# TRAINING: MODELING IN TAX-PI

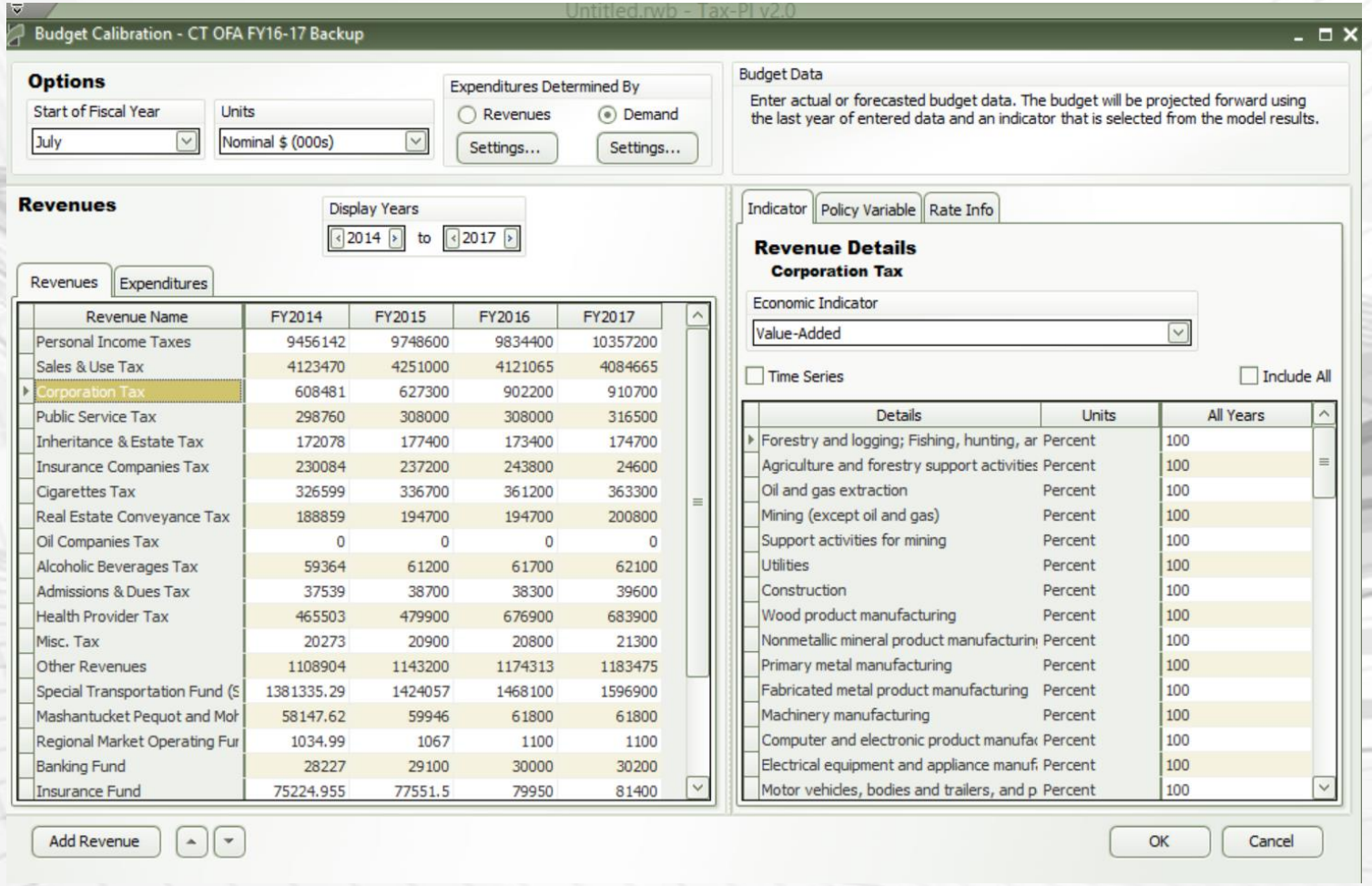
*what does REMI say?* sm

Presented by Kyle Compton, Economic Associate

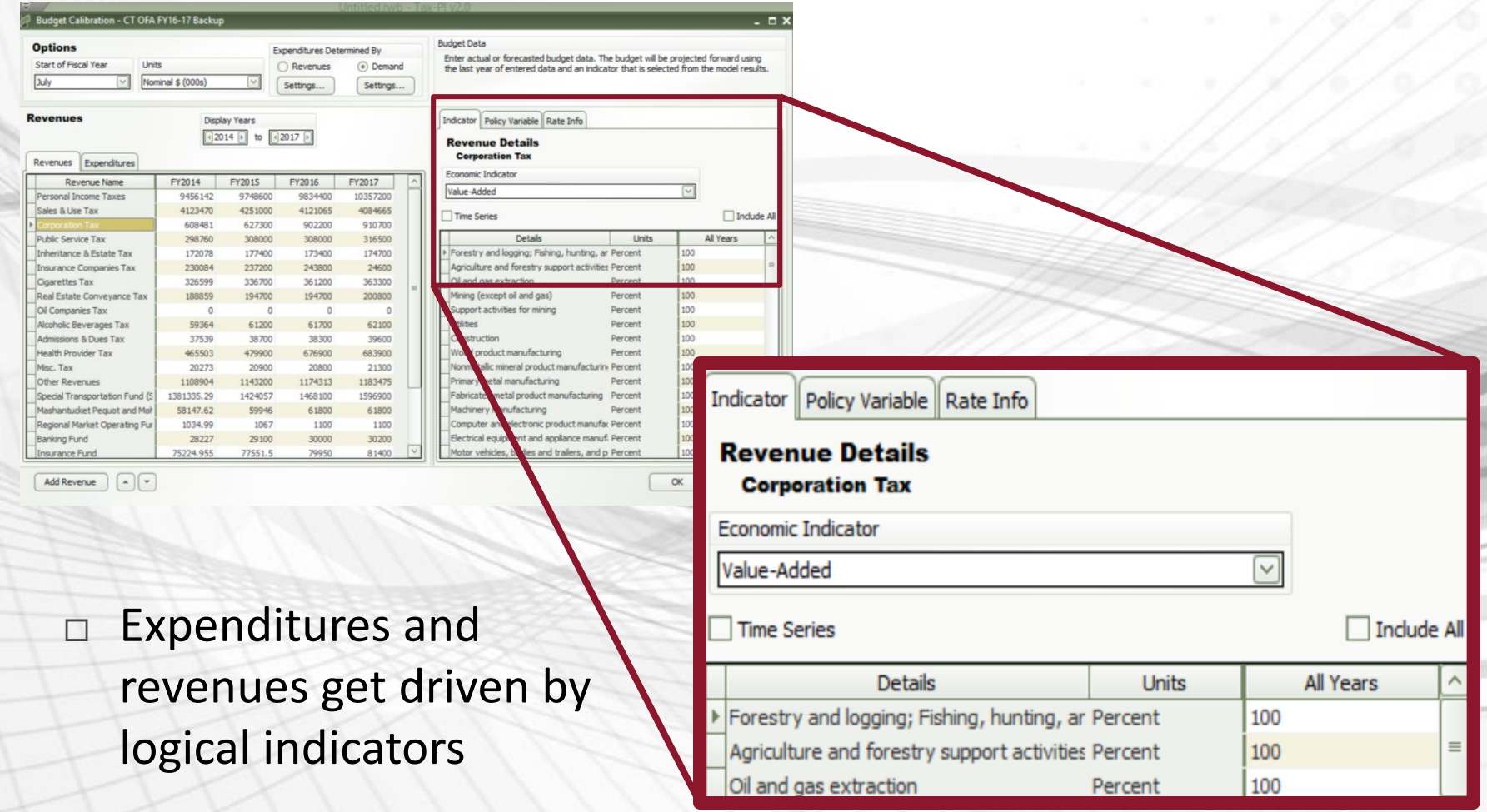
# Modeling in Tax-PI: Overview

- Budget calibration
  - Economic drivers of revenue, expenditures
  - Interaction between the budget and the economy
    - Balanced budget
    - Unbalanced budget
- Modeling in Tax-PI
  - Analysis of incentives
  - Budget forecasting
  - Dynamic fiscal notes

# Budget Calibration

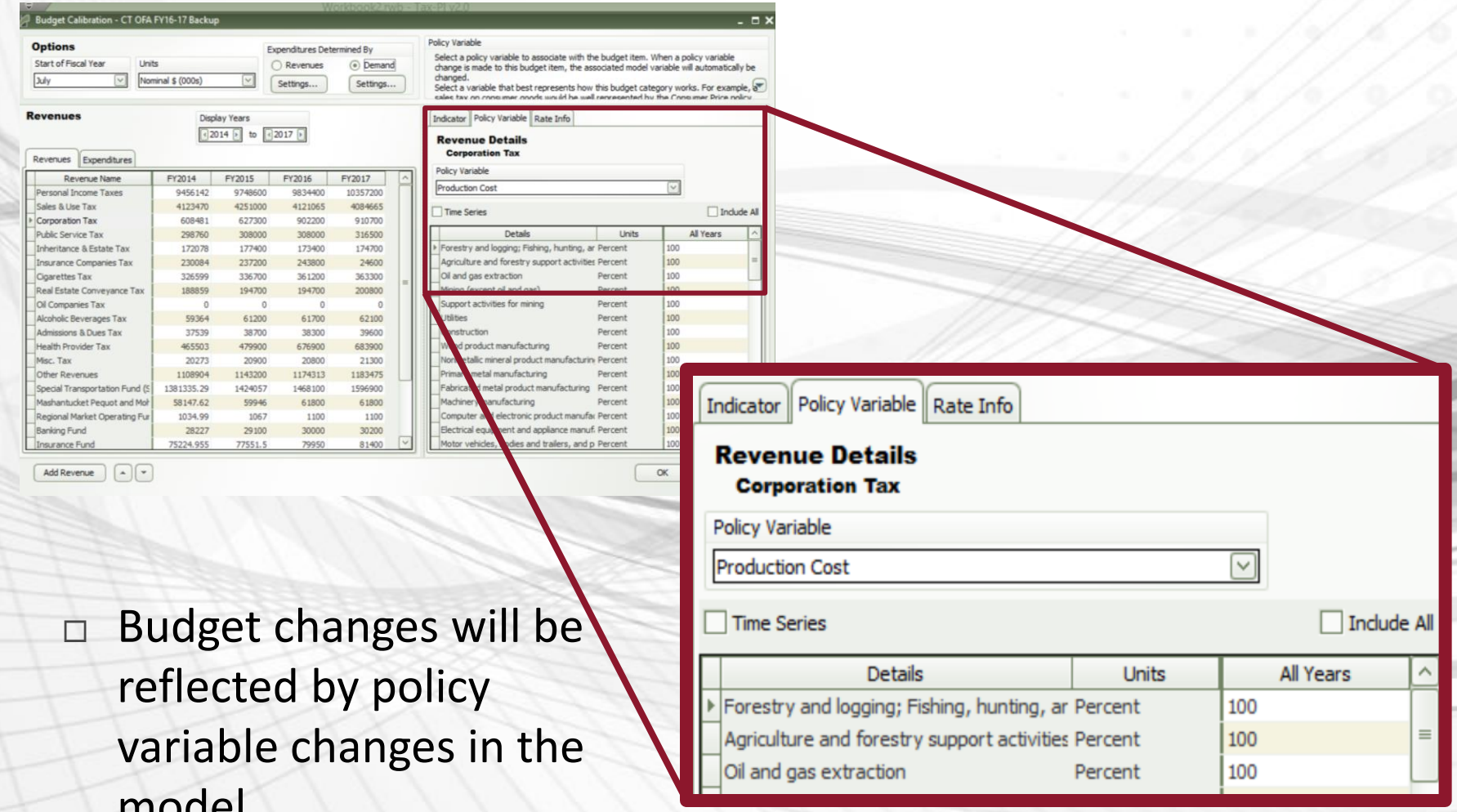


# Budget Calibration: Economic Drivers




- Expenditures and revenues get driven by logical indicators

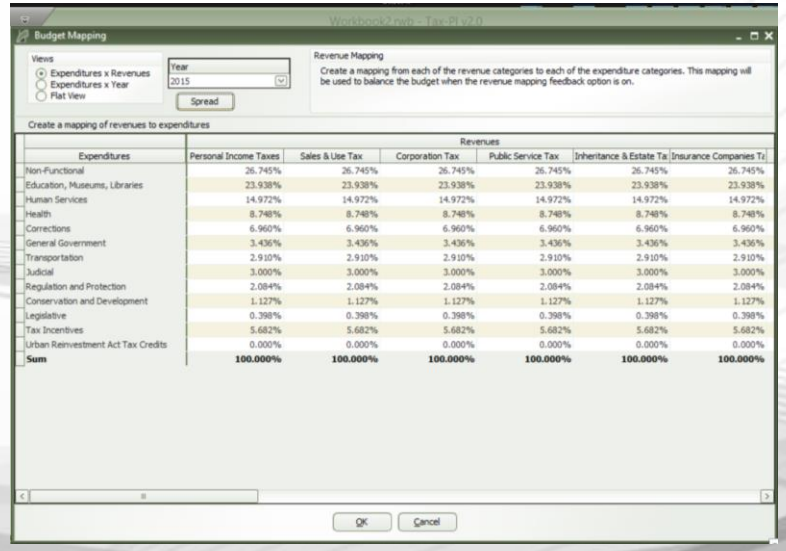
# Budget Calibration: Associated Policy Variables

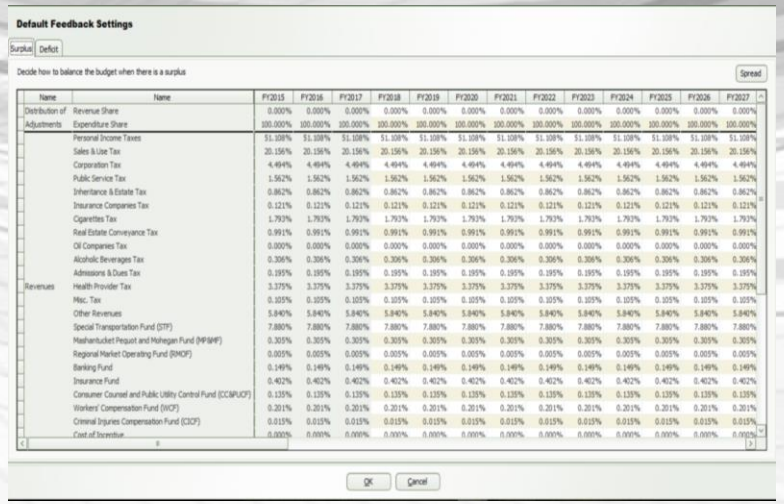



- Budget changes will be reflected by policy variable changes in the model

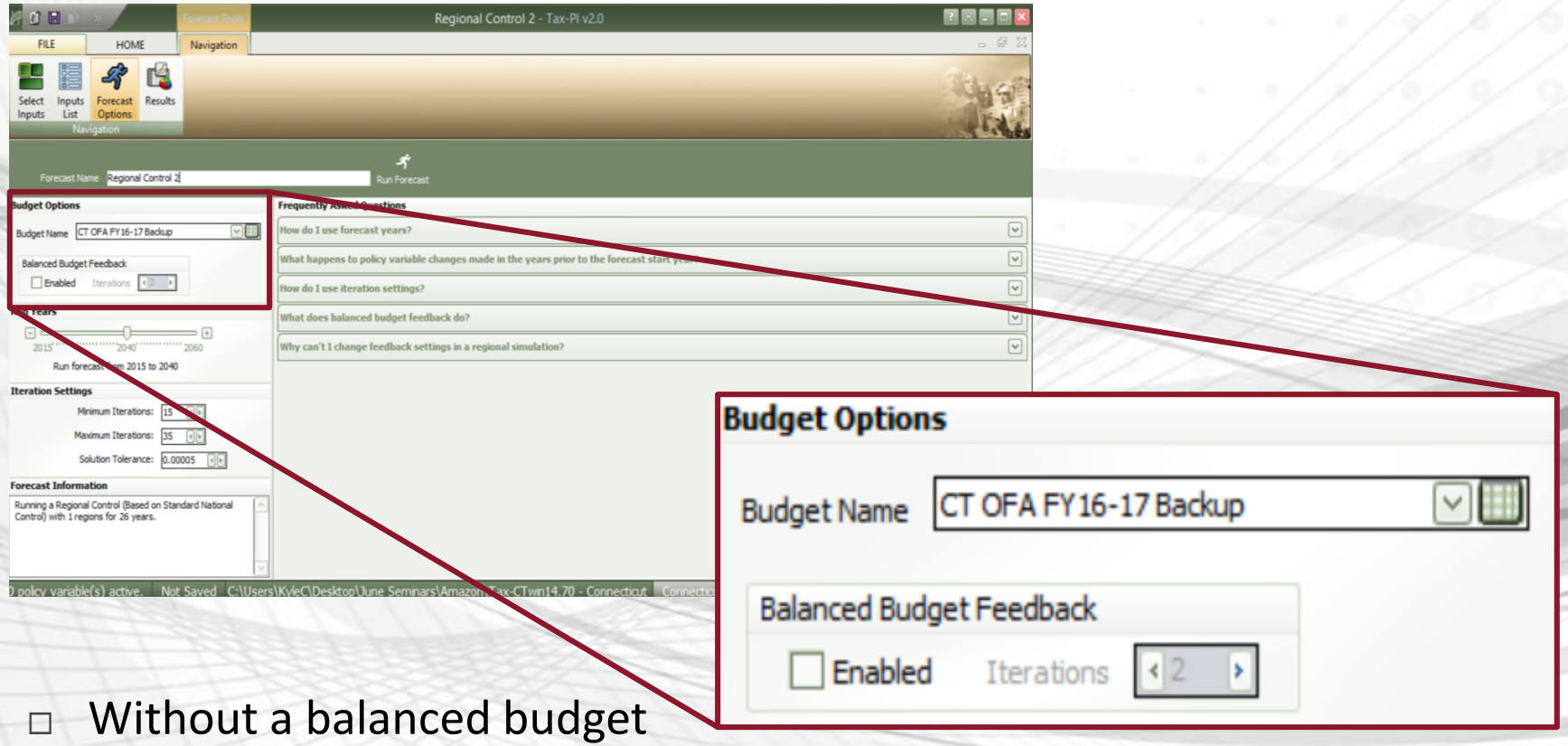
# Budget Calibration: Balanced Budget

- Expenditures Determined by Revenues
  - Pooled general fund
  - Funds for specific uses
    - State highway fund
    - Death Taxes
- Expenditures Determined by Demand
  - Adjusting for surplus or deficit
    - Does revenue or expenditure get adjusted?
    - Which categories get adjusted?



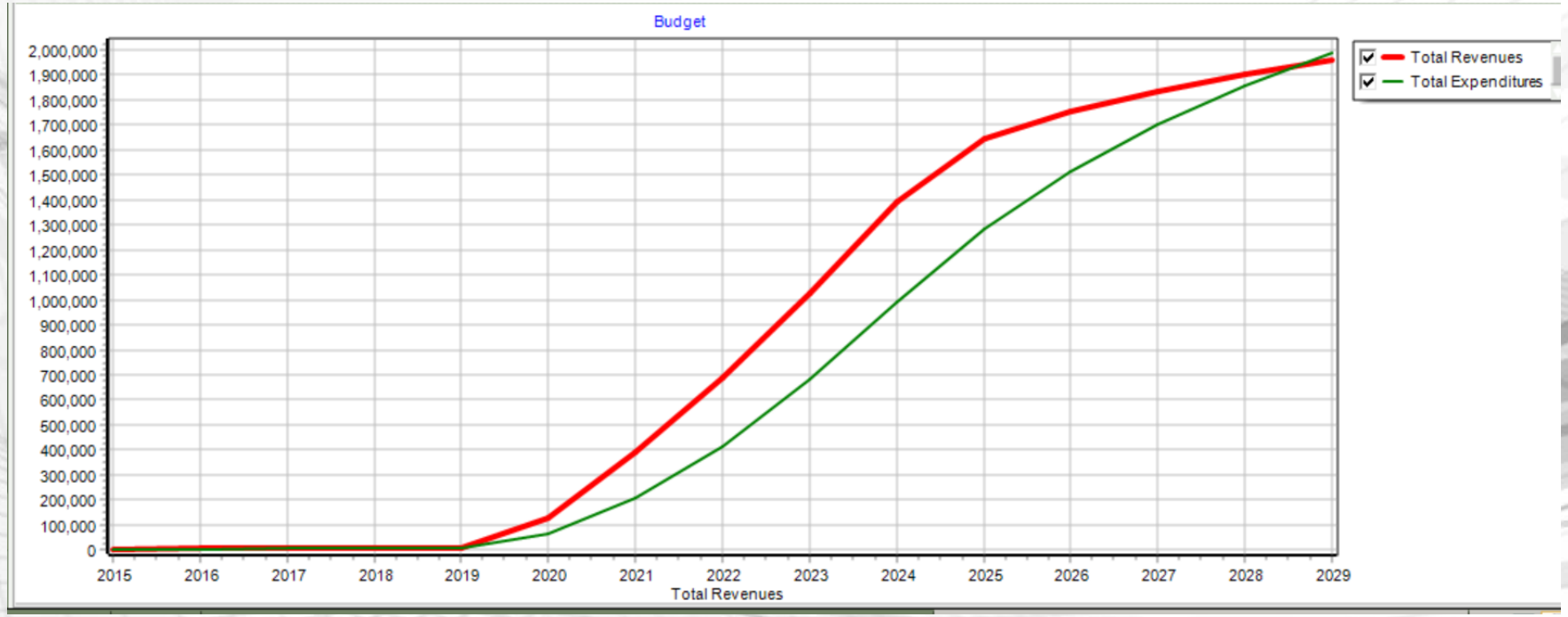



# Budget Calibration: Expenditures Determined by Demand




- Without a balanced budget
  - Expenditures determined by demand shows forecasted expenditure needs

# Budget Calibration: Expeditures Determined by Demand



# Modeling in Tax-PI

- Analysis of Incentives
  - Big River Steel
- Budget Forecasting
  - Amazon HQ2 example
- Dynamic Fiscal Notes
  - Utah Manufacturing Equipment Sales Tax Exemption

# Modeling in Tax-PI: Analysis of Incentives

- Big River Steel
  - Modeling project
  - Estimating incentive amount
  - Economic impact
  - Fiscal impact
    - Economic "return on investment"

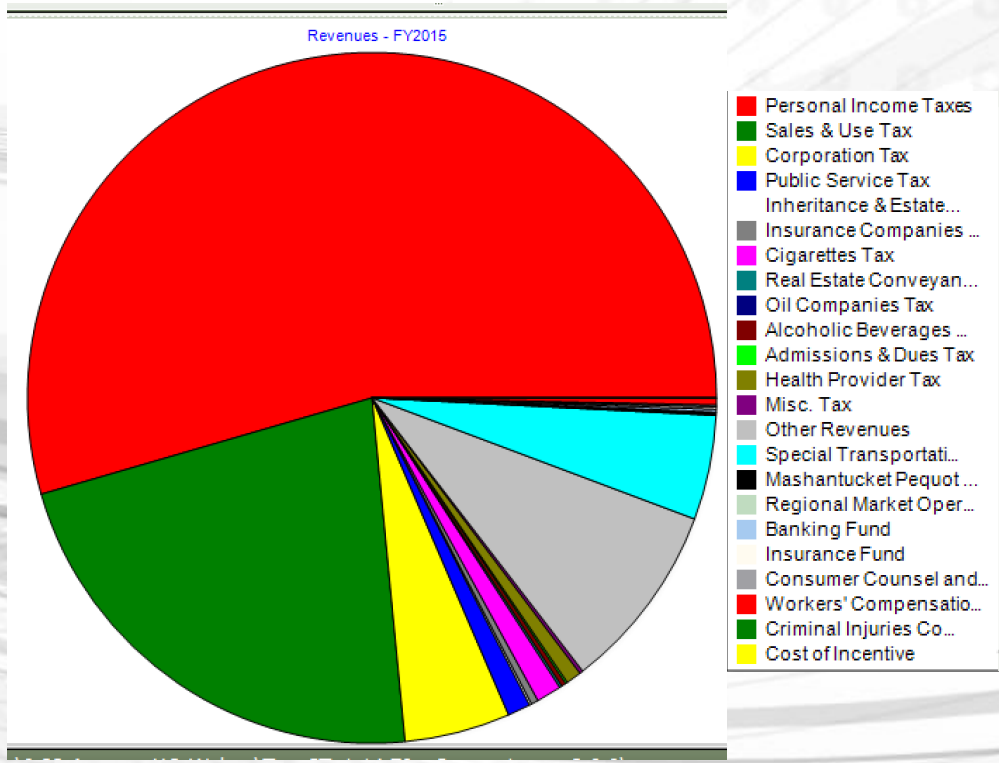
### Modeling the Big River Steel Project in REMI

Inputting the information about this project into Tax-PI requires four main sets of variables. Those are the initial construction and capital investment to build the plant, its long-term operations over its project lifecycle, the cost of the state to pay back its bonds, and the offset of the incentives offered the direct project. Each of these goes into the model in their own way and has their own influence over the eventual net economic and fiscal impact. This table describes how each of them went into the model before generating results:

| Category | Specific Item | Policy Variables |
|---|---|---|
| Construction | • 2,000 construction jobs for 20 months<br>• $1.1 billion total capital investment | • Annualized industry employment in construction<br>• Upward adjustment of the baseline productivity |
| Operations | • 525 fulltime jobs at operation<br>• $75,000 average annual wages | • 525 fulltime jobs in primary metal product manufacturing<br>• Adjusted average wages to match the $75,000 required<br>• Adjusted productivity to keep real output of the plant constant |
| Bond Repayment | • Bond repayment schedule for the state of Arkansas for the $125 million | • Negative government spending to adjust for bond repayment |
| Incentives | • Education and training programs<br>• Arkansas Advantage Program exempting direct taxes on the project for creating net new payroll in the state<br>• PILOT program to lower regular *ad valorem* assessment to 35% of the normal amount<br>• Tax exemptions on purchases made for construction materials, machinery, and equipment for operations<br>• Exempted sales tax revenue from the purchase of natural gas and electricity<br>• Recycling equipment tax credit to reduce net tax burden on Big River | • Demand for education and training services in Arkansas<br>• Less corporate income to the state for the exemption<br>• Reduced tax revenue in *ad valorem* categories for the state<br>• Reduced tax revenue for the state over capital investments<br>• Reduced revenue to the state for less fuel/energy tax income<br>• Opportunity cost of the lost revenue to tax credits |

# Modeling in Tax-PI: Budget Forecasting

- Amazon HQ2 example: what to expect from a new development
  - Jobs and consumption increase revenues
  - Increased population necessitates larger expenditures



# Modeling in Tax-PI: Dynamic Fiscal Notes

- Static Fiscal Note
  - Direct revenue and expenditure impacts
- Dynamic Fiscal Note
  - Effect of economic response on budget
  - Budget feedback effect on economy

FISCAL NOTE No Bill Number 2013 Interim

SHORT TITLE: Sales Tax Exemption for Manufacturing Equipment Purchases, LT 3 Year Life

SPONSOR: No Sponsor Note: Subject to change during the normal fiscal noting process

CURRENT PRACTICE STATE GOVERNMENT **STATIC** IMPACT (UCA 36-12-13(2)(b))

Enactment of this bill reduces sales tax revenue to the General Fund by $17,293,000 in FY 2015 and by $18,158,000 in FY 2016. The bill also reduces Restrcited Revenue (earmarks) by $12,707,000 in FY 2015 and $13,342,000 in FY 2016.

| Revenues | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|
| General Fund, **static** | | $ (18,158,000) | $ (18,158,000) |
| General Fund, One-time, **static** | | $ 865,000 | |
| Restricted Revenue, **static** | | $ (12,707,000) | $ (13,342,000) |
| Total | | (30,000,000) | (31,500,000) |

| Appropriations | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| | $0 | $0 | $0 |
| Total | $0 | $0 | $0 |

NET STATE GOVERNMENT **STATIC** IMPACT

| STATIC | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|
| Net All Funds (Rev.-Approp.) (**static**) | 0 | (30,000,000) | (31,500,000) |
| Net General & Education Funds (Rev.-Approp.) (**static**) | 0 | (17,293,000) | (18,158,000) |

DYNAMIC FISCAL NOTE No Bill Number 2013 Interim

SHORT TITLE: Sales Tax Exemption for Manufacturing Equipment Purchases, LT 3 Year Life

SPONSOR: No Sponsor Note: Subject to change during the normal fiscal noting process

SCENARIO 4: COMPETITIVE EFFECTS WITH BEHAVIORAL RESPONSE & SCENARIO 3 SCENARIO 4

| Revenue Dynamic Impact | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019 |
|---|---|---|---|---|---|---|
| General Fund/Education Fund, Static | | ($30,000,000) | ($31,500,000) | ($33,075,000) | ($34,729,000) | ($36,465,000) |
| General Fund/Education Fund, Dynamic | | $ (22,935,000) | $ (20,834,000) | $ (18,508,000) | $ (15,685,000) | $ (14,018,000) |
| Jobs | | 1,437 | 2,059 | 2,664 | 3,287 | 3,681 |
| Wages | | $78,500,000 | $121,000,000 | $166,500,000 | $217,500,000 | $258,500,000 |
| Gross Domestic Product (GDP) (millions) | | $177,500,000 | $268,000,000 | $366,000,000 | $478,500,000 | $564,000,000 |

# Modeling in Tax-PI

- Important Considerations
  - What assumptions are made about both the budget and about the components of a simulation
  - The way the unique characteristics of a state budget affect growth
  - The way the budget dynamically interacts with the economy