

Modeling the Repeal of the Rhode Island Sales Tax

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FTA Revenue Estimation and Tax Research Conference
2014 Annual Meeting, San Antonio, TX
September 27 – October 1, 2014

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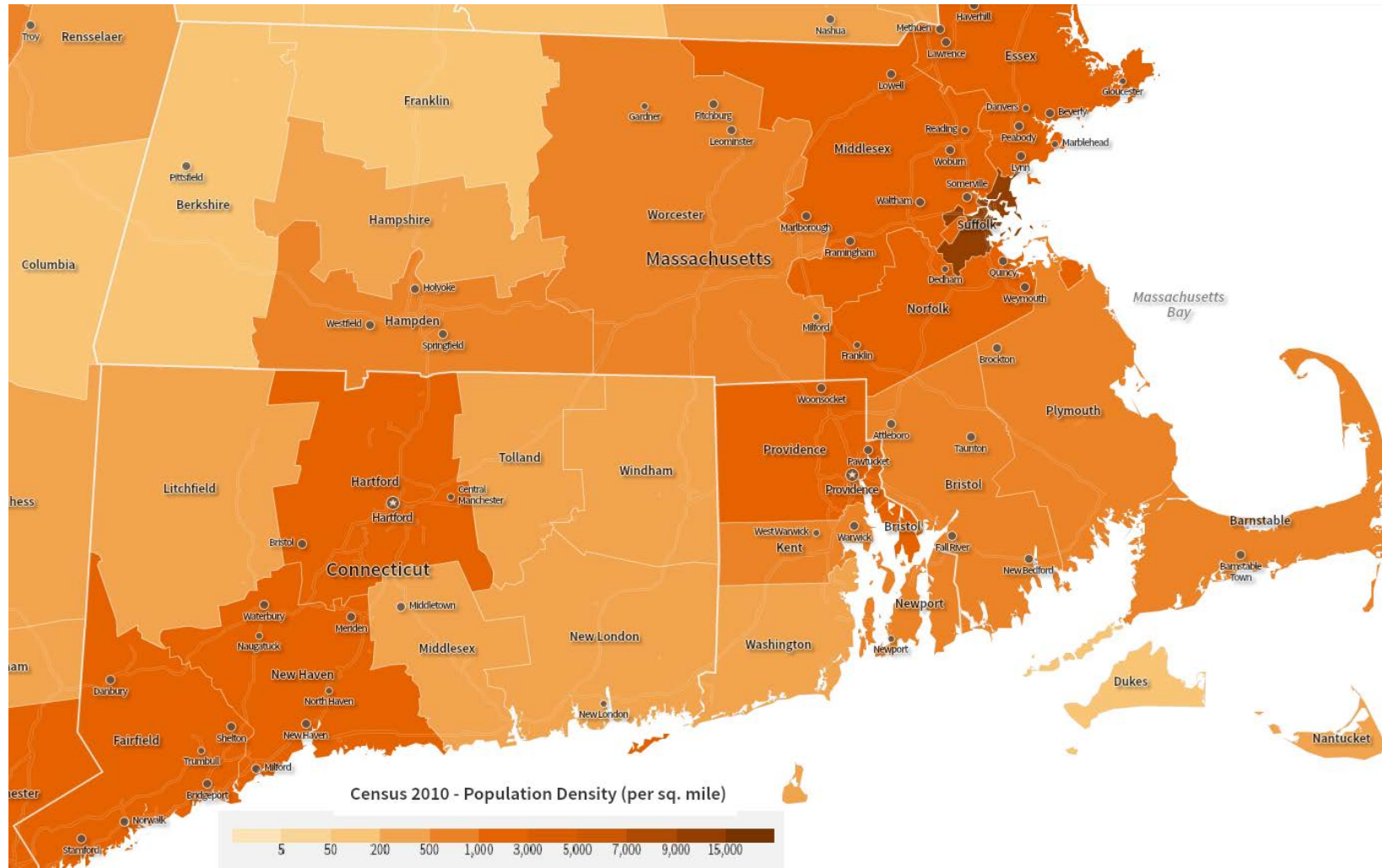
Introduction

- In the 2013 Session, the General Assembly considered two bills that proposed the broad repeal of the state's sales and use tax and the local meal and beverage tax
 - State sales tax rate: 7.0 percent
 - Applies to most tangible property (64 exemptions)
 - Some services (ex., telecommunications, pet grooming)
 - Local meal and beverage tax rate: 1.0 percent
 - Applies to the consumption of prepared foods and beverages
- In lieu of repealing the state sales and use tax, the General Assembly created the Joint Legislative Commission to Study the Sales Tax Repeal Act of 2013

The Zero.Zero Sales Tax Report

- The impetus for the formation of the Commission was a 2013 study produced by the Rhode Island Center for Freedom and Prosperity titled “Zero.Zero Sales Tax”
- The centerpiece of the 2013 Zero.Zero Sales Tax report is the economic impact results derived from the STAMP model of the Rhode Island economy:
 - The creation of approximately 25,000 private sector jobs
 - Nearly \$1.0 billion of Rhode Islanders’ own money to be spent in the state’s economy
 - A \$150 million revenue gain for cities and towns and more than \$500 million in state tax receipts from increased economic activity
 - Cost savings for businesses through eliminated compliance costs and reduced costs for supplies and services

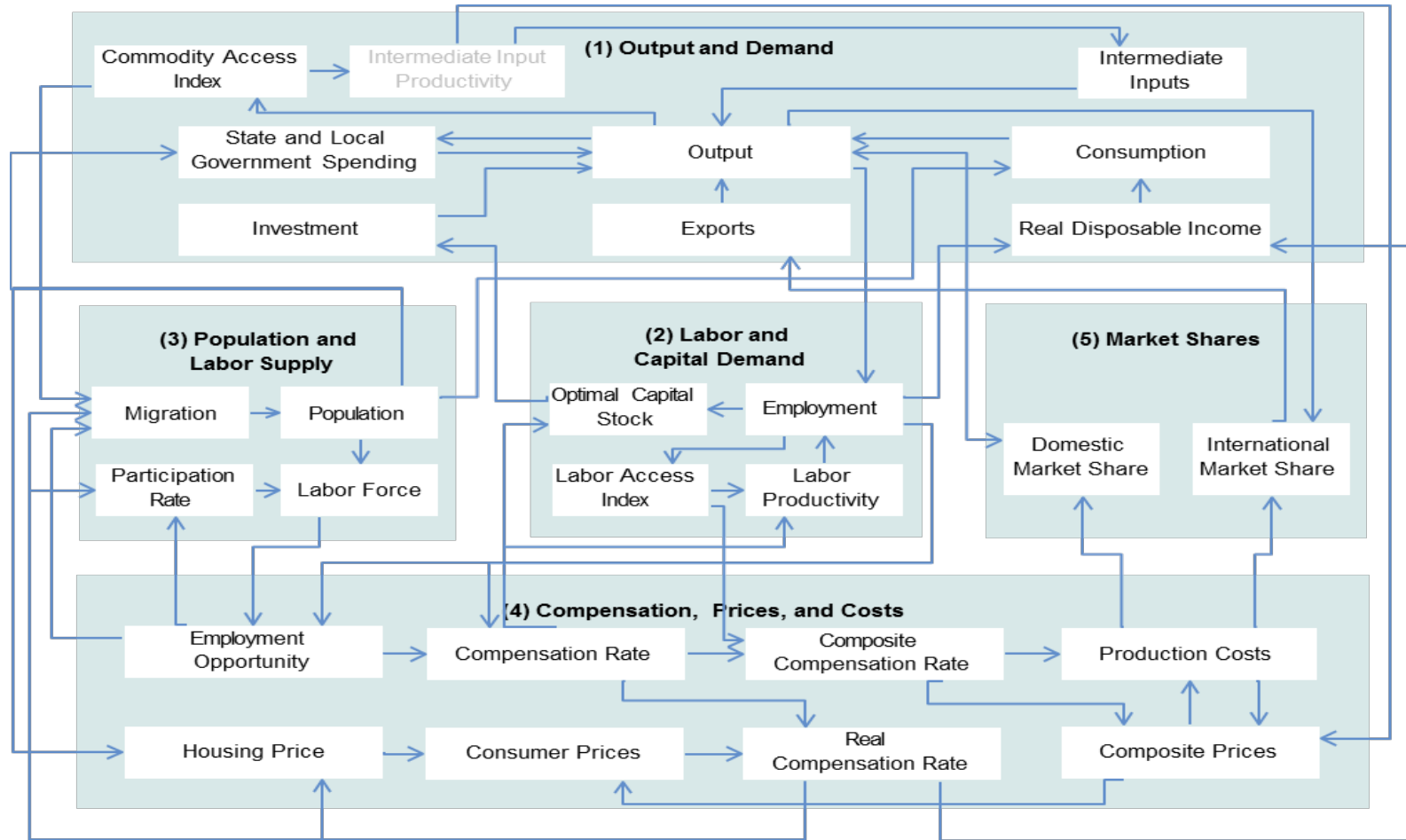
Rhode Island and Its Neighbors



REMI PI⁺ Model Structure

- The REMI PI⁺ model used by the Office of Revenue Analysis is a one region model that is calibrated to Rhode Island's economy (RI PI⁺)
- RI PI⁺ is a structural economic forecasting and policy analysis model that
 - Integrates input-output, computable general equilibrium, econometric, and economic geography methodologies
 - Is dynamic, with forecasts and simulations generated on an annual basis and behavioral responses to compensation, price, and other economic factors

Overview of REMI PI+ Model



Overview of REMI PI⁺ Model

- The RI PI⁺ model is comprised of:
 - Seventy industrial sectors, generally delineated at the three digit NAICS code level
 - Seventy-five consumer sectors, with individual commodities delineated by BEA NIPA tables
 - Two factor markets, Capital and Labor
 - Three government sectors
 - Federal government military and non-military expenditures (2 total)
 - State and local government pecuniary and non-pecuniary expenditures (2 or 3 total)
 - Three investment sectors
 - Residential and nonresidential buildings (1 each)
 - Producer's durable equipment
 - One rest of world sector

RI Sales Tax Simulation Model

- The Rhode Island Sales Tax Simulation Model, developed by Chainbridge Software, allocates the sales tax across 230 consumer product categories
 - 64.9 percent of the state sales tax is paid by households
 - 32.2 percent is paid on durable goods purchases
 - 31.4 percent is paid on nondurable goods purchases
 - 36.4 percent is paid on services

RI Sales Tax Simulation Model

- The Rhode Island Sales Tax Simulation Model allocates the sales tax across 433 business input and 180 business investment categories
 - 35.1 percent of the state sales tax is paid by businesses
 - 26.5 percent is paid on investment goods purchases
 - 73.5 percent is paid on intermediate goods purchases

RI Sales Tax Simulation Model

- ORA calculated the sales tax allocation percentage for each of the 230 consumer product categories in the RI Sales Tax Model
- The *sales tax allocation percentage* is the ratio of the total sales tax paid for a given consumer product category divided by the total sales tax paid for all consumer product categories
- ORA mapped the 230 consumer product categories from the sales tax simulation model to the 75 consumer sectors in RI PI⁺ model using NAICS codes
- The sales tax allocation percentages were summed in accordance with the above mapping
- A similar process was used to map the sales tax allocation percentages for the 433 business input and 180 business investment categories contained in the RI Sales Tax Model to the 70 industry sectors contained in the RI PI⁺ model

ORA Modeling of Sales Tax Repeal

- The 2013 Zero.Zero Sales Tax report used the sales tax estimate of \$904.3 million contained in the Governor's FY 2014 Recommended Budget
- ORA broke down the \$904.3 million into sales tax paid by consumers and sales tax paid by businesses with 64.9% allocated to consumers and 35.1% to businesses
- The \$586.5 million of consumer sales taxes was then allocated to the 75 RI PI⁺ consumer categories using the relevant sales tax allocation percentages
- The \$317.8 million of business sales taxes paid was allocated to the 70 RI PI⁺ industries in a similar manner

ORA Modeling of Sales Tax Repeal

- In the 75 consumer sectors, RI PI⁺ reduced relative prices of goods and services subject to the sales tax by \$586.5 million
- In the 70 industry sectors, RI PI⁺ reduced production costs of businesses that made input and investment purchases subject to the sales tax by \$317.8 million
- ORA found that on average over the past five fiscal years state general revenues were spent as follows:
 - Purchases of goods and services: 41.9 percent
 - Local government wages and salaries: 31.6 percent
 - State government wages and salaries: 19.3 percent
 - Purchases of investment goods: 0.01 percent
 - Grants to nonprofits serving households: 1.4 percent
 - State payroll costs (retirement, FICA, etc.): 5.8 percent

ORA Modeling of Sales Tax Repeal

- ORA modeled the \$904.3 million in lost revenue from the sales tax repeal as follows:
 - Demand for goods and services: \$379.2 million ↓
 - Local government wages and salaries: \$285.5 million ↓
 - State government wages and salaries: \$174.1 million ↓
 - Grants to nonprofits serving households: \$12.3 million ↓
 - Investment: \$0.4 million ↓
 - Savings on state payroll costs: \$52.8 million ↑
- Due to the savings on state payroll costs, ORA only modeled \$851.5 million in reduced spending by state government in Year 1
- The sales tax revenue repeal does cause other revenues to increase as economic activity increases. Thus, in Year 2, state government spending is reduced by \$798.5 million. Similarly, for Year 3 it is reduced by \$744.1 million, for Year 4 it is reduced by \$688.4 million and for Year 5 it is reduced by \$632.6 million

RI PI⁺ Sales Tax Repeal Results

- The RI PI⁺ model starts with a baseline scenario of the state's economic performance
 - The baseline scenario shows the economy's performance in the absence of a tax policy change
 - The baseline scenario projects the RI economy's growth path in the absence of a tax policy change
 - Compounded Annual Growth Rate (CAGR) for Private Employment: 2.7%
 - CAGR for Investment: 12.6%
 - CAGR for Gross State Product: 6.2%
 - CAGR for Population: 0.6%
- RI PI⁺ simulates the path of the state's economy after the sales tax repeal *and* the reduction in state government spending and compares the simulation value after the tax policy change to the baseline scenario

RI PI⁺ Sales Tax Repeal Results

RI PI⁺ Simulation Value vs. RI PI⁺ Baseline Scenario *Sales Tax Repeal and State Spending Reduction*

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Private Jobs	926	2,385	3,606	4,588	5,383
Investment (millions)	\$75	\$117	\$145	\$165	\$179
RI GSP (millions)	\$(602)	\$(434)	\$(283)	\$(149)	\$(29)
Population	3,969	7,147	9,909	12,288	14,326

RI PI⁺ Sales Tax Repeal Results

- As the *Sales Tax Repeal and State Spending Reduction* table shows, the repeal of the sales tax and the reduction in state government spending results in a substantive impact on the state's economy
 - Private employment increases by 5,383 jobs in Year 5
 - Private investment increases by \$179 million in Year 5
 - RI Gross State Product decreases by \$29 million in Year 5
 - RI population increases by 14,326 in Year 5
- To isolate the effect of the reduction in state government spending on the economic impact of the repeal of the sales tax, ORA ran the RI PI⁺ model with only the repeal of the sales tax
- RI PI⁺ compared the simulation value after the sales tax repeal *without* the reduction in state government spending to the same baseline scenario

RI PI⁺ Sales Tax Repeal Results

RI PI⁺ Simulation Value vs. RI PI⁺ Baseline Scenario <i>Sales Tax Repeal Only</i>					
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Private Jobs	8,993	9,963	10,518	10,692	10,649
Investment (millions)	\$153	\$235	\$282	\$308	\$319
RI GSP (millions)	\$701	\$817	\$901	\$950	\$978
Population	7,847	13,769	18,572	22,371	25,322

RI PI⁺ Sales Tax Repeal Results

- The *Sales Tax Repeal Only* table shows that eliminating the sales tax w/out reducing State spending has a bigger impact on the RI economy
 - Private employment increases by 10,649 jobs in Year 5
 - Private investment increases by \$319 million in Year 5
 - RI GSP increases by \$978 million in Year 5
 - RI population increases by 25,322 in Year 5
- By Year 5, nearly twice as many private jobs are created and RI Gross State Product is \$1.0 billion more than under the *Sales Tax Repeal and State Spending Reduction* simulation
- The difference in the two simulation values vis-à-vis the baseline is due to the direct, indirect and induced effects of State government spending

RI PI⁺ Sales Tax Repeal Results

- Under the *Sales Tax Repeal and State Spending Reduction* simulation, the decrease in state government spending:
 - ↓ demand for goods and services and labor by government (direct effect)
 - ↓ demand for goods and services and labor by suppliers of goods and services and labor to government (indirect effect)
 - ↓ demand for goods and services and labor by suppliers of goods and services and labor to the suppliers of goods and services and labor to government (induced effect)
- Part of the rebound in the economy by Year 5 is the result of increased government spending as other revenue sources increase with increased economic activity

Revenue Impacts of Sales Tax Repeal

ORA Revenue Impact Based on RI PI+ Economic Impact

<u>Revenue Source</u> (millions)	<u>Baseline</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Sales Tax	\$904	\$ –	\$ –	\$ –	\$ –	\$ –
Business Taxes	\$238	\$244	\$250	\$257	\$263	\$270
Motor Fuel Tax	\$137	\$143	\$148	\$154	\$160	\$165
Motor Vehicle Fees	\$49	\$51	\$53	\$55	\$57	\$59
Estate Tax	\$35	\$36	\$36	\$37	\$38	\$38
Personal Income Tax	\$1,131	\$1,151	\$1,171	\$1,192	\$1,215	\$1,238
Cigarette and Alcohol Taxes	\$149	\$155	\$161	\$167	\$174	\$180
Other Taxes	\$153	\$156	\$159	\$162	\$165	\$168
Other Sources	\$766	\$780	\$794	\$809	\$824	\$840
Total	\$3,562	\$2,716	\$2,772	\$2,833	\$2,896	\$2,958
<i>Difference from Baseline</i>		<i>\$(846)</i>	<i>\$(790)</i>	<i>\$(729)</i>	<i>\$(666)</i>	<i>\$(604)</i>
<i>Cumulative Difference</i>		<i>\$(846)</i>	<i>\$(1,636)</i>	<i>\$(2,365)</i>	<i>\$(3,031)</i>	<i>\$(3,635)</i>

Public Jobs Impact of Sales Tax Repeal

RI PI+ State and Local Government Jobs Impact Results

<u>Direct Effect</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
State Government	(2,991)	(2,817)	(2,638)	(2,455)	(2,271)
Local Government	<u>(5,526)</u>	<u>(5,200)</u>	<u>(4,866)</u>	<u>(4,524)</u>	<u>(4,181)</u>
Direct Subtotal	(8,517)	(8,017)	(7,504)	(6,979)	(6,452)
<i>Change</i>	(8,517)	500	513	525	527
<u>Indirect and Induced Effects</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
State Government	33	85	126	157	180
Local Government	<u>61</u>	<u>143</u>	<u>209</u>	<u>260</u>	<u>299</u>
Indirect and Induced Subtotal	94	228	335	417	479
<i>Change</i>	94	134	107	82	62
Direct, Indirect, Induced Total	(8,423)	(7,789)	(7,169)	(6,562)	(5,973)
<i>Change</i>	(8,423)	634	620	607	589

Summary

- Modeling a tax policy change using REMI PI⁺ requires the ability to translate aggregate revenue changes into sector specific impacts
 - REMI PI⁺ allows the modeler to use a predetermined spreader, usually based off of output or industry demand but this will spread impact to all sectors
 - As noted earlier, Rhode Island has 64 exemptions from the state sales and use tax
 - Manufacturing inputs and equipment are exempt but using the spreader function may result in an allocation to the manufacturing sector when none is warranted
- The Rhode Island Sales Tax Simulation Model provided a mapping between the aggregate revenue changes and the sector specific impacts of a sales tax repeal

Summary

- By using NAICS codes, ORA was able to map the impact of the sales tax repeal from the Sales Tax Simulation Model's household and business sectors to RI PI + 's industry and consumer sectors
- The impact of the sales tax repeal on the business sector was modeled as a reduction in the production costs of impacted industries
- The impact of the sales tax repeal on the household sector was modeled as a reduction in the final price paid by consumers

Summary

- The government sector in PI⁺ did not align with the state's general revenues so ORA created a custom government sector that allocated state general revenue expenditures to PI⁺ based on an in-house mapping of expenditures to NAICS codes
- This gave ORA the flexibility to hold some expenditure items harmless (i.e., debt service) and more narrowly target others (i.e., pass through local aid)
- One important lesson we learned is that over a multi-year horizon, the impact of a revenue reduction on government spending diminishes as private economic activity increases and fixed employment costs are avoided

Epilogue

- The proposed sales tax repeal in Rhode Island became a “Battle of the Alamo” between the State Tax Analysis Modeling Program (STAMP) and REMI’s PI⁺ model
- ORA’s original presentation to the Joint Legislative Commission to Study the Sales Tax Repeal Act of 2013 contained numerous slides on the assumptions and differences between the two models
- This presentation can be obtained by emailing Paul Dion at paul.dion@revenue.ri.gov
- The Institute on Taxation and Economic Policy (ITEP) also wrote a piece based on this “Mexican Standoff” which is available at http://itep.org/itep_reports/

Thank You