital gains revenues
 - Worth examining in other states, esp. CT and VT
 - All states should monitor federal tax laws that cause income shifting.

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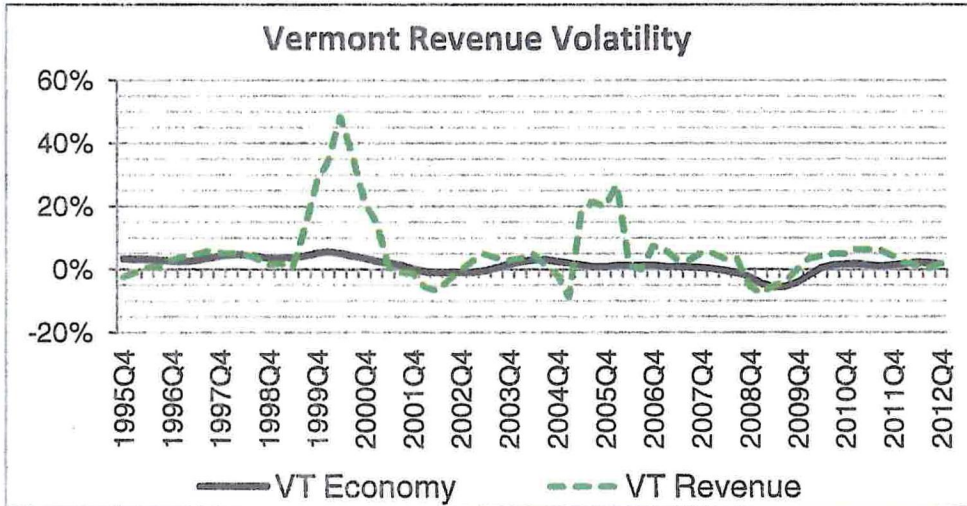
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Why Volatility Matters to Vermont

Revenue volatility influences the timing and size of state budget shortfalls and surpluses and makes revenue forecasting more difficult. These unpredictable fluctuations often confound states' best efforts to develop and maintain balanced budgets.



Volatility is also mostly unavoidable. Policymakers have limited influence over states' unique business cycles and adjusting tax policy often involves trade-offs, with stability being one of many competing goals. State officials can still plan for unexpected financial challenges by building a financial cushion in times of growth for use in unforeseeable downturns. Policymakers now need to go beyond the question of whether to save, and think about when, how, and how much to save.

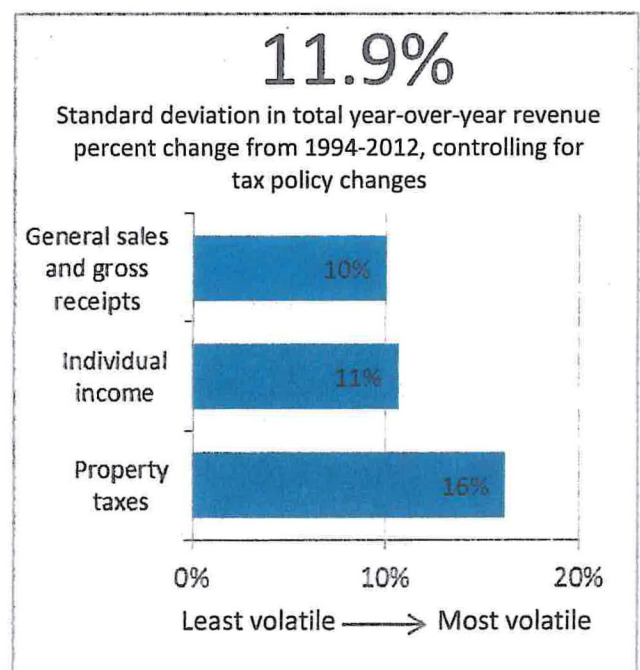
Most states have budget stabilization funds designed to smooth the budget over multiple years. Vermont has two such funds. The state makes deposits to both funds based on end-of-year fiscal position, the most common mechanism for saving among the 50 states. At the end of every fiscal year, the state transfers the entire unappropriated surplus to the General Fund Budget Stabilization Reserve until it hits 5 percent of total revenues, and then any additional surplus is directed to the Rainy Day Reserve.

Preliminary Pew research has found that while 38 states, including Vermont, do not directly consider volatility when making deposits to their rainy day funds, 12 states do. In these states, saving money during times of growth is a consistent and predictable practice that may be instructive for other states looking to improve their reserve fund policies.

What Vermont Can Do

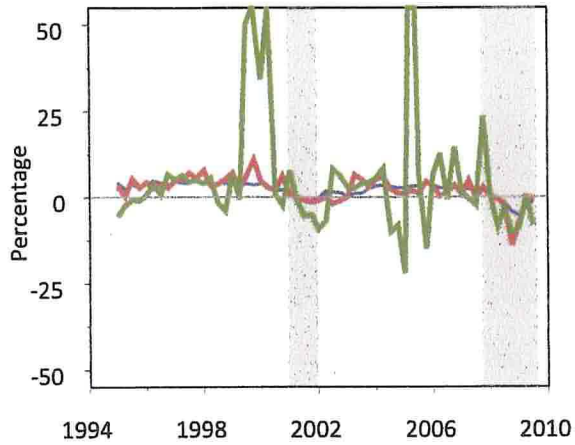
Our research has identified a number of promising practices that can help Vermont policymakers harness volatility when times are good and reduce the need for policymakers to make the most difficult budget choices in tough times, particularly spending cuts and tax increases during periods of economic decline.

- **Study the causes and drivers of Vermont's revenue volatility.** A periodic report on what drives the state's revenue volatility can help policymakers review the purpose and goals of the rainy day fund and set a target for how large the fund should be to manage Vermont's fiscal uncertainty.
- **Establish a deposit rule connected to Vermont's unique experience of volatility.** A volatility study can provide policymakers with a roadmap for what will work best in Vermont to make savings at times of growth a budget priority.

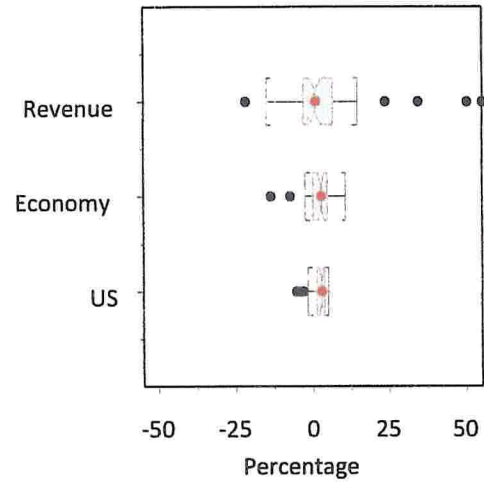


Vermont Growth and Volatility 1995 - 2009

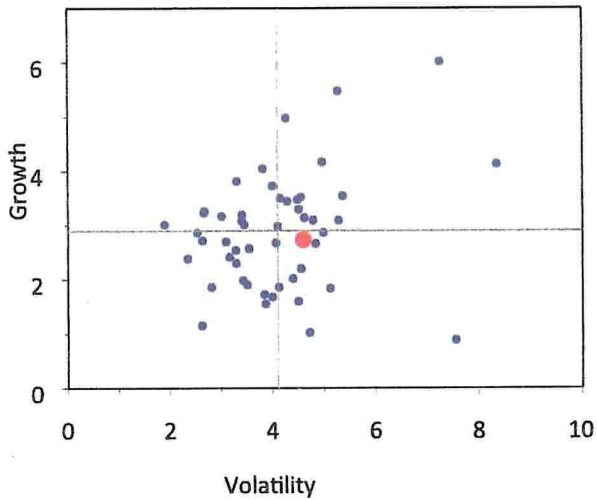
(a) Business Cycle & Revenue



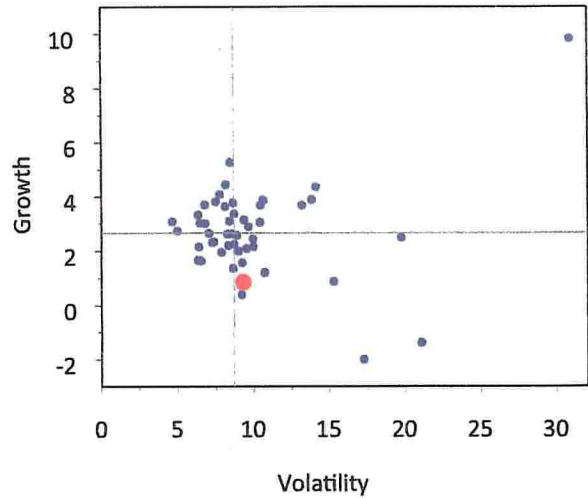
(b) Distribution of Growth Rates



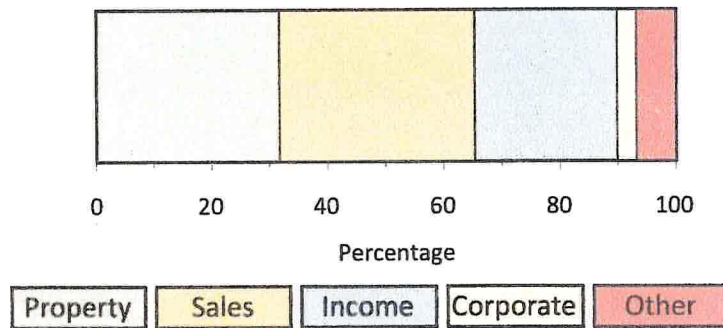
(c) Economy Growth & Volatility



(d) Tax Revenue Growth & Volatility



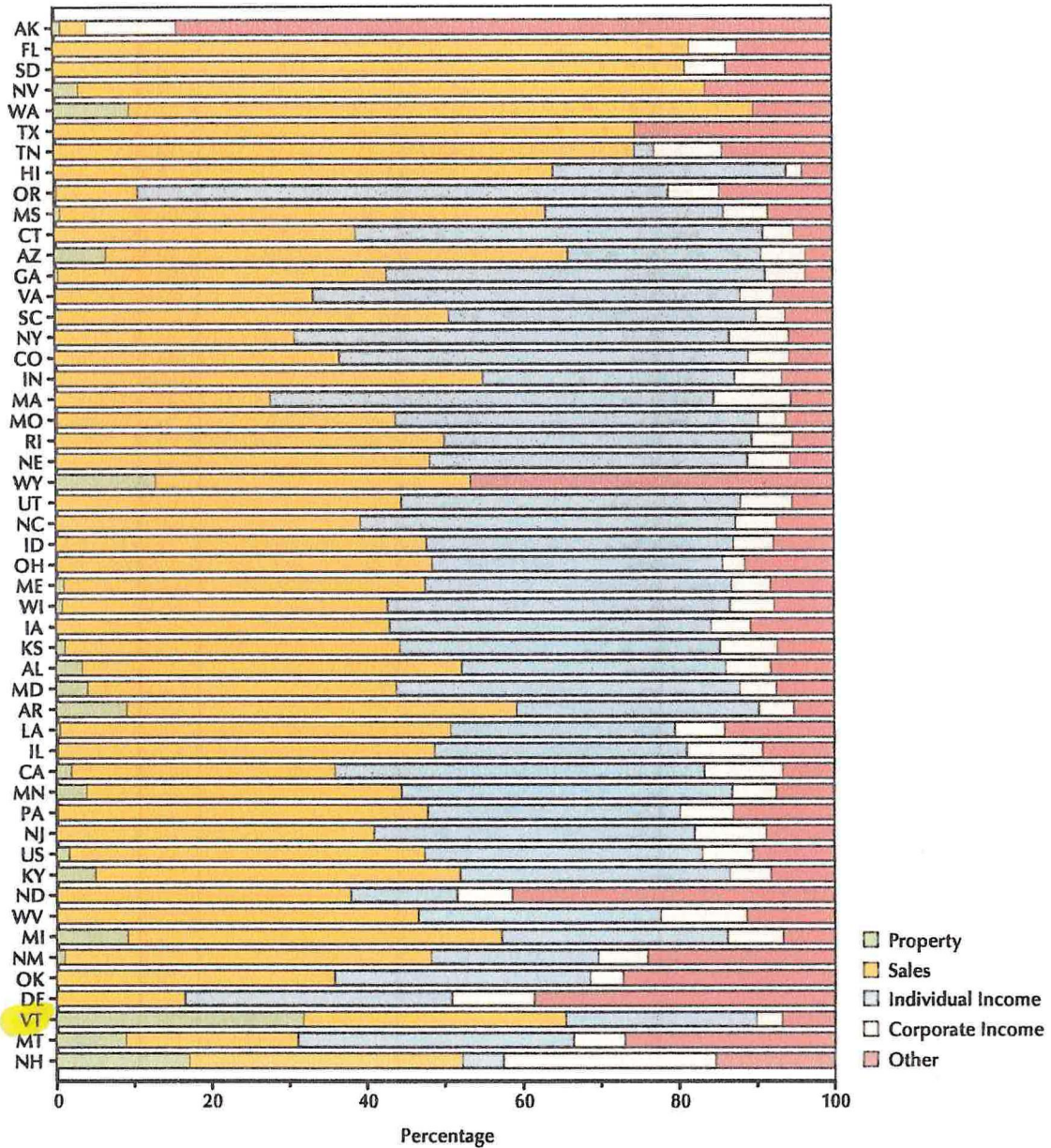
(e) Tax Portfolio



Sources: Federal Reserve Bank of Philadelphia State Coincident Indicators and
Census Bureau Quarterly State and Local Government Tax Revenue

Figure 8

State Tax Portfolios: Proportions of Total 2008 Tax Revenues Ranked by the Herfindahl-Hirschman Index



NOTE: Ranked from least to most diverse.

SOURCE: Census Bureau Annual State and Local Government Tax Revenue.

State Tax Revenue Growth and Volatility

Gary C. Cornia and Ray D. Nelson

Macroeconomic conditions and tax structures jointly determine the growth and volatility of state tax revenues. Since a variety of economic conditions exist among states, government policymakers should carefully anticipate and consider the possible impacts of proposed tax reform and revenue enhancements on the long-term growth and volatility of their unique tax revenue portfolios. In the short run, states generally cannot alter the volatility and growth rates of their economies. They can, however, change the composition of their tax portfolios to minimize the effects of the business cycle on their fiscal health. For this reason, state officials need to consider the natural tendencies of their economies when formulating tax policy. For example, states with volatile economies might want tax portfolios that minimize the impact of national macroeconomic trends; those with stable economies might consider adopting more aggressive tax portfolios that optimize their tax revenue growth/volatility combinations. (JEL H21, H72, R51)

Federal Reserve Bank of St. Louis *Regional Economic Development*, 2010, 6(1), pp. 23-58.

In recent years, state legislators and governors faced difficult budget deliberations caused by revenue shortfalls. News reports repeatedly identify and chronicle the dire fiscal conditions faced by most states. Dadayan and Boyd (2009) report record drops in tax revenues and describe historically difficult budgeting conditions. Unfortunately, if the patterns continue, states will yet face severe budgeting challenges beyond the official end of the national recession. These challenges will be especially acute if a sluggish labor market recovery and renewed banking sector stress persistently retard sales and income tax receipts.

Gamage (forthcoming) identifies a recurrent pattern of state fiscal crises. He describes how states often broaden tax bases or raise tax rates during recessions to maintain commitments made during prosperous periods. When the economy begins to recover, states experience budgetary relief as tax revenues grow. Eventually, the higher rates and

broader bases generate significant increases in tax revenues and often lead to new or broader financial commitments. However, when the economy lapses into recessionary conditions, these commitments inevitably contribute to higher levels of budgetary stress. The resulting budget deficits once again challenge state officials to find new revenue sources and cut expenditures.

Sobel and Wagner (2003) suggest that, when changing the tax code to generate additional revenue, government officials and public policymakers should consider the implications of such revisions on the long-run expected growth and volatility of tax revenues. Highly volatile taxes or taxes with high income elasticities are useful when trying to balance a budget but create substantial challenges when the economy contracts. What increases rapidly during an economic expansion also falls precipitously during an economic contraction. The resulting challenge of revenue shortfalls during a downturn is especially acute in the current eco-

Gary C. Cornia is dean and Ray D. Nelson is an associate professor at the Marriott School of Management, Brigham Young University.

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