FTA/NASBO Session on Revenue Volatility:

Revenue Cyclicality and State Policy Options

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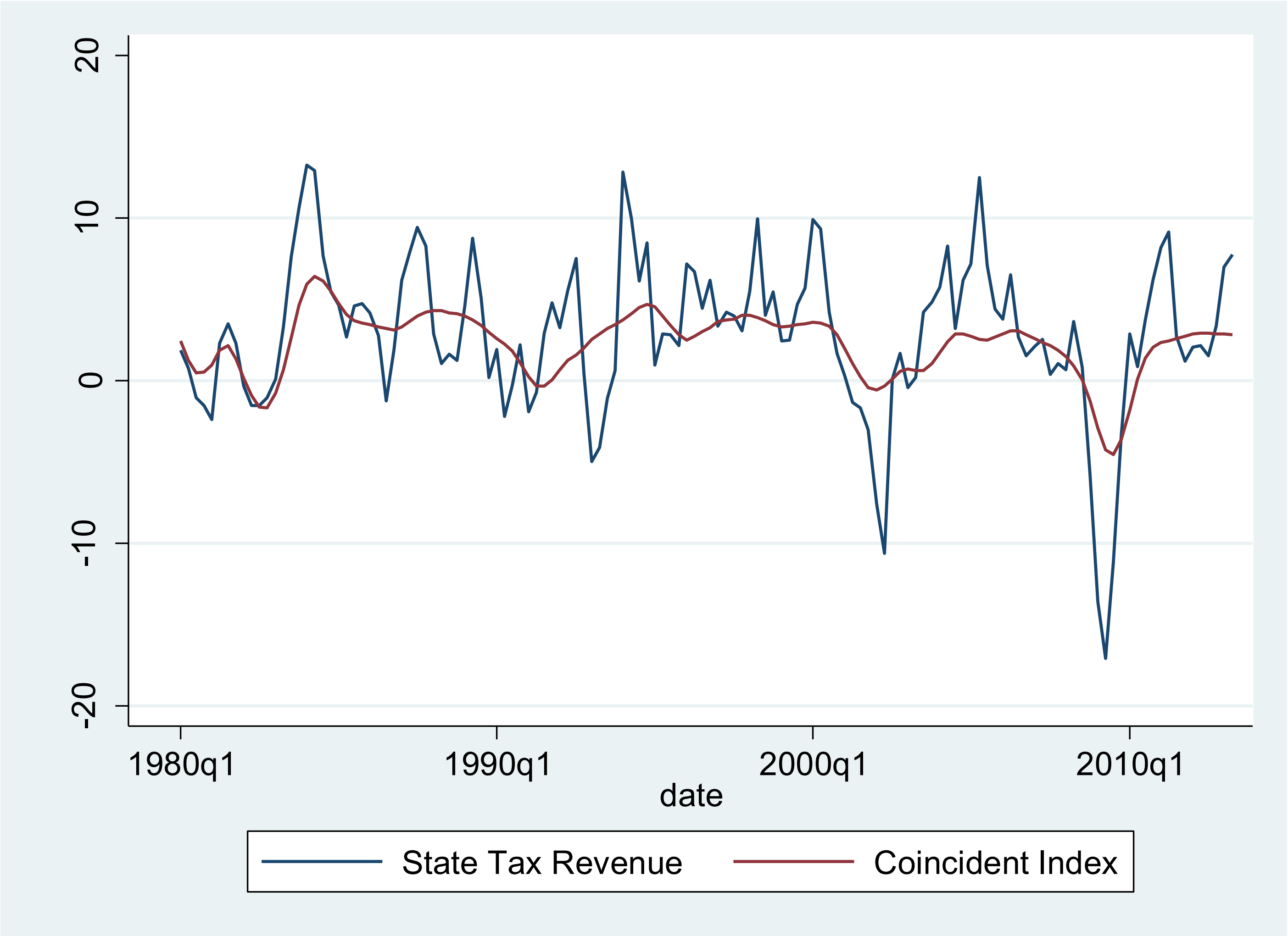
State tax revenues have always responded to the business cycle

- Increasing when times are good and falling when times are bad
  - Overall revenue responsiveness +0.9 (1980-2013:Q2)
    - If economic growth increases by 1 percentage point, revenue growth increases by 0.9 percentage points.
- Responsiveness differs by tax in question
  - Individual Income Tax +1.2
  - General Sales Tax +0.9
  - Corporate Income Tax +2.4
  - Other +0.5

Something seems to have changed

- Revenue response in past two recessions appears to be disproportionate. Larger than we would have anticipated based on past history
  - 2001 recession, a brief and shallow recession led to a far larger fiscal crisis
  - 2007 recession, a substantial recession led to a major fiscal crisis

This responsiveness has increased over time



This responsiveness has increased over time

- We test for a structural break and date it to 2000.
- We run the following regression
  - $$\Delta \ln R_{i,t+4} = \alpha_1 + \alpha_2 break + \beta_1 \Delta \ln EC_{i,t+4} + \beta_2 \left[break \times \Delta \ln EC_{i,t+4} \right] + \varepsilon_{i,t+4}$$
  - We find
    - Total tax revenue: Pre-2000 0.7 Post-2000 1.4
    - Sales tax revenue: Pre-2000 0.9 Post-2000 1.1
    - **Individual Income: Pre-2000 0.6 Post-2000 2.2**
    - Corporate Income: Pre-2000 1.9 Post-2000 3.8
  - Not a switch from sales to income tax
    - Sales and autos?

What Happened to Make the Individual Income Tax Change?

- Tax Base or Tax Rates
  - Tax Base (What we tax)
    - Measured using data on income by state from the IRS, Statistics of Income (From Federal Tax Returns, 1979-2011)
      - Consistently measured across state and time, but not the chosen base in all states.
    - Cyclicality of income has about doubled
      - Total Income: Pre-2000 0.7 Post-2000 1.1
      - Wage and Salary Income: Pre-2000 0.6 Post-2000 0.7
      - Investment Income: Pre-2000 0.5 Post-2000 5.8
    - What happened with investment income (dividends, interest, realized capital gains)
      - Stock market dynamics
      - Capital gains tax rates
      - Fiscal cliff

What Happened to Make the Individual Income Tax Change?

- Tax Rates (How we tax)
  - Data from National Bureau of Economic Research (NBER) TAXSIM
    - Measure of state tax policy divorced from actual income dynamics
  - Tax Rates had traditionally been countercyclical (This stabilizes revenues over the business cycle)
    - Prior to 2000:
      - Maximum Marginal rate wages -0.9
      - Maximum Marginal rate capital -0.6
      - Average Marginal rate wages (based on a fixed income distribution) -0.5
      - Average Marginal rate capital (based on a fixed income distribution) -0.5
      - Top Marginal Rate -0.5
  - Tax Rates became less countercyclical especially on wages
    - Since 2000
      - Maximum Marginal rate wages -0.2
      - Maximum Marginal rate capital -0.5
      - Average Marginal rate wages (based on a fixed income distribution) -0.1
      - Average Marginal rate capital (based on a fixed income distribution) -0.5
      - Top Marginal Rate -0.2
  - What happened to tax rates
    - Politics? I call this the Florio effect (1993 election)

Break Down Between Rates and the Base

- Two forces working in the same direction
  - Investment income, tax rates on wage and salary income
- We do some calculations to divide increases in the cyclicality of revenues to the rates and to the base
  - Issue is how do you account for the increase in effective tax rates during booms which increase more than legislated rates due to the progressivity of the tax system.
  - If we attribute this increase in effective rates to the base and only assign true legislated policy changes to rates
    - 29% of increase due to rates/policy
    - 71% of increase due to base/income dynamics
    - 100% of the level of cyclicality post 2000 is due to the base
    - Rates are now neutral
      - Historically rates worked in the opposite direction

State by State Analysis

(Level of post-2000 cyclicality)

state	post-2000	rank		state	post-2000	rank		state	post-2000	rank
MS	0.34	43		DE	2.07	28		VA	2.90	13
ND	0.67	42		UT	2.07	27		NH	3.40	12
ME	0.68	41		KS	2.12	26		MA	3.43	11
OR	0.93	40		AL	2.14	25		CT	3.45	10
KY	1.03	39		WI	2.15	24		VT	3.45	9
WV	1.24	38		AR	2.25	23		MN	3.65	8
ID	1.58	37		GA	2.43	22		NJ	3.83	7
IN	1.71	36		MD	2.48	21		NY	3.85	6
RI	**1.72**	**35**		CO	2.51	20		NM	3.97	5
MT	1.79	34		MO	2.51	19		SC	4.05	4
NC	**1.83**	**33**		MI	2.58	18		TN	4.28	3
HI	1.87	32		OH	2.63	17		CA	4.36	2
IL	1.91	31		LA	2.67	16		NE	4.54	1
OK	1.97	30		AZ	2.78	15				
PA	2.03	29		IA	2.82	14				

Policy Options

- Is this a problem?
  - Balanced budget restrictions
  - Yes. Demands for state services increase during recessions
    - Medicaid, UI, Higher education
- What to do
  - Spend less when the economy is bad
  - Tax more when the economy is bad
  - Ask Washington for help when the economy is bad
  - Be less generous to local governments
  - Save for recessions
    - Rainy Day Funds – These could be much more effective and will need to be bigger.
      - We may learn something from localities.
    - Massachusetts
      - Capital gains tax revenue over $1B gets deposited in rainy day funds.