Dynamic Revenue Estimating: The Good, the Bad, the Ugly

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Presentation Overview

- Introduction to ITEP

- Dynamic Scoring: What? Why? How?

- Two Models: STAMP & REMI

- Dynamic Scoring: Why Not?

- Questions?

Introduction to ITEP

The Institute on Taxation and Economic Policy (ITEP) is a non profit, non-partisan research organization that works on federal, state, and local tax policy issues. ITEP's mission is to ensure that elected officials, the media, and the general public have access to accurate, timely, and straightforward information that allows them to understand the effects of current and proposed tax policies.

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Background on the ITEP Model

- Built in 1994-1996, but still evolving in 2014

- Designed to:
  - Predict the distributional effect of proposed tax changes on taxpayers at different income levels
  - Predict the revenue gain (loss) from proposed tax changes
  - Estimate the impact of current state and local taxes in all 50 states
  - Measure the interaction between state and federal tax changes

- Employs the same technology used by the US Treasury, Congressional Joint Committee on Taxation, Congressional Budget Office, and some state departments of revenue (e.g. TX, MN, ME)

- Consists of four basic modules: **personal income tax, property tax, consumption tax, and business tax**

- **Generally a static model– not dynamic.**

What is Dynamic Scoring?

- An approach to understanding the impact of changes in tax or spending policies that takes into account behavioral changes caused by these policy changes.

- Shows direct effects of a policy change, plus secondary and tertiary indirect effects.

- By contrast, static analysis looks just at the immediate impact of a policy change on individuals and businesses given their current behavior.

- So dynamic scoring is most charitably thought of as an attempt to clearly show how fiscal policy changes will work in the real world over the long run.

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Example: Kansas Income Tax Repeal

- Kansas Governor Sam Brownback proposes repealing personal income tax

- Direct impact: Loss of $2.7 billion in tax revenue, loss of $2.7 billion in general fund. Education, health care cuts include jobs and programs benefitting Kansans.

- Indirect effect: Kansans have more income and spend it, boosting demand; Kansas businesses hire more workers, boost production/sales. But they have no textbooks.

- Tertiary effect: Suppliers of KS businesses boost sales.

- Chain reaction!

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Why Do Dynamic Scoring?

- Tax changes are frequently done with macro-economic goals in mind: growing employment or income. (Kansas, Louisiana). Policymakers should have some basis for judging whether these changes will perform as advertised.

- Some tax changes have unintended behavioral effects (capital gains).

- Other tax changes are designed to produce effects that can be difficult to forecast (cigarette tax, DC bag tax).

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What is a CGE Model?

- A computer model mapping how an economy works–and how it responds to policy changes.

- Presents data on dozens of economic sectors and how they interact with each other.

- Users introduce a policy shock into the economy, and look to see how each sector of the economy is affected.

- Policy shock changes relative prices of goods/services, moves economy from one equilibrium to another.

- Projects impact on income, employment, GSP and (to some extent) tax revenues.

"The Best of All Possible Worlds"

- CGE models assume an economy in equilibrium, both before and after the policy shock.

- Generally assume perfectly efficient markets with full information; prices adjust until supply=demand in all markets.

- In some cases, assume full employment.

- In short, CGE models are examining a world that does not exist.

...And the Sparsest of All Possible Data

- CGE models must quantify linkages between dozens of economic sectors.

- Even at the national level, these linkages are often "opaque and arbitrary approximations."

- Data on these linkages are often nonexistent at the state level.

- Cross-state issues add to complications.

- Good news: no one can prove you're wrong

- Bad news: you can't prove you're right!

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Two CGE Models: STAMP and REMI

- STAMP Model created (and exclusively used by) Beacon Hill Institute (BHI), research arm of Suffolk University Economics Department.

- REMI created by Regional Economic Models, Inc.

- STAMP used entirely by "think tanks" working directly with BHI.

- REMI used by governments as well as think tanks.

- In theory, two models are comparable in function. Both CGE models. But…

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Important Differences Between REMI and STAMP

- STAMP Model Doesn't Include Indirect Effects of Government Spending (REMI does)

- STAMP Assumes Full Employment. No stimulus possible.

- STAMP Model Immediately Implements Policy Changes (REMI phases in effects)

- STAMP uses aggressively high elasticities: individuals stop working, consumers leave the state, businesses stop hiring. Cookie-cutter reports in multiple states.

- STAMP not peer/academic reviewed (REMI is)

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Government as Passive Tax Collector

- STAMP model shows direct effect of government spending, but in a one-dimensional way.

- Government simply collects revenue and then redistributes it to taxpayers.

- This means government spending has no indirect effects, because taxpayers spend $ in the same way regardless of whether government collects it first.

- But gov't spends money in-state, and buys things that people don't (public goods).

- And education builds human capital!

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A Chicken in Every Pot

- STAMP Model Assumes Full Employment: Everyone who wants a job has one.

- Implication: auto industry bailout in 2009 can't boost economy, because everyone is already employed!

- Jobs can only be destroyed, not created– and virtually any tax hike will do that.

- "If you think you're starting from the top of the mountain, there's nowhere to go but down." (Ackerman 2013)

- Harmful taxes, per STAMP: income, property, sales, estate, cigarette, gasoline, plastic shopping bags.

To STAMP, Five Years Moves Pretty Fast

- STAMP Model Purports to Assess "Five Year" Impact
- In fact, STAMP analyses assume immediate phase-in of a tax change's impact, and then grows that impact in later years.
- Public-sector job losses are immediate following tax cuts; economic growth less so.
- Makes tax cuts seem more affordable than they are.
- Result: Kansas 2012-2014.

Figure 3: Economic Impact of Tax Cuts in STAMP is Large and Instantaneous, Yet Can Begin to Immediately Decline Over Time
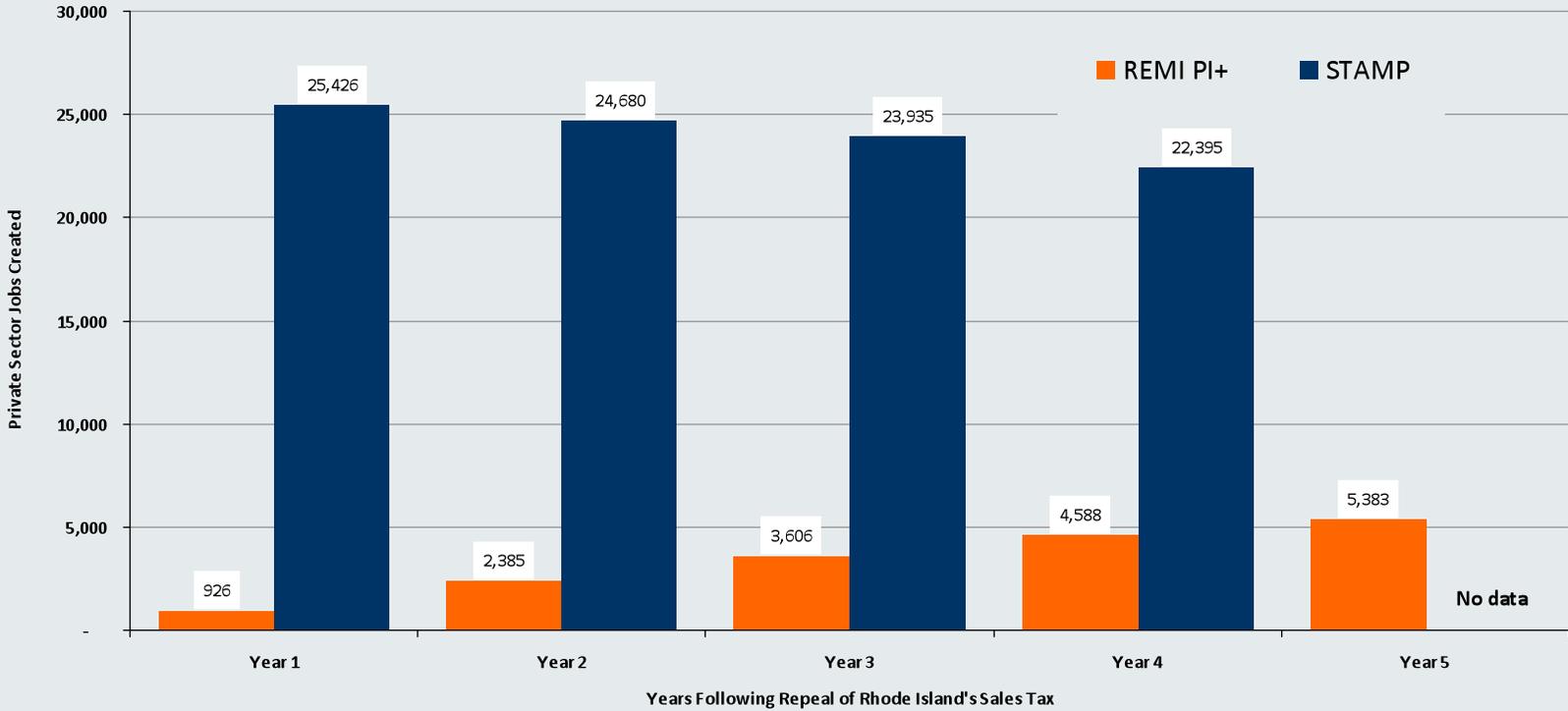
Note: These figures exclude public sector job losses, which in REMI PI+ actually outnumber the private sector gains.

Source: Institute on Taxation and Economic Policy (ITEP) analysis of data from the Rhode Island Office of Revenue Analysis and the Rhode Island Center for Freedom & Prosperity.

No One's Leaving

- "Import elasticities" are an important feature of CGE models.

- An estimate of how quickly consumers shift their consumption to out-of-state goods/services when prices rise due to tax changes.

- STAMP uses very high (uniformly 1.5) elasticities, based on two 20-year-old studies.

- But more recent research finds much lower elasticities–often lower than 1.0, and sharp variation between industries.

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Hypersensitive High Earners?

- STAMP assumes high labor supply elasticity– especially among upper-income workers

- CBO, and more recent estimates generally, assume the exact opposite: lower elasticities across the board, and lower elasticities for high-income taxpayers.

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Figure 2: Labor Supply Elasticity

Differing assumptions on the degree to which workers respond to changes in their after-tax wage

BHI STAMP Model*	
Income Group	**Total Elasticity**
Under $10,000	0.17
$10,000 - $25,000	0.17
$25,000 - $50,000	0.20
$50,000 - $75,000	0.30
$75,000 - $100,000	0.40
$100,000 - $150,000	0.50
$150,000 and up	0.50

Congressional Budget Office (CBO)**		
Income Group, Primary Earners	**Substitution Elasticity**	**Income Elasticity**
Lowest decile	0.31	-0.05
Second decile	0.28	-0.05
Third and fourth deciles	0.27	-0.05
Fifth and sixth deciles	0.25	-0.05
Top four deciles	0.22	-0.05
Secondary Earners	0.24 - 0.27	-0.05

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Hypersensitive Businesses?

- Factor substitution elasticity measure the tendency of business to switch between more labor and more capital
- STAMP elasticities average 0.8 to 0.9
- Lit reviews suggest 0.4 to 0.6 is more sensible
- This choice "has greater impact on the results…than all of the additional modeling complications combined."

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ITEP REMI Analysis of New York Education Spending, 2005

Table 2. Impact of Education Spending with Various Revenue Sources							
	Gross Effects (percent change)				Net Effects (percent change)		
	Education Spending	Personal Income Tax	Property Tax	General Sales Tax	Personal Income Tax	Property Tax	General Sales Tax
Impact of $6 Billion							
Total Employment	+1.26	–0.78	–0.87	–0.94	+0.48	+0.38	+0.32
Gross State Product	+1.10	–0.67	–0.75	–0.80	+0.44	+0.35	+0.30
Personal Income	+0.78	–0.52	–0.58	–0.62	+0.27	+0.20	+0.16
Impact of $8 Billion							
Total Employment	+1.67	–1.04	–1.17	–1.25	+0.64	+0.51	+0.43
Gross State Product	+1.47	–0.89	–1.00	–1.07	+0.58	+0.47	+0.40
Personal Income	+1.05	–0.69	–0.78	–0.83	+0.36	+0.27	+0.21

- Whether income, property or sales taxes are used to fund adequacy, the net economic impact is positive.
- This positive impact is smallest for the sales tax and biggest for the income tax.
- In other words, progressive income taxes do the least economic harm as a funding source for education.

Why NOT Do Dynamic Scoring?

- No consensus on impact of tax changes on labor supply, savings, investment, or consumption.

- Garbage in, garbage out

- Time constraints

- Black Box

- It's hard enough to do static analysis!

- Tax changes often affect small groups, or interact in complex ways, or have no history (Kansas).

- Taxes are easier to analyze dynamically than is spending. (Arkansas education: buildings or salaries?)

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