

# Revenue Neutral Fundamental Tax Reform in Georgia: A REMI Analysis

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# Introduction

- Lots of interest in fundamental tax reform across the country and in Georgia:
- Governors blue ribbon tax reform in 2010
- A Tax Reform committee met this summer (part of transportation package passed this year...)
- Take Home More Pay bill (decreasing income tax raising sales tax rates and eliminating exemptions...)
- Claim is that this type of tax reform will be beneficial to state economy

# Introduction

- **"Dynamic Revenue Analysis: Experience of the States"**

- Authors: Senior Research Associate Peter Bluestone and Carolyn Bourdeaux, director of CSLF and associate professor of public management and policy.

- **"A Multiregional Model of Growth Oriented State Tax Reforms: An Application to Georgia and Five Comparison States"**

- Authors: Jeffrey Condon, Andrew Feltenstein, Florenz Plassmann, Mark Rider and David Sjoquist.
- Both reports are available at: [Center for State and Local Finance \(CSLF\)](#)

# Overview

- Revenue Neutral Fundamental Tax Reform.
  - Theory and National Model
  - Recent CGE Model of Georgia
  - REMI results
  - Conclusion

# Fundamental Tax Reform Theory

- Economic efficiency: The economy would become more efficient, in the sense of producing more output per person, if reform eliminated tax-related distortions in decisions to work, save, and invest.
- Incentives: High income tax rates reduce the after tax rewards to the productive activities of working, saving and investing
- Taxing income or consumption?
- Consumption = Labor earnings + Current capital income – Saving

# Altig et al National Model

Source: Garner 2005 citing Altig et al 2001 p. 587

## LONG-RUN ECONOMIC EFFECTS OF TAX REFORM

*(Percent difference from baseline path)*

Tax reform	Real output	Capital stock	Labor supply	Value of existing assets
Proportional consumption tax	9.4	25.4	4.6	-9.4
Flat tax	4.5	15.0	1.3	-5.9
Flat tax with transition relief	1.9	8.3	-0.2	-1.7

# Georgia CGE Analysis of Fundamental Tax Reform

- "A Multiregional Model of Growth Oriented State Tax Reforms: An Application to Georgia and Five Comparison States" Feltenstein et al. 2015.
- Models several tax reform scenarios: including a revenue neutral shift to an expanded sales tax base and an elimination of Personal Income tax
- They find that the change increases the 10-year compound growth rate of personal income by roughly 0.67 percentage points over a 3.37 percentage point baseline growth rate.
- The result is driven by a “beggar thy neighbor” effect, as Georgia steals capital from neighboring states that then experience a decline in personal income.

# Georgia CGE Analysis of Fundamental Tax Reform

## Georgia Growth Over Baseline Period

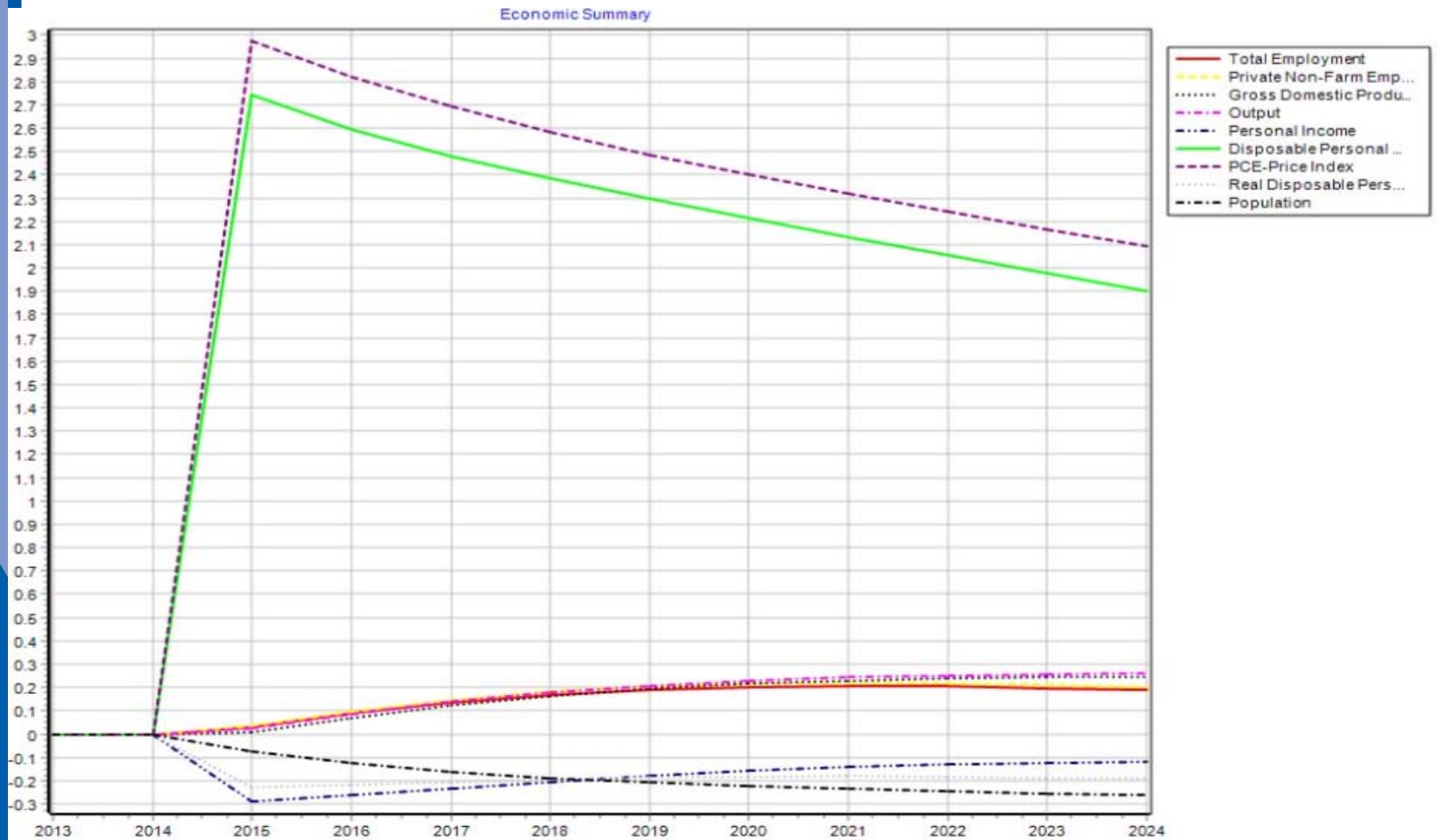
	1	2	9	10
Personal Income	2.3%	3.5%	8.1%	8.7%
Consumption Goods	6.5%	7.3%	11.7%	12.3%
Labor Supply	1.5%	3.4%	11.9%	13.1%
Demand For Capital	0.5%	1.9%	5.3%	5.6%

Source: Condon et al 2015



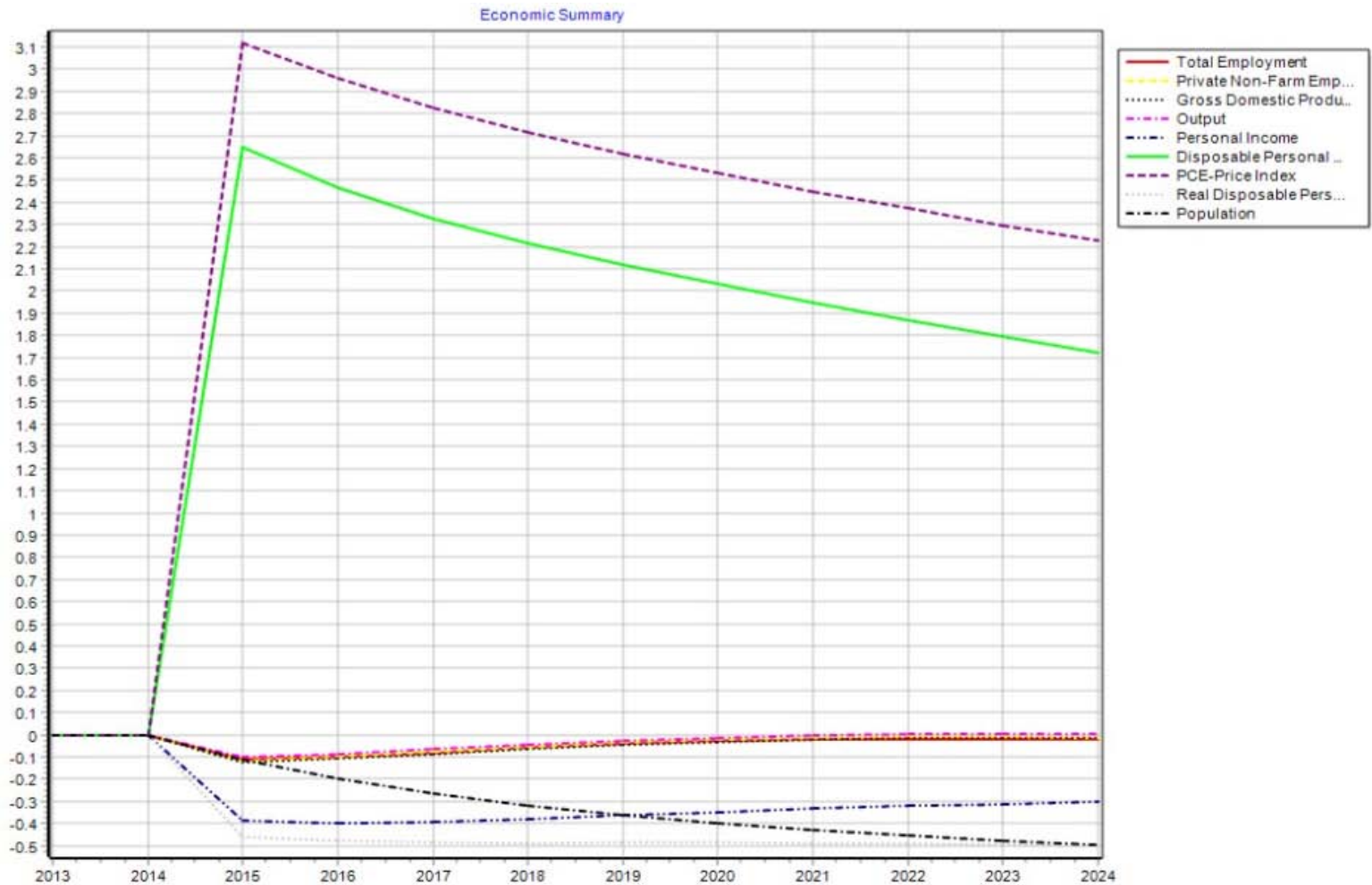
# REMI Results For Georgia

## With adjustment for cost of Capital



# REMI Results For Georgia

## No adjustment for cost of Capital



## REMI Model Set up For Georgia

Table 1: Modeling Changes to Georgia Sales Tax Rate and Base (in billions \$)

Existing sales tax base (estimated using REMI) Total	Business to Consumer	Business to Business	
Collections new sales tax rate (5.2%) applied to old base	\$4.94	\$4.94	\$0.00
Current amount of sales tax collected (4%)	\$5.32	\$3.83	\$1.50
Adjustment to old base entered into REMI		\$1.11	-\$1.50
New sales tax base estimated using REMI			
Adjusted additional sales tax due to new base	\$9.14	\$9.14	\$0.00
Adjustment to new items in base entered into REMI		\$9.14	\$0.00

Source: Georgia DOR, REMI PI+ and Author's calculations

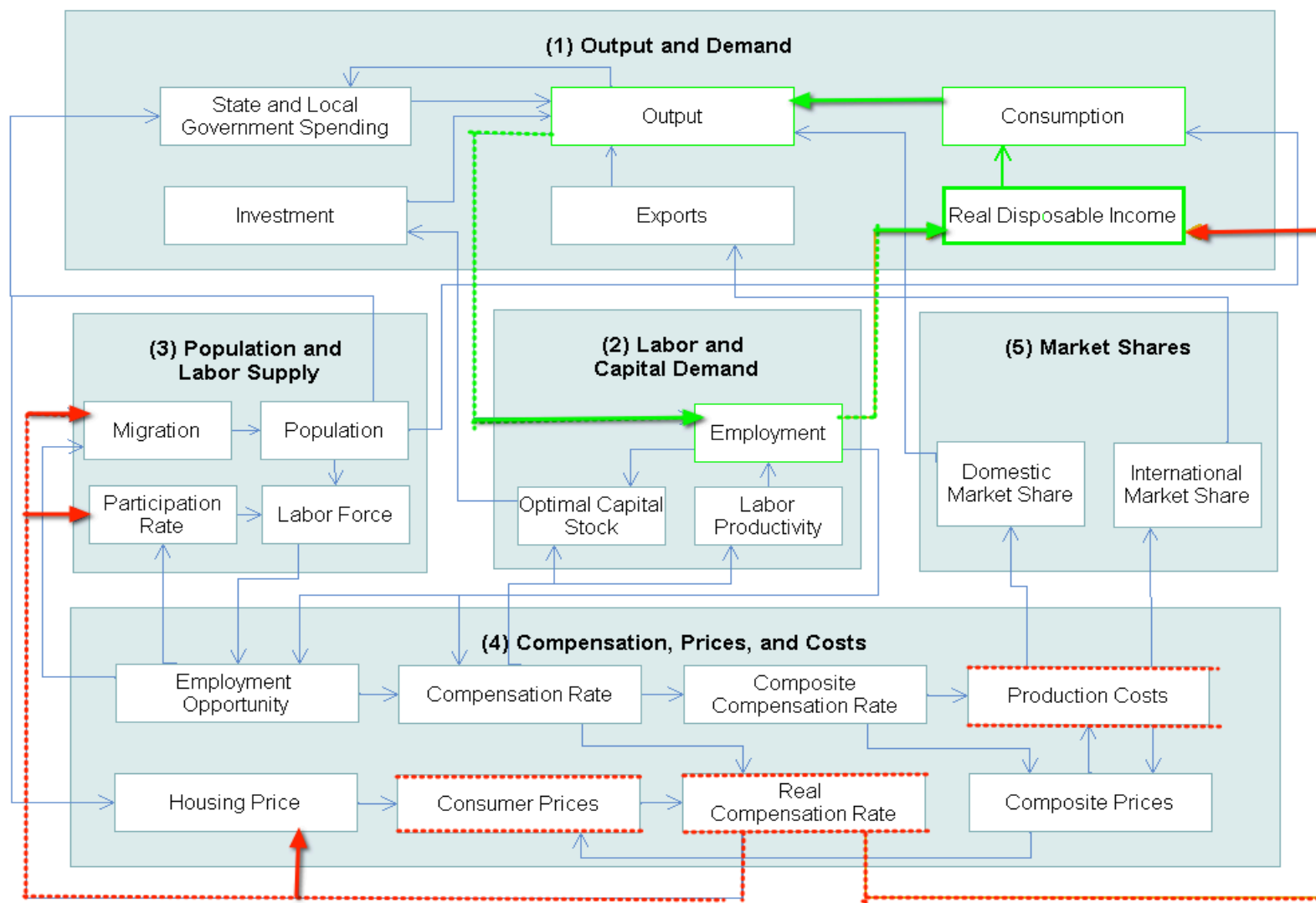
# REMI Model Set up For Georgia

- First, REMI makes a residence adjustment to personal income in a region based on commuting patterns and assumptions on the residence of the income recipients.
- REMI does this to account for data sources on wages and income that are generally reported based on place of work.
- Thus in our model in which prices rise to simulate the increase in sales tax and the amount of personal taxes fall to simulate the elimination of personal income taxes, only the rise in prices is considered for the residence adjustment equation.
- The REMI model values this change in residence-adjusted income leaving Georgia at \$922 million in 2015.
- Thus in 2015 the amount entered for the personal tax decrease is \$9.62 billion.

# REMI Model Set up For Georgia

- The second adjustment necessary is to the cost of capital in the REMI model.
- One of fundamental tax reform's links to economic growth is its expected effect on capital costs.
- Open versus closed economy assumption and its effect on the cost of capital.
- REMI does not have an endogenous capital cost response to increased savings.
- The tax reform induces an increase in savings of \$512 million.
- This additional savings would reduce the cost of capital by 0.5 percent (50 basis points).
- To compensate for this in the model, consumption must be reduced by the \$512 million.

# REMI Model Layout



# REMI Results For Georgia

Table 2: REMI Results of Fundamental Tax Reform in Georgia with Capital Adjustment

Category	2015	2016	2020	2024
Total Employment	0.03%	0.09%	0.20%	0.19%
Private Non-Farm Employment	0.04%	0.10%	0.22%	0.20%
Population	-0.07%	-0.13%	-0.22%	-0.26%
Personal Income	-0.29%	-0.26%	-0.16%	-0.12%
Disposable Personal Income	2.74%	2.59%	2.22%	1.90%
Real Disposable Personal Income	-0.23%	-0.22%	-0.18%	-0.19%
PCE-Price Index	2.97%	2.82%	2.40%	2.10%
Gross Domestic Product	0.01%	0.07%	0.22%	0.25%

Source: REMI PI+

# REMI Results For Georgia

Table 3: REMI Results of Fundamental Tax Reform in Georgia without Capital Adjustment

Category	2015	2016	2020	2024
Total Employment	-0.11%	-0.10%	-0.03%	-0.02%
Private Non-Farm Employment	-0.12%	-0.10%	-0.02%	-0.01%
Population	-0.11%	-0.20%	-0.40%	-0.50%
Personal Income	-0.39%	-0.40%	-0.35%	-0.30%
Disposable Personal Income	2.65%	2.46%	2.03%	1.72%
Real Disposable Personal Income	-0.46%	-0.48%	-0.49%	-0.50%
PCE-Price Index	3.12%	2.96%	2.53%	2.23%
Gross Domestic Product	-0.12%	-0.11%	-0.03%	-0.01%

Source: REMI PI+



## REMI Results For Georgia

Table 4: Labor Force Participation Rate Percent Change

Model Specification	2015	2016	2020	2024
Participation Rate w/ capital Cost Adjustment	0.00%	-0.10%	0.00%	0.00%
Participation Rate w/o capital Cost Adjustment	-0.11%	-0.15%	-0.15%	-0.11%

Source: REMI PI+

## REMI Results For Georgia

Table 5: Economic Migration Change in Levels

Model Specification	2015	2016	2020	2024
Migration w/ Capital Cost Adjustment	-7,418	-5,175	-1,266	-644
Migration w/o Capital Cost Adjustment	-10,977	-8,495	-3,285	-1,555

Source: REMI PI+

## REMI Results For Georgia

Table 6: Investment Changes in Percent

Change in Investment w/ capital Cost Adjustment				
Category	2015	2016	2020	2024
Residential	-0.67%	-0.83%	-0.47%	-0.31%
Non-residential	1.30%	1.89%	2.13%	1.76%
Equipment and Intellectual Property Products	0.16%	0.27%	0.52%	0.68%
Change in Investment NO capital Cost Adjustment				
Residential	-1.35%	-1.78%	-1.29%	-0.84%
Non-residential	0.18%	0.30%	0.46%	0.44%
Equipment and Intellectual Property Products	0.02%	0.04%	0.09%	0.13%

## REMI Results For Georgia

Table 7: Price Changes of Consumption Goods in Percent

	2015		2024		2015 share ttl spending
	W/K ADJ	NO K ADJ	W/K ADJ	NO K ADJ	
Recreation and other services	2.3%	2.4%	1.6%	1.7%	28.2%
Health care	4.6%	4.7%	3.3%	3.4%	16.4%
Housing	4.8%	5.1%	3.4%	3.7%	13.5%
Other nondurable goods	0.7%	0.8%	0.4%	0.5%	9.8%
Food and beverages purchased for off-premises consumption	4.1%	4.3%	2.9%	3.0%	7.4%
Recreational goods and vehicles and other durable goods	0.8%	0.9%	0.5%	0.6%	6.3%

## REMI Results For Georgia

Table 8: Changes in Consumer Expenditures in Levels\*

	2015		2024	
	W/K ADJ	NO K ADJ	W/K ADJ	NO K ADJ
Recreation and other services	-0.12	-0.32	-0.12	-0.43
Health care	-0.97	-1.06	-0.95	-1.09
Housing	-0.62	-0.72	-0.56	-0.74
Other nondurable goods	0.69	0.61	0.67	0.57
Food and beverages purchased for off-premises consumption	-0.23	-0.27	-0.21	-0.28
Recreational goods and vehicles and other durable goods	0.51	0.44	0.65	0.56

\*Billions of Fixed (2014) Dollars

## REMI Results For Georgia

Table 9: Changes in Sector Jobs in Levels\*

	2015		2024	
	W/K ADJ	NO K ADJ	W/K ADJ	NO K ADJ
Retail trade - 44-45	4.85	3.63	5.04	3.47
Food services and drinking places - 722	3.03	2.62	2.59	1.68
Social assistance - 624	1.35	1.27	0.99	0.78
Construction - 23	0.31	-1.56	1.24	-1.16
Professional, scientific, and technical services - 54	0.07	-0.32	1.15	0.25
Securities, commodity contracts, investments - 523	-0.23	-0.39	0.54	0.28
Hospitals - 622	-0.68	-0.71	-0.48	-0.61
Ambulatory health care services - 621	-3.84	-4.38	-3.05	-3.60

\*In thousands

## REMI Results For Georgia

Table 10: Compound Annual Growth Rates 2014-2024

	Fundamental tax reform		Baseline Forecast
	W/K ADJ	NO K ADJ	
Total Employment	0.68%	0.66%	0.66%
Gross Domestic Product	1.29%	1.26%	1.27%
Real Disposable Personal Income	2.39%	2.41%	2.44%
Population	0.64%	0.62%	0.66%

Source: REMI PI+ and Author's calculations

# REMI Results For Georgia

Other models and specifications run:

Turned of Migration

Ran as an I/O model with Type II multipliers

Results do vary, but fundamental result remains the same...



# Conclusion

- Why REMI may differ from National and other Regional models
- Spillovers/Leakage
  - Benefits of Income tax cut may spread out nationally
  - Costs of increased sales tax are borne locally
  - See Domestic Trade Shares....

The role of saving and investing in a regional economy

# Revenue Neutral Fundamental Tax Reform in Georgia: A REMI Analysis

Thank You

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<http://cslf.gsu.edu/publications/>