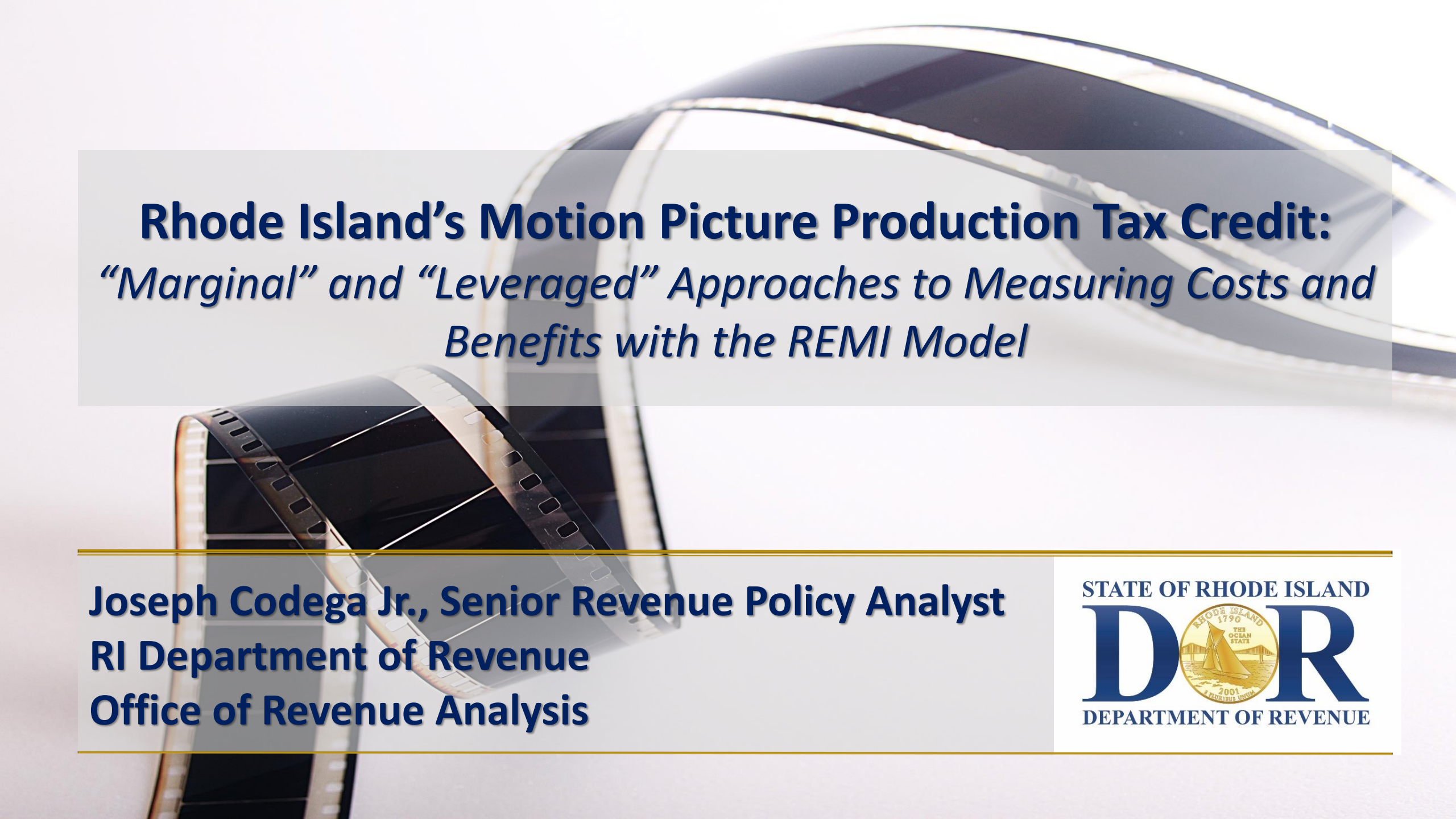

Rhode Island's Motion Picture Production Tax Credit:

"Marginal" and "Leveraged" Approaches to Measuring Costs and Benefits with the REMI Model

Joseph Codega Jr., Senior Revenue Policy Analyst
RI Department of Revenue
Office of Revenue Analysis

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Introduction

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About Us

- Rhode Island Department of Revenue, Office of Revenue Analysis (ORA)
- Executive branch office with economic development incentive evaluation mandate
- Situation within Dept. of Revenue allows access to *some* otherwise confidential data

About the "UEDR"

- Unified Economic Development Report ("UEDR") defined by Rhode Island General Laws §42-142-6
- Annual comprehensive accounting and cost-benefit analysis (CBA) of many state economic development incentives
- Includes a net benefit measured in terms of jobs, GDP, and state revenues for four tax incentive programs.

Introduction

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How we use REMI

- Since FY 2011 UEDR has included a comprehensive accounting of tax credit usage
- Since FY 2013 UEDR has included a cost-benefit analysis (CBA) component
- ORA has chosen to utilize the REMI PI+ model in CBA portion of UEDR

Today's Presentation

- Decisions in the modeling approach can significantly impact evaluation outcome
  - These subjective decisions made by evaluators can make difference between positive and negative net benefits
- ORA sought to balance the following goals:
  - Desire to provide useful, succinct, actionable analysis while maintaining role as an unbiased, objective evaluator
- Today's presentation will discuss decisions ORA faced in balancing these goals using our evaluation of the Motion Picture Production Tax Credit as an example.

About the Motion Picture Production Tax Credit

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Selected MPPTC Projects:

The Polka King (2016)

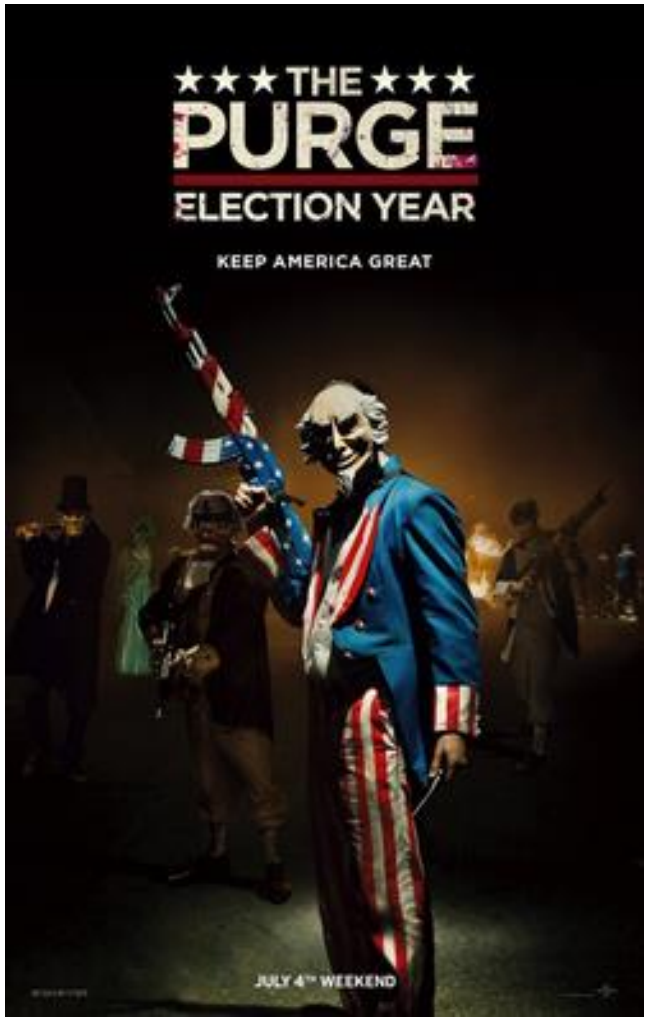
The Purge: Election Year (2016)

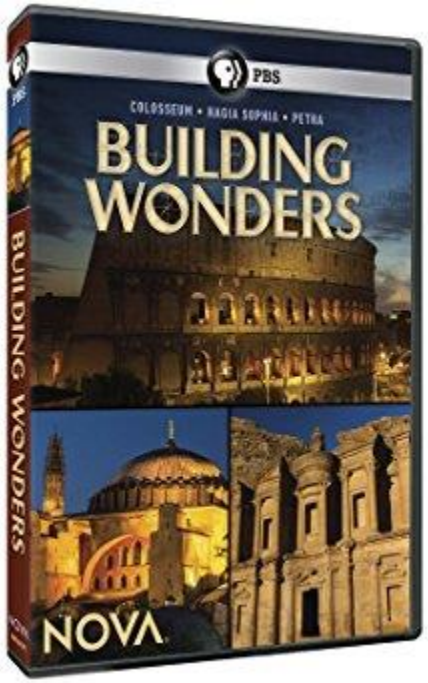
"Building Wonders" Documentary Series (2012-13)

Victoria's Secret Commercial (2012)

Moonrise Kingdom (2011)

- Transferable credit equal to 25% of "state certified production expenses" including:
  - Compensation paid to individuals (resident or non-resident) for in-state work
  - Payments to in-state vendors
- Project requirements
  - At least 51% of filming days or production spending take place in state
  - At least 5 employees
- Capped at $15M per year, $5M per project, recent actual usage ≈$2.8M





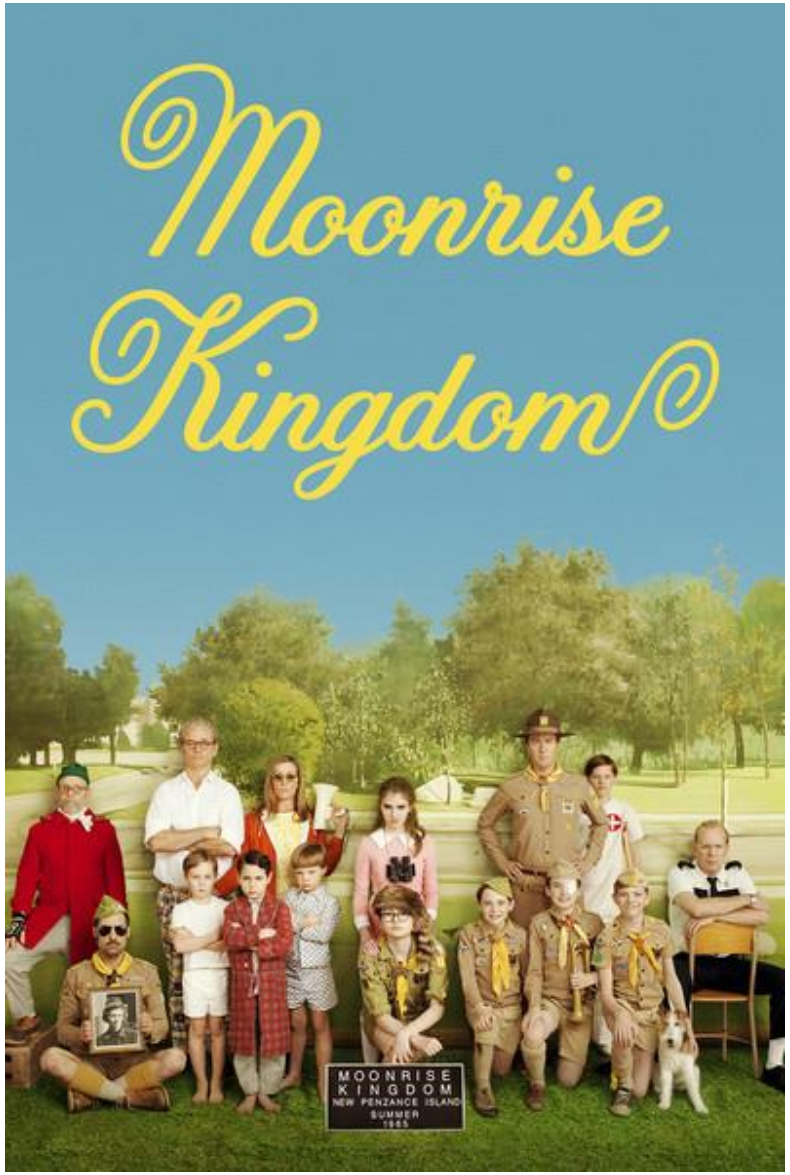


Photo Credit: https://en.wikipedia.org/wiki/The_Purge:_Election_Year
http://variety.com/2017/film/news/jack-black-the-polka-king-netflix-1202478204/
http://www.rogerebert.com/reviews/moonrise-kingdom-2012
https://images-na.ssl-images-amazon.com/images/I/81sXmARfHAL._SX342_.jpg

Rhode Island Motion Picture Tax Credit:
FY 2016 Usage At-a-Glance

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Number of Recipient Productions	4 Productions
Total Tax Credit Amount	$362,176
Certified Production Expenses	$1,480,877 total compensation & payments to local vendors

Basic Modeling Approach:
A Menu of Options

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Benefits

- Production cost savings realized by motion picture industry resulting from availability of tax credit

- or -

- Motion picture industry employment and industry sales in motion picture industry and local intermediate input industries

Costs

- General tax increases necessary to pay for forgone revenue created by tax credit

- or -

- Forgone state expenditures on projects that could have been funded if tax credit had not been awarded.

Modeling Challenge:
Additive vs. Subtractive Model Inputs

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Challenge:

Do we model the ***addition*** or ***subtraction*** of the tax incentive activity?

Considerations:

- Impact of tax credit is longstanding and presumably part of historical/forecast data
- Tax credit subsidizes significant portion of local motion picture and sound recording industry:
  - Average industry employment 658
  - Average contribution to GDP $96M

Solution:

Model impact of tax credit by **removing** the credit

- e.g. Model the impact of a $1M tax credit by entering **negative** $1M of industry sales into REMI model

Modeling Benefits:
Marginal Approach vs. Leveraged Approach

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	Marginal Approach	Leveraged Approach
Counterfactual Assumption	• Tax credit represents a ***marginal*** production cost savings to a firm	• Availability of tax credit had ***deciding impact*** on firm's production decision.
REMI Policy Variables	• Production cost savings in amount of tax credit	• Industry sales, nullify intermediate inputs and investment, w/compensation adjustment
Results	• Relatively minor impact	• Relatively significant impact

Wide range of potential impacts highlights importance of counterfactual assumption

Modeling Costs:
Tax Policy Response vs. Expenditure Response

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	Tax Policy Response	Expenditure Response
Counterfactual Assumption	• If tax credit had not been awarded, state gov't would have **reduced taxes on businesses**.	• If tax credit had not been granted, state would have **spent funds elsewhere in budget**.
REMI Policy Variables	• Production cost increase, distributed across industries based on value added / contribution to state GDP.	• Exogenous demand and employment distributed across industries based on ORA profile of state general fund spending.
Results	• Shocks to production cost take relatively longer to reach new equilibrium and not all impact is felt locally.	• State government spending concentrated in locally impactful industries such as education and healthcare.

Modeling Benefits: Leveraged Approach

Translating Production Expenses to REMI Inputs

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Certified Production Expenses

Industry (NAICS Code)	Amount
Accommodation (721)	$94,507
Admin. & Sup. Serv. (561)	$737
Couriers & Mess. (492)	$76
Food Serv. & Drink. (722)	$59,385
Pro., Sci., & Tech. Serv. (54)	$7,827
Real Estate (531)	$107,335
Rental & Leasing (532-3)	$22,182
Repair & Maint. (811)	$1,247
Telecommunications (517)	$5,070
Transit & Ground… (485)	$18,983
Wholesale Trade (42)	$56,939
Compensation	$1,106,589
TOTAL:	**$1,480,877**

REMI Inputs

REMI Category	Detail	Amount
Industry Sales / Exogenous Production	Motion Picture & Sound Recording Industries (512)	-$1,480,877
Nullify Intermediate Inputs Induced by Industry Sales	Motion Picture & Sound Recording Industries (512)	-$1,480,877
Nullify Investment Induced by Industry Sales	Motion Picture & Sound Recording Industries (512)	-$1,480,877
Compensation	Motion Picture & Sound Recording Industries (512)	-$519,979
Industry Sales / Exogenous Production	Each of 11 industries and amounts documented in Certified Production Expenses Table.	-$374,288 across 11 industries

* This figure represents the difference between actual compensation paid and the REMI standard compensation assumption.

Source: FY 2016 Unified Economic Development Report, RI Dept. of Revenue, Office of Revenue Analysis

Modeling Benefits: Leveraged Approach
Making Compensation Adjustments

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GOAL: Develop procedure to find combination of industry sales and compensation inputs that simulates actual changes to motion picture industry sales and compensation of $1,480,877 and $1,106,589 respectively.

Model Run 1:

Inputs

Variable	Detail	Amount
Industry Sales	MP & SR Industry	-$1,480,877
[also nullify intermediate inputs and investment]		

Output

Variable	Detail	Amount
Industry Sales	MP & SR Industry	-$1,480,877 ✓
Compensation	MP & SR Industry	-$586,610 ✗

Note: Insufficient compensation response.

Model Run 2:

Inputs

Variable	Detail	Amount
Industry Sales	MP & SR Industry	-$1,480,877
Compensation	MP & SR Industry	-$519,979
[also nullify intermediate inputs and investment]		

Output

Variable	Detail	Amount
Industry Sales	MP & SR Industry	-$1,480,877 ✓
Compensation	MP & SR Industry	-$1,106,589 ✓

Note: Comp. & Industry Sales responses match targets.

Source: FY 2016 Unified Economic Development Report, RI Dept. of Revenue, Office of Revenue Analysis

Modeling Costs: Government Expenditure Response

Translating RI General Fund Spending to REMI Inputs

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ORA Analysis of FY 2016 RI General Fund Expenditures

Industry (NAICS Code)	Amount	% of Total
Ambulatory Healthcare Services (621)	$1.12 billion	31.8%
Educational Services (61)	$1.04 billion	29.7%
Social Assistance (624)	$95.9 million	2.7%
Prof., Sci., & Tech. Services (54)	$50.3 million	1.4%
Admin. & Support Services (561)	$33.1 million	0.9%
Wholesale Trade (42)	$30.6 million	0.9%
Remaining / Other (19 additional industries and also non-residential capital investment)	$128.5 million	3.7%
State Wages, Salary, and Other Comp. (entered as "State/Local Gov't Employment" w/ compensation adj.)	$937.0 million	26.6%
Local Government Spending (entered as "Local Gov't Spending")	$78.5 million	2.2%
TOTAL:	**$3.5 billion**	**100.0%**

FY 2016 RI Compensation Detail

Total State Employee Comp.	$1.396B
Full Time Equivalent Positions	12,826
Total Comp. Cost per FTE	$108,806

Note: REMI model assumes average annual compensation for state/local gov't job is approx. $87,667 – slightly less than what is shown by analysis of expenditure data. Another compensation adjustment is necessary.

Source: FY 2016 Unified Economic Development Report, RI Dept. of Revenue, Office of Revenue Analysis

Modeling Costs: Government Expenditure Response:
Making Compensation Adjustments

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GOAL: Develop procedure to find combination of state and local gov't employment and compensation inputs that simulates actual changes to state gov't emp. and comp. of 0.77 and $83,781, respectively.

Model Run 1:

Inputs

Variable	Amount
State and Local Gov't Employment	0.77 jobs

Output

Variable	Amount
State and Local Gov't Compensation	$70,475 ✗

Note: Insufficient compensation response.

Model Run 2:

Inputs

Variable	Amount
State and Local Gov't Employment	0.77 jobs
State and Local Gov't Compensation	$13,306

Output

Variable	Amount
State and Local Gov't Compensation	$83,951 ✓

Note: Closely matches compensation target.

Source: FY 2016 Unified Economic Development Report, RI Dept. of Revenue, Office of Revenue Analysis

Example Results:
FY 2016 Motion Picture Production Tax Credit

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If the tax credit were to be eliminated for FY 2016, the state would experience the following impacts…

Cost Assumption	Benefits Assumption: Marginal Approach	Benefits Assumption: Leveraged Approach
Tax Policy Response	Employment: -1 job State GDP: -$23,386 Net Revenue: +$360,558	Employment: -28 jobs State GDP: -$1,737,876 Net Revenue: +$241,915
Government Expenditure Response	Employment: +1 job State GDP: -$116,815 Net Revenue: +$354,092	Employment: -26 jobs State GDP: -$1,597,673 Net Revenue: +$251,617

Modeling Detail:
Estimating Revenue Impacts

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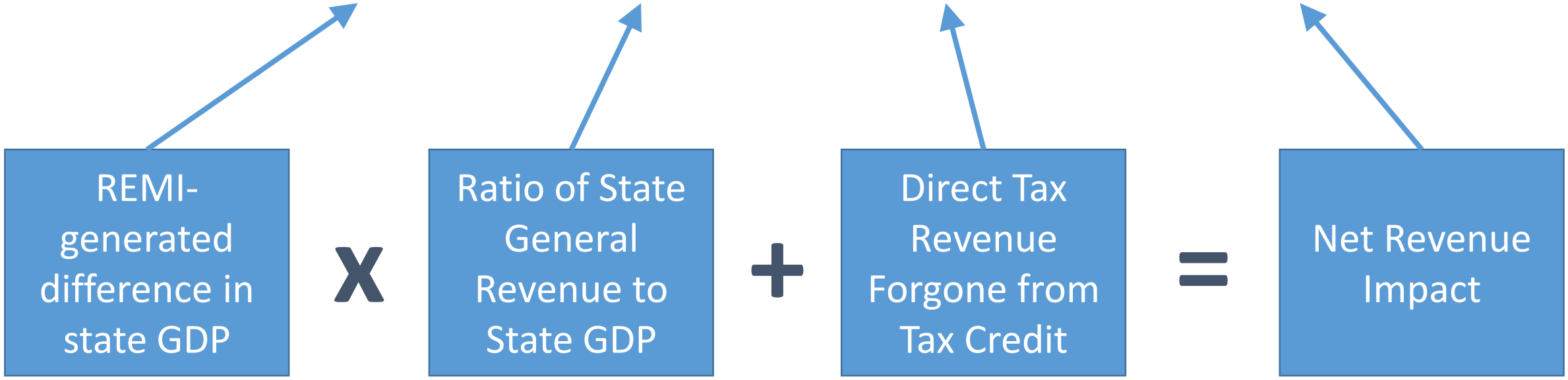
ORA calculated revenue impacts using the ratio of state general revenues to state GDP. Example below shows revenue impact of leveraged, tax policy response analysis.

-$1,597,693 x 6.92% + $362,176 = $251,617



Discussion of Modeling Approach

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The modeling approach produces a "menu" of possible impacts…

PROS

- Reader can select the scenario that matches their assumptions of what would have happened in the absence of the credit.
- Evaluation framework is versatile across a wide variety of credit types.
- Incorporates bill of goods data, customizing analysis to characteristics of credit-takers in each year.

CONS

- Results are somewhat cluttered.
- Report does not provide a single, definitive impact estimate.
- Wide range of potential impacts
- Costs and benefits of bill of goods approach must be considered:
  - Detailed bill of goods approach is time intensive and may not always result in significantly different results.

Looking Ahead:

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- **Interested in improving methodology:**
  - ORA has pushed the limits of the REMI PI+ model and translated administrative records into usable REMI inputs.
  - Interested from hearing from any Tax-PI users in the audience regarding how our methodology could be improved with Tax-PI.
- **ORA now has a new statutory tax incentive evaluation mandate, The Economic Development and Tax Incentive Evaluation Act of 2013**
  - Opportunity for ORA to push for expanded data access
  - Opportunity to refine evaluation procedures

THANK YOU!

Joseph Codega Jr., Senior Revenue Policy Analyst
Joseph.Codega@revenue.ri.gov
Office of Revenue Analysis
Rhode Island Department of Revenue

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