

# AMAZON HQ 2.0: ECONOMIC AND FISCAL EVALUATION

# Amazon Wishlist



- Amazon planning to build a 2<sup>nd</sup> corporate HQ
  - ▣ Up to 50,000 new management employees within 15 years
  
- Priorities for location:
  - ▣ Close to metro areas
  - ▣ Stable and business-friendly environment
  - ▣ Strong talent pool
  - ▣ Financial government incentives

# At What Price?



**From:** Dukakis, Michael [<mailto:M.Dukakis@northeastern.edu>]

**Sent:** Wednesday, September 20, 2017 9:44 PM

**To:** Info

**Subject:** Re: 9/22: Amazon HQ Economic Impact Webinar

Peter: Thanks. I am strongly against what is now going on in the frenzy to land these outfits, and I simply wouldn't do it when I was governor. It's a racket and a lousy way to try to build a state economy. If you can send me any of the material you used in your presentation, I'd appreciate it. Mike Dukakis

“What I can tell you is that we are going to ‘Think Big and Be Creative’ and not hold back when making our pitch – leveraging our many natural assets in going after what would be a transformational project for Little Rock and Arkansas.” – Mayor Mark Stodola of Little Rock, Arkansas

“Amazon wants single comprehensive proposals. They don’t want separate pieces. They don’t want independent bids. They want major urban areas and they only want to hear from major urban areas with major international type airports.” – Gov. Bruce Rauner of Illinois about Chicago’s bid

# Finding the Win-Win-Win



- ❑ Need a Win for the City/State; Win for Amazon; Win for Taxpayers, Workers, Residents
- ❑ Amazon likely to expect coordination on taxes, infrastructure, workforce development in site selection
- ❑ Analysis/Simulation modeling to determine economic effects
- ❑ Analysis/Simulation modeling to determine fiscal effects

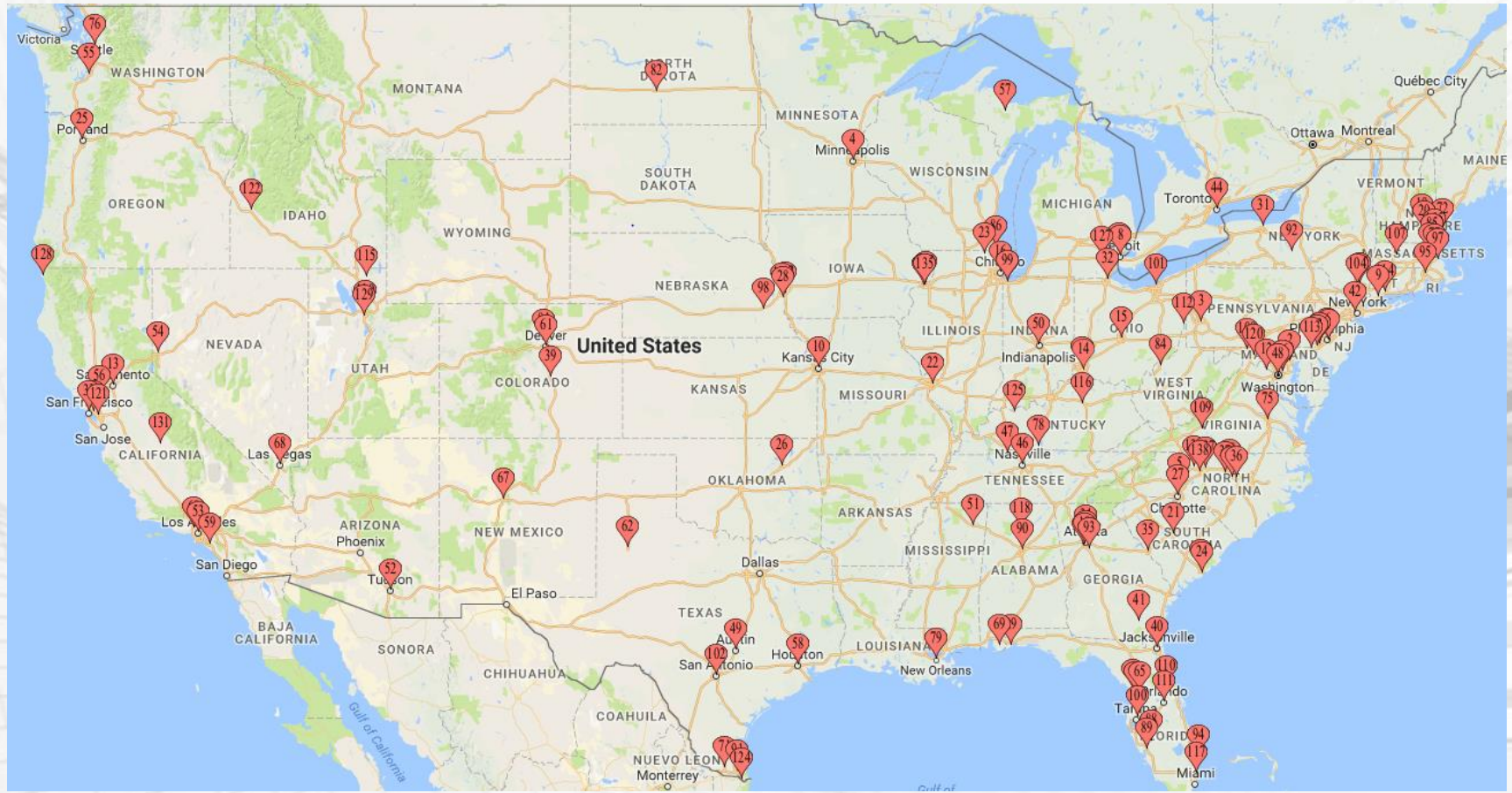
# Nominations and Vote



- We asked for nominations of potential Amazon locations
- We have (very subjectively) selected 10 for post-webinar vote
- Following the webinar, we will send out a “Survey Monkey” and report the vote



# Nominated Cities



what does **REMI** say? <sup>sm</sup>

# 10 Nominees



- Atlanta, GA: (17) College Park (20) Airport, Workforce, Infrastructure
- Tulsa, Oklahoma: (5) Tulsa is obsessed with Amazon
- Boston, MA (8) Educational institutions, East Coast
- Denver, CO (15) Mountains!!! Vibrant, talent
- Detroit, MI (10) concentration of engineers, low cost
- Pittsburgh, PA (11) creative, forward-thinking, affordable
- Minneapolis/St. Paul (8) strong headquarters city
- Austin, TX (8) Epic tech talent, perfectly weird, Whole Foods
- Baltimore, MD (8), DC (11) Bezos home purchase, political power
- Chicago, IL (12) best geographic location, aggressive economic development

# Presentation Overview



- Lay out economic landscape of expansion plan
  - ▣ Identify key geographical data about management sector
  
- Evaluate economic and fiscal impacts
  - ▣ Three different scenarios
  - ▣ What incentive package to offer

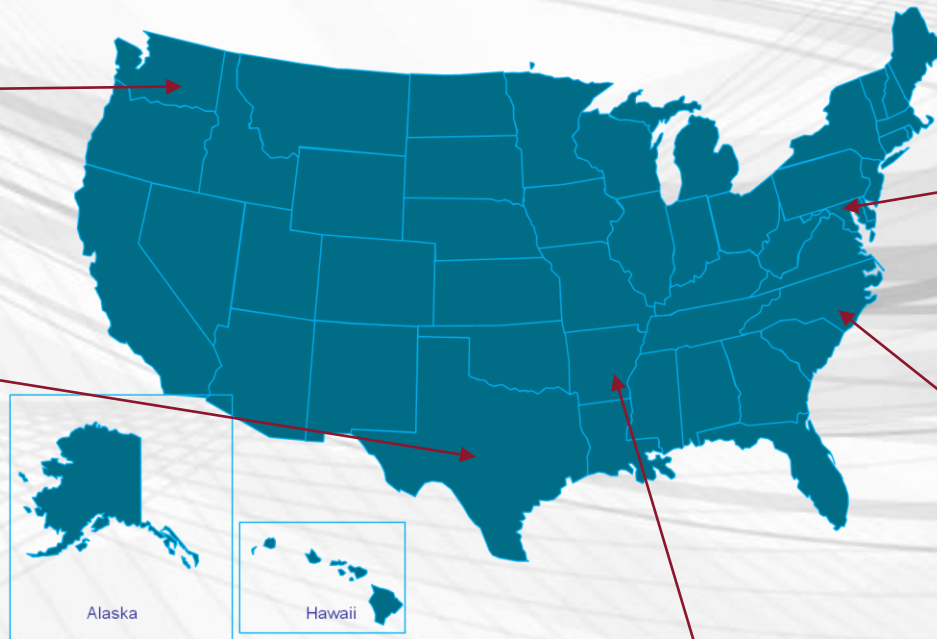


# Prior Tax & Incentive Analysis

**REMI's Tax-PI is the industry standard for regional macroeconomic, demographic and dynamic fiscal analysis of public policy and economic development projects.**

**Washington:**  
Aerospace tax  
credit analysis

**Texas:** Statutory  
impact analysis  
requirement for  
appropriations  
legislation



**Maryland:**  
Corporate tax  
rate reduction  
analysis

**North Carolina:**  
Medicaid  
expansion  
analysis

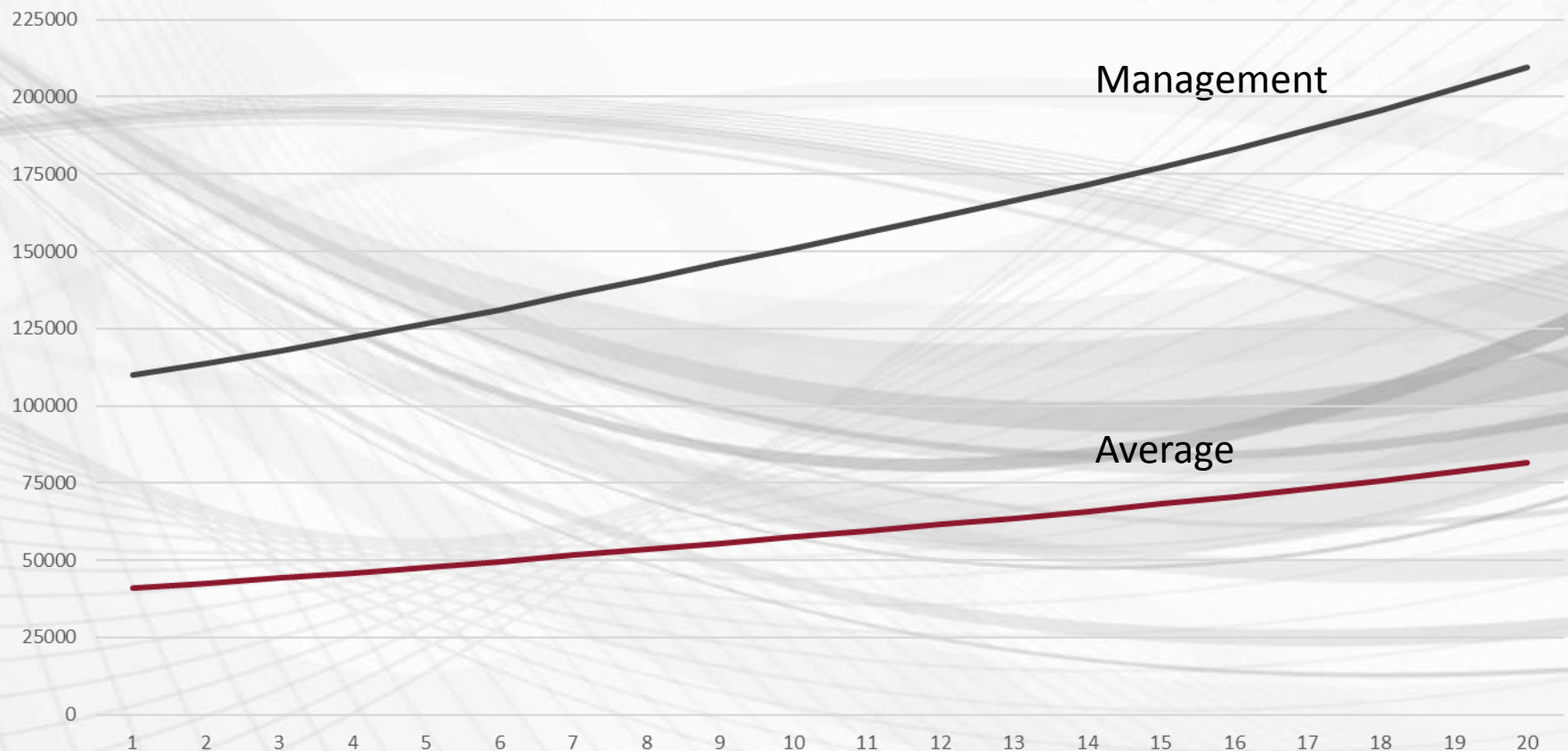
**Arkansas:** Big River Steel  
manufacturing facility analysis

*what does **REMI** say? <sup>sm</sup>*

# Management Jobs are Attractive



- Average management salary over 2.5x national average salary



what does **REMI** say? <sup>sm</sup>

# Geography of Management Sector



- Accounting for cost of living, top 10 states in management salary are:
  - ▣ 6 Northeast states: DC, CT, NJ, MA, PA, RI (\$121-250k)
  - ▣ 3 Midwest states: IL, MN, MI (\$115-123k)
  - ▣ Colorado: \$131k
  - ▣ National average: \$110k
  
- Washington (incl. Amazon HQ 1.0) below national average
  - ▣ Statewide: \$104k
  - ▣ Amazon in state: \$101k (salary.com)

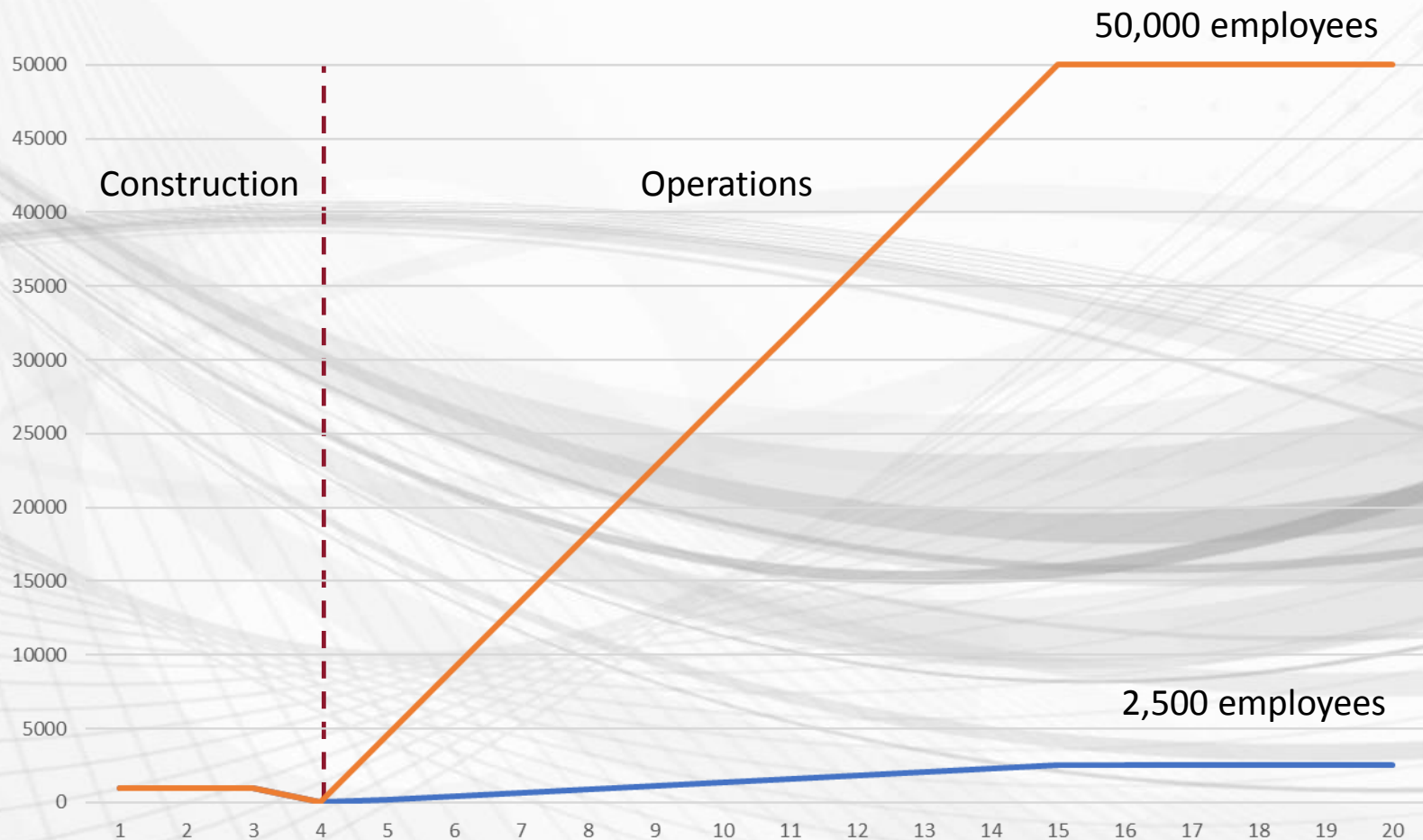
# Phases of Economic Impact



- Construction
  - ▣ Hire construction workers for first 2-3 years to build facility
  - ▣ Purchase computers/servers, office furniture/equipment
  
- Operations
  - ▣ Three scenarios: 50k employees (fast vs. slow build), 2.5k
  - ▣ Economic impacts
  - ▣ Fiscal impacts



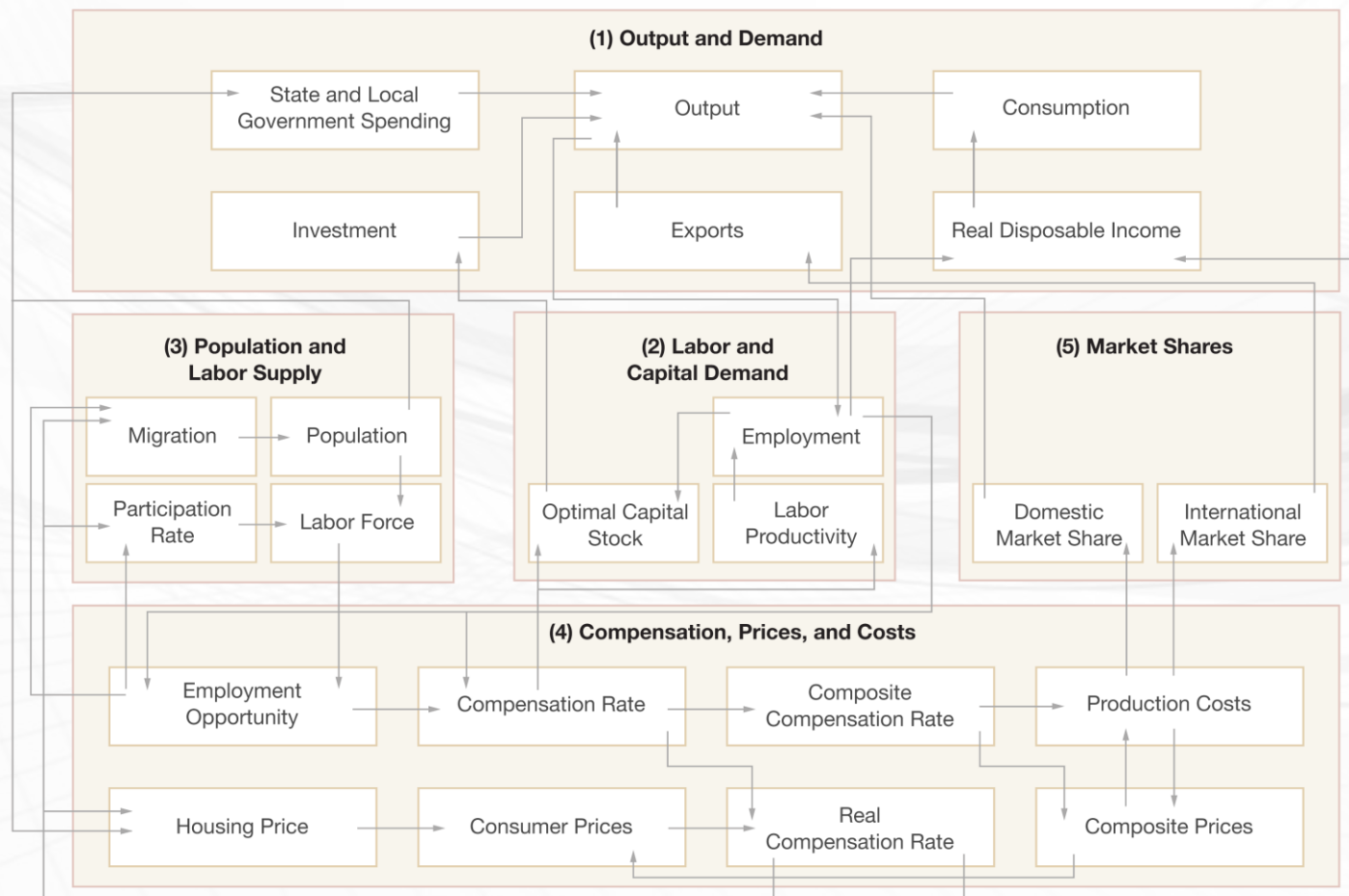
# Phases of Economic Impact



what does **REMI** say? <sup>sm</sup>

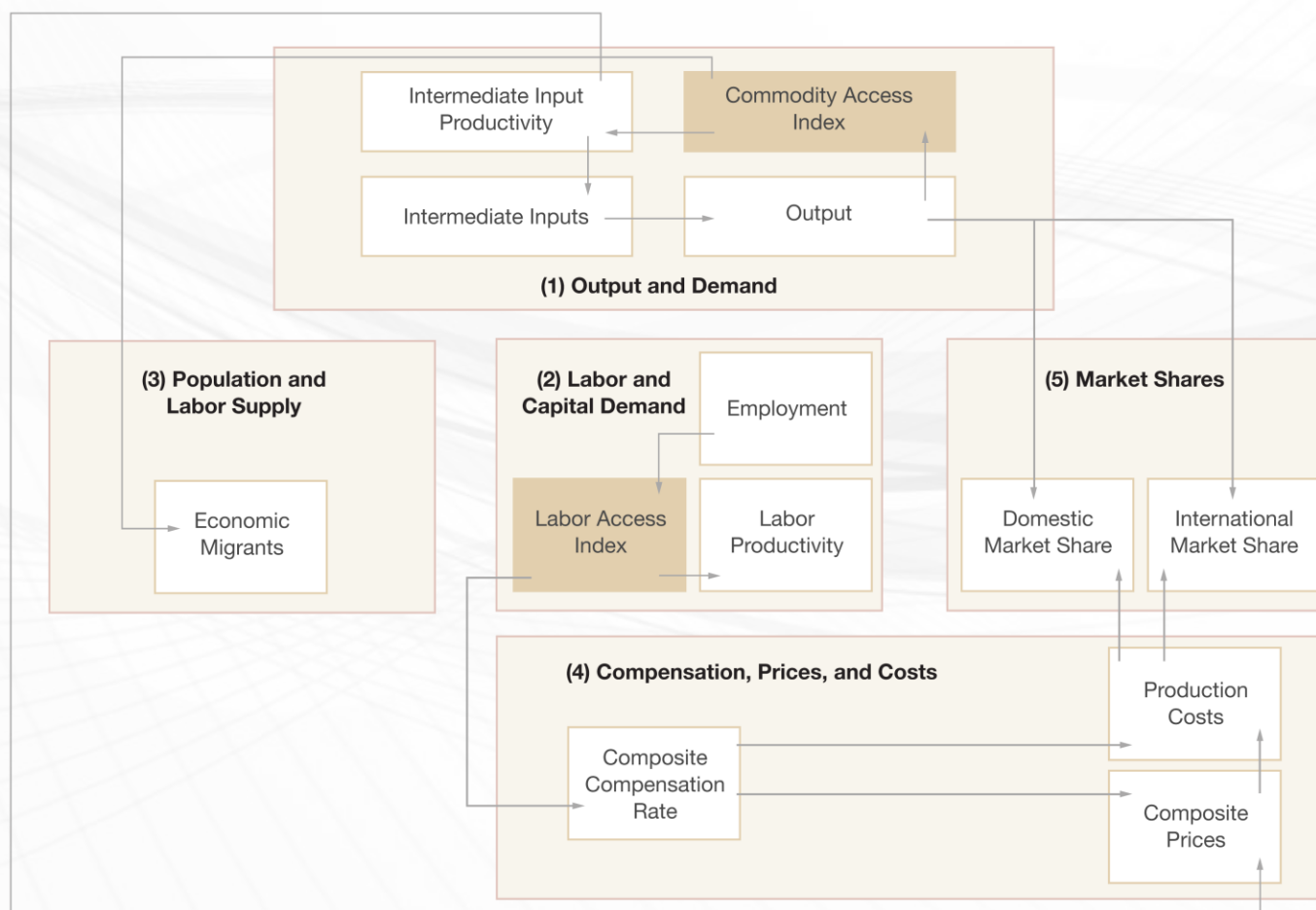
# Model Structure

## REMI Model Linkages (Excluding Economic Geography Linkages)



# New Economic Geography

## Economic Geography Linkages



# Static vs. Dynamic Analysis



## Static Analysis

- Construction spending
- New employee wages
- Static changes in tax revenue

## Dynamic Analysis

- Construction spending
- New employee wages
- Population
- Housing prices
- Employment
- Wage inflation
- Labor productivity
- Output
- Static changes in tax revenue
- Changes in tax base
- Getting right long-term deal?



# Construction Impact



Building Phase	Estimated Capital Investment
Phase I Building (500,000-1,000,000 sf)	\$300,000,000-\$600,000,000
Phase II Building (1,000,000-2,000,000 sf)	\$600,000,000-\$1,260,000,000
Phase III Building (2,000,000-3,000,000 sf)	\$1,260,000,000-\$1,985,000,000

- Amazon estimates first three phases of building will cost \$2.1-3.8 million

# Construction Impact



- Model construction as Detailed Industry Sales:
  - ▣ NAICS 2332A0: Commercial structures, including farm structures

The screenshot shows the 'New Industry Sales' window in the REMI software. The window has a title bar 'New Industry Sales' and a 'Name' field containing 'New Industry Sales'. Below the title bar is a navigation bar with 'Variables' and 'Details' tabs, and buttons for 'Scenario Info' and 'Cancel'. The main content area is titled 'Detailed Industry Sales (Exogenous Production)'. On the left, there are three panels: 'Detail (1)' showing 'Commercial structures, including farm structures - 2332A0', 'Region (1)' showing 'Connecticut', and 'Units'. The central panel is a tree view of industries. The 'Construction - 23' category is expanded, showing sub-categories like 'Nonresidential maintenance and repair - 230301', 'Residential maintenance and repair - 230302', 'Health care structures - 233210', 'Manufacturing structures - 233230', 'Power and communication structures - 233240', 'Educational and vocational structures - 233262', 'Highways and streets - 233292', 'Commercial structures, including farm structures - 2332A0' (which is checked), 'Other nonresidential structures - 2332B0', 'Single-family residential structures - 233411', 'Multifamily residential structures - 233412', and 'Other residential structures - 233440'. On the right side of the tree view, there are buttons for 'Favorites', 'List', and 'Hierarchy'.

what does **REMI** say? <sup>sm</sup>

# Construction Impact



- Other fit-out costs during initial construction phase
  - ▣ New computers and servers
  - ▣ Office furniture and equipment
  
- Model as Detailed Industry Sales policy variables
  - ▣ NAICS 334: Computer and electronic product manufacturing
  - ▣ NAICS 337: Furniture and related product manufacturing

# Construction Impact



New Industry Sales

### Industry Sales

Name:

Variables Details Add to Editor Edit Values ? Scenario Info X Cancel

#### Detailed Industry Sales (Exogenous Production)

**Detail (10)**  
Electronic computer manufacturing - 334111  
Computer storage device manufacturing - 334112  
Computer terminals and other computer

**Region (1)**  
Connecticut

**Units**  
2015 Fixed National \$ (M)

Industry
<input type="checkbox"/> Forestry, Fishing, and Related Activities - 113-115
<input type="checkbox"/> Mining - 21
<input type="checkbox"/> Utilities - 22
<input type="checkbox"/> Construction - 23
<input type="checkbox"/> Manufacturing - 31-33
<input type="checkbox"/> Wood product manufacturing - 321
<input type="checkbox"/> Nonmetallic mineral product manufacturing - 327
<input type="checkbox"/> Primary metal manufacturing - 331
<input type="checkbox"/> Fabricated metal product manufacturing - 332
<input type="checkbox"/> Machinery manufacturing - 333
<input type="checkbox"/> Computer and electronic product manufacturing - 334
<input checked="" type="checkbox"/> Computer and peripheral equipment manufacturing, excluding digital camera manufact...
<input checked="" type="checkbox"/> Electronic computer manufacturing - 334111
<input checked="" type="checkbox"/> Computer storage device manufacturing - 334112
<input checked="" type="checkbox"/> Computer terminals and other computer peripheral equipment manufacturing - 3341...
<input checked="" type="checkbox"/> Communications equipment manufacturing - 3342
<input checked="" type="checkbox"/> Telephone apparatus manufacturing - 334210
<input checked="" type="checkbox"/> Broadcast and wireless communications equipment - 334220
<input checked="" type="checkbox"/> Other communications equipment manufacturing - 334290
<input checked="" type="checkbox"/> Audio and video equipment manufacturing - 3343
<input checked="" type="checkbox"/> Audio and video equipment manufacturing - 334300
<input type="checkbox"/> Semiconductor and other electronic component manufacturing - 3344
<input type="checkbox"/> Navigational, measuring, electromedical, and control instruments manufacturing - 3345
<input type="checkbox"/> Manufacturing and reproducing magnetic and optical media - 3346
<input type="checkbox"/> Electrical equipment and appliance manufacturing - 335
<input type="checkbox"/> Motor vehicles, bodies and trailers, and parts manufacturing - 3361-3363
<input type="checkbox"/> Other transportation equipment manufacturing - 3364-3369
<input type="checkbox"/> Furniture and related product manufacturing - 337
<input type="checkbox"/> Household and institutional furniture and kitchen cabinet manufacturing - 3371
<input checked="" type="checkbox"/> Office furniture (including fixtures) manufacturing; Other furniture related product man...
<input checked="" type="checkbox"/> Office furniture and custom architectural woodwork and millwork manufacturing - 33...
<input checked="" type="checkbox"/> Showcase, partition, shelving, and locker manufacturing - 337215
<input checked="" type="checkbox"/> Other furniture related product manufacturing - 337900
<input type="checkbox"/> Miscellaneous manufacturing - 339
<input type="checkbox"/> Food manufacturing - 311
<input type="checkbox"/> Beverage and tobacco product manufacturing - 312
<input type="checkbox"/> Textile mills; Textile product mills - 313-314
<input type="checkbox"/> Apparel, leather and allied product manufacturing - 315-316
<input type="checkbox"/> Paper manufacturing - 322
<input type="checkbox"/> Printing and related support activities - 323
<input type="checkbox"/> Petroleum and coal products manufacturing - 324
<input type="checkbox"/> Chemical manufacturing - 325

Favorites List Hierarchy

what does **REMI** say? <sup>sm</sup>



# Construction Impact

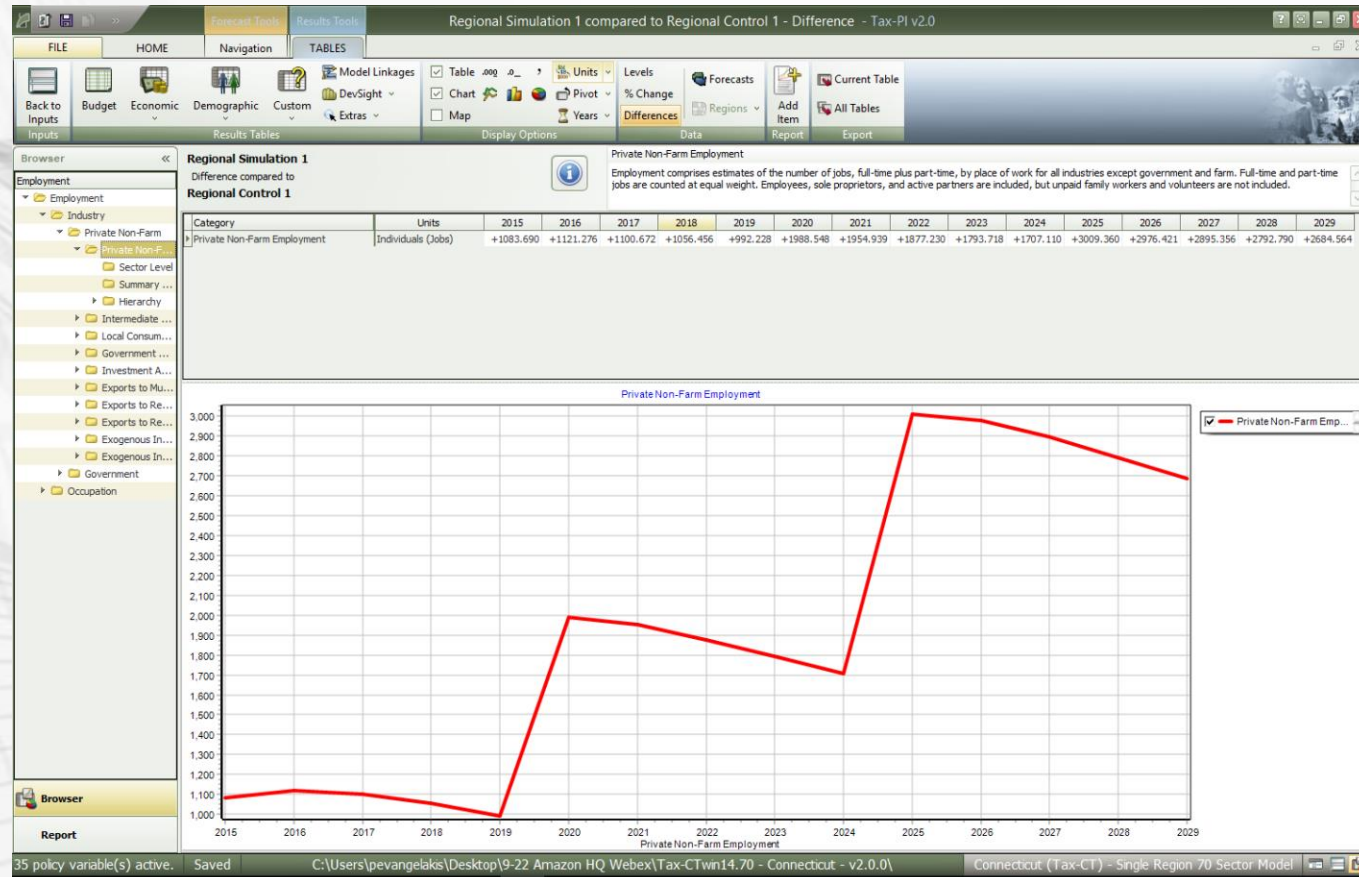


- Construction: Use midpoint of spending range for each 5 year phase, spread evenly
- Computers and furniture: 10% of construction spending, spread evenly (simple hypothetical)
- Show impacts on employment and output
  - ▣ Overall (private non-farm)
  - ▣ Breakdown by sector

# Construction Impact



## □ Private non-farm employment impact

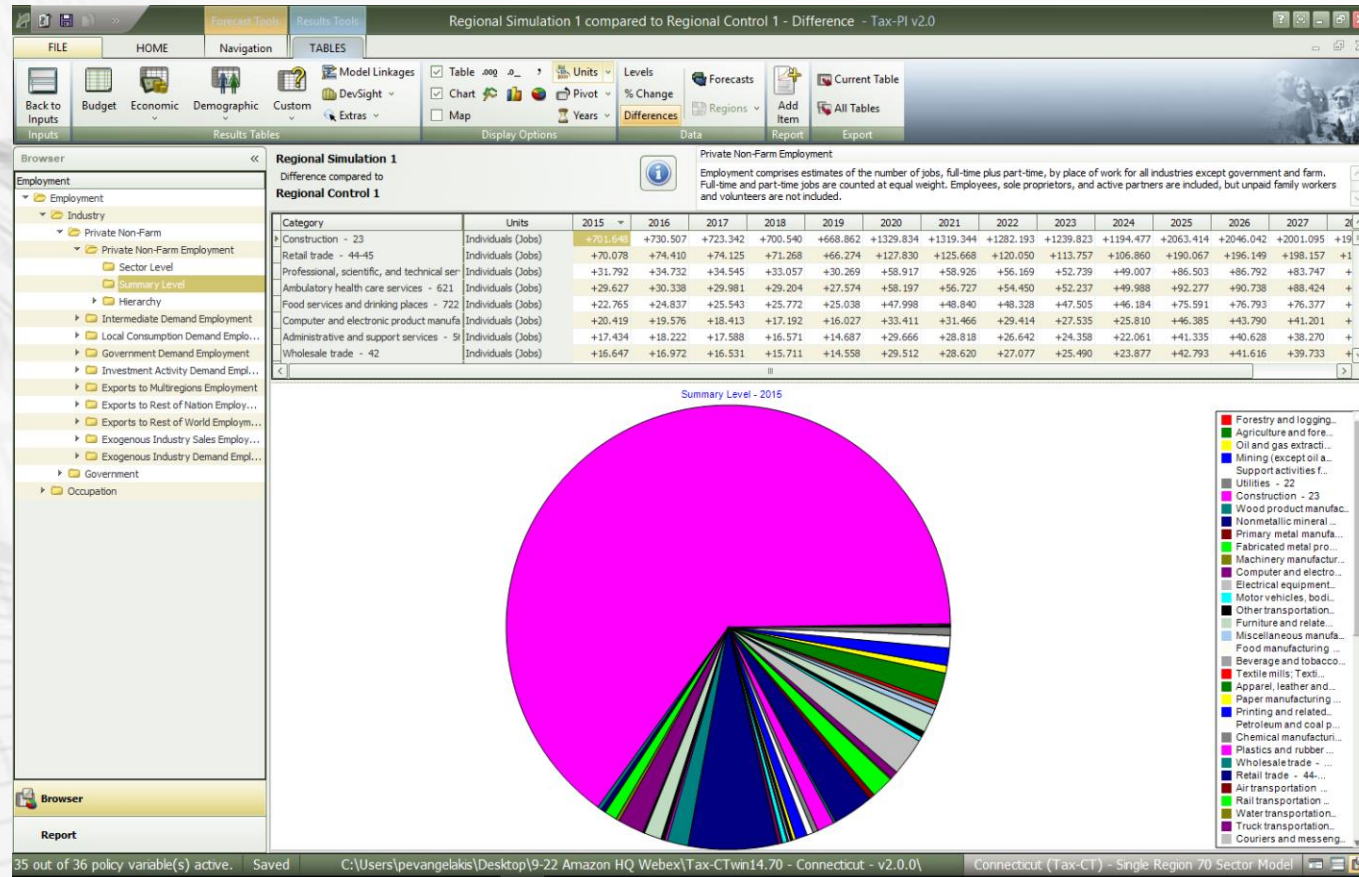


what does **REMI** say? <sup>sm</sup>

# Construction Impact



## □ Private non-farm employment impact breakdown

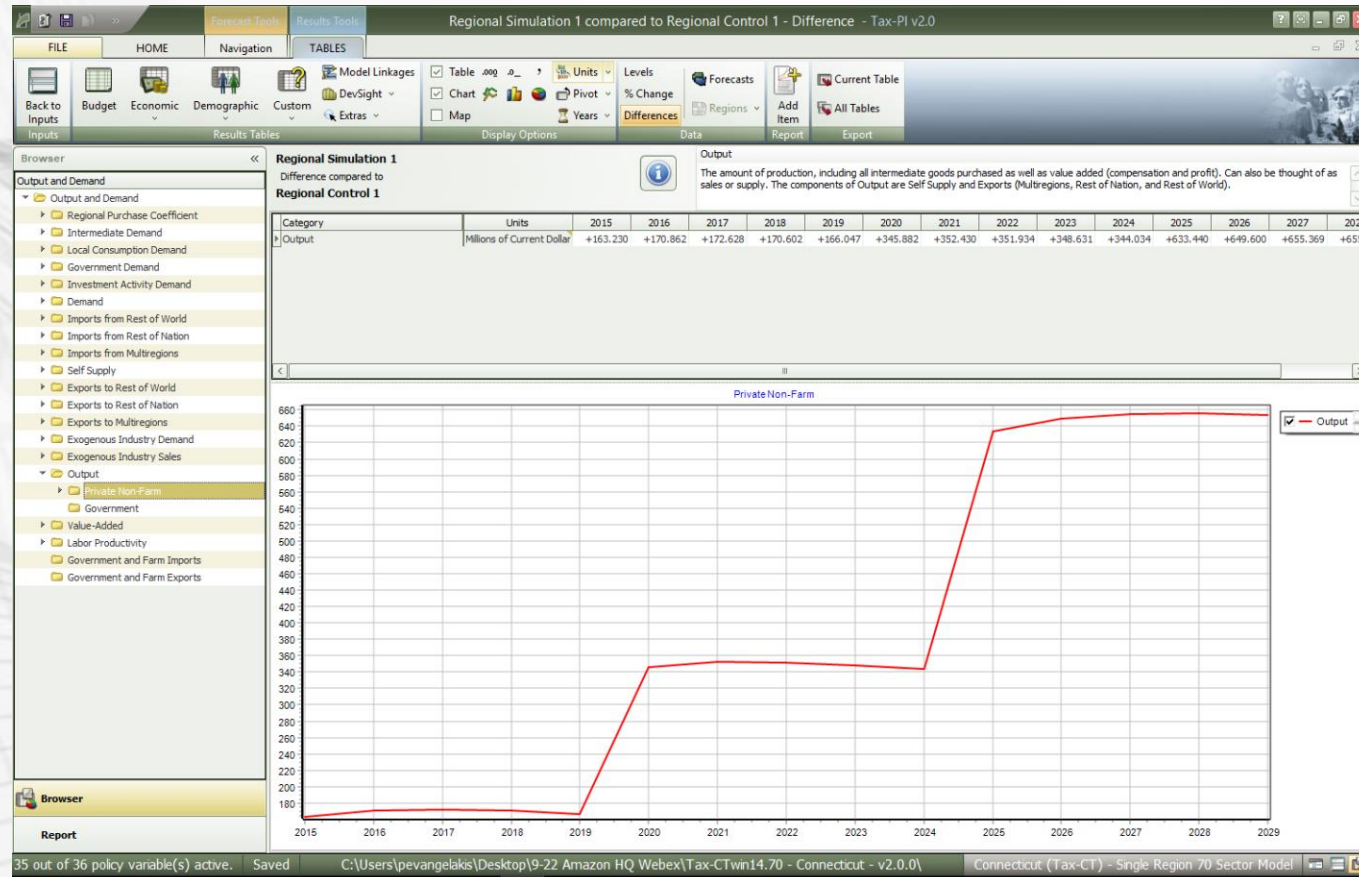


what does REMI say? <sup>sm</sup>

# Construction Impact



## □ Private non-farm output impact



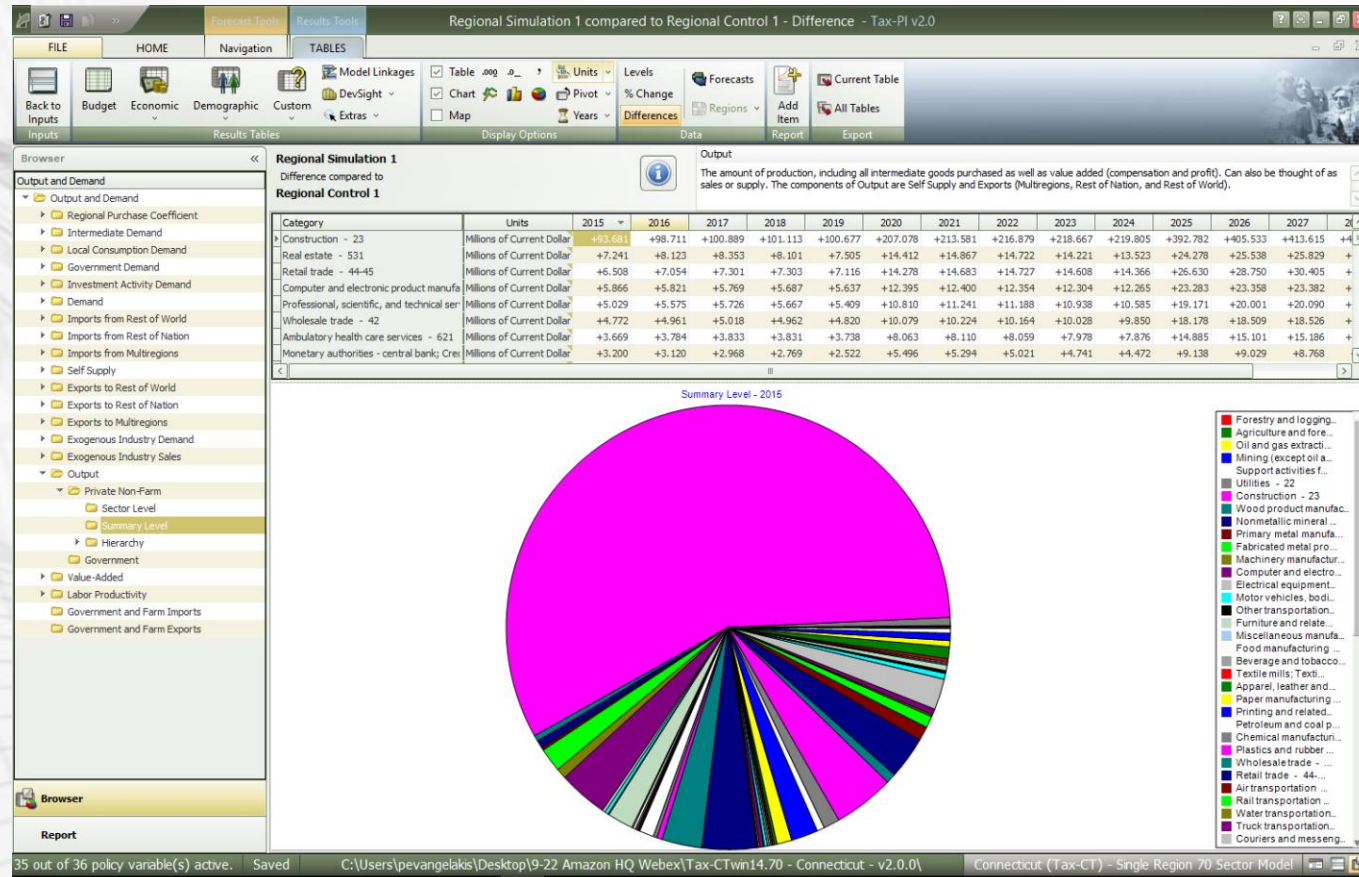
what does **REMI** say? <sup>sm</sup>



# Construction Impact



## □ Private non-farm output impact breakdown



what does REMI say? <sup>sm</sup>

# Operations (50k, Fast)

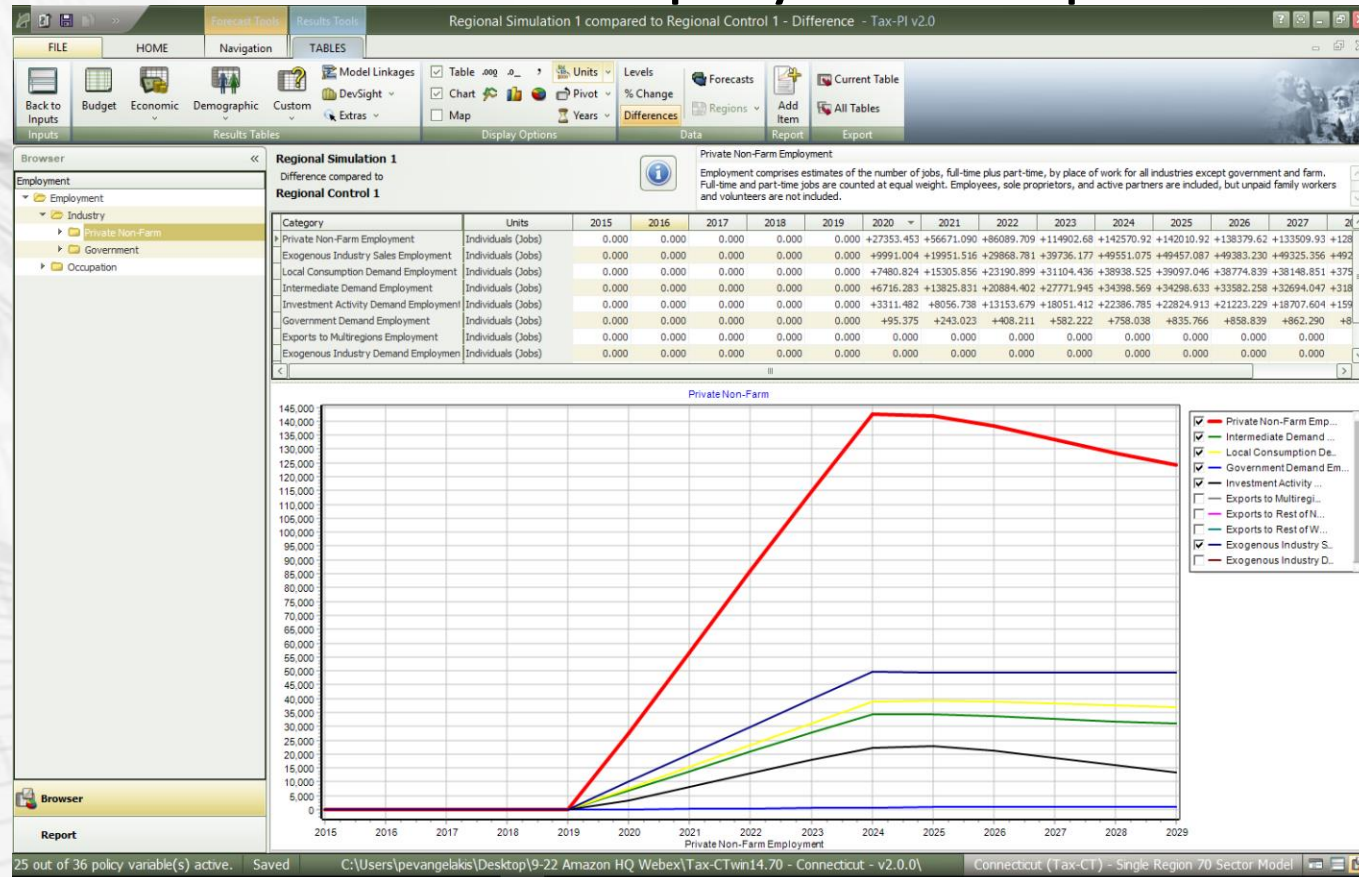


- 50,000 new management employees
  - ▣ NAICS 55: Management of companies and enterprises—for executive/management
  - ▣ Added steadily over 5 years during Phase 2

# Operations (50k, Fast)



## □ Private non-farm employment impact



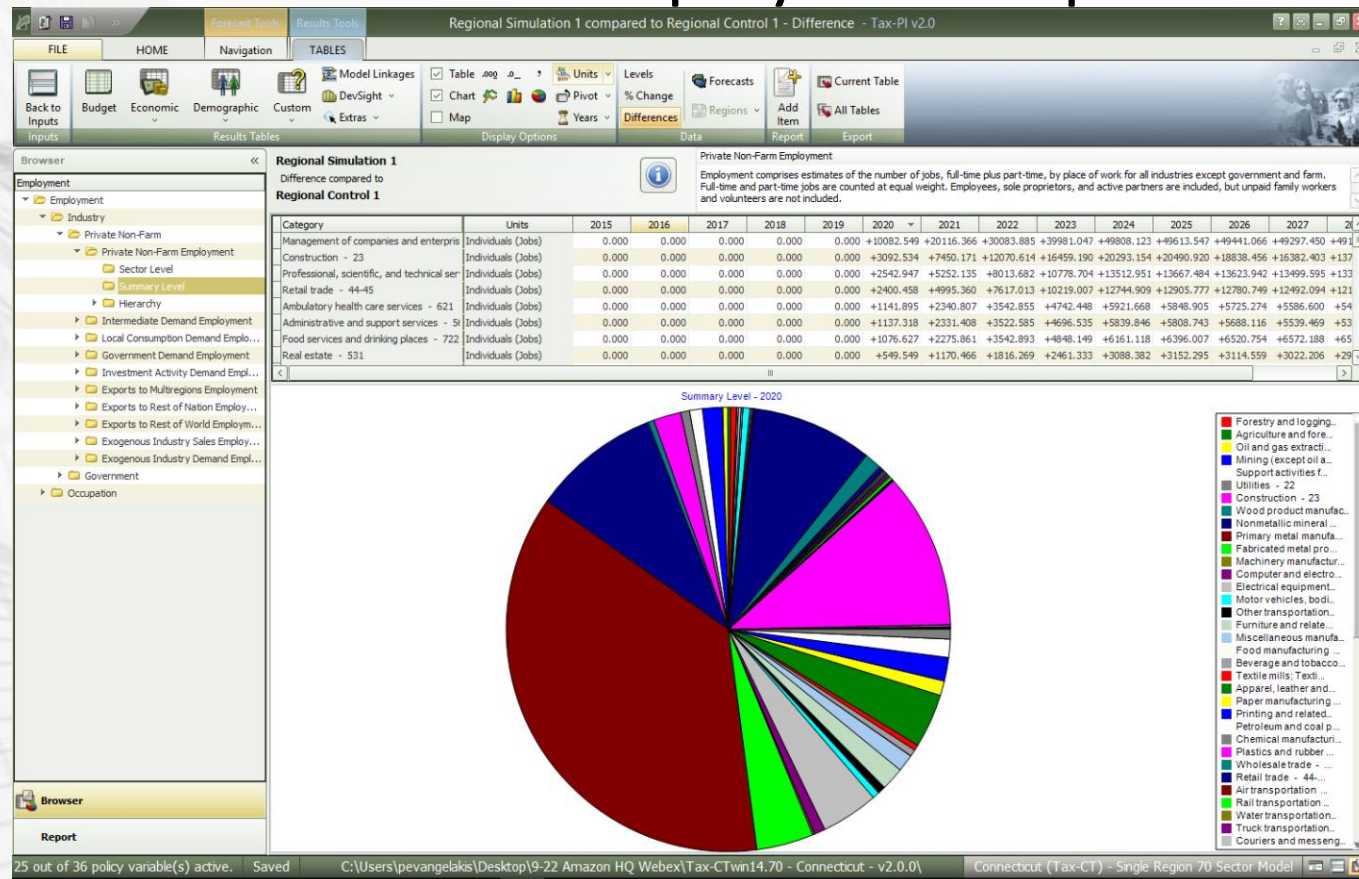
what does REMI say? <sup>sm</sup>



# Operations (50k, Fast)



## □ Private non-farm employment impact breakdown

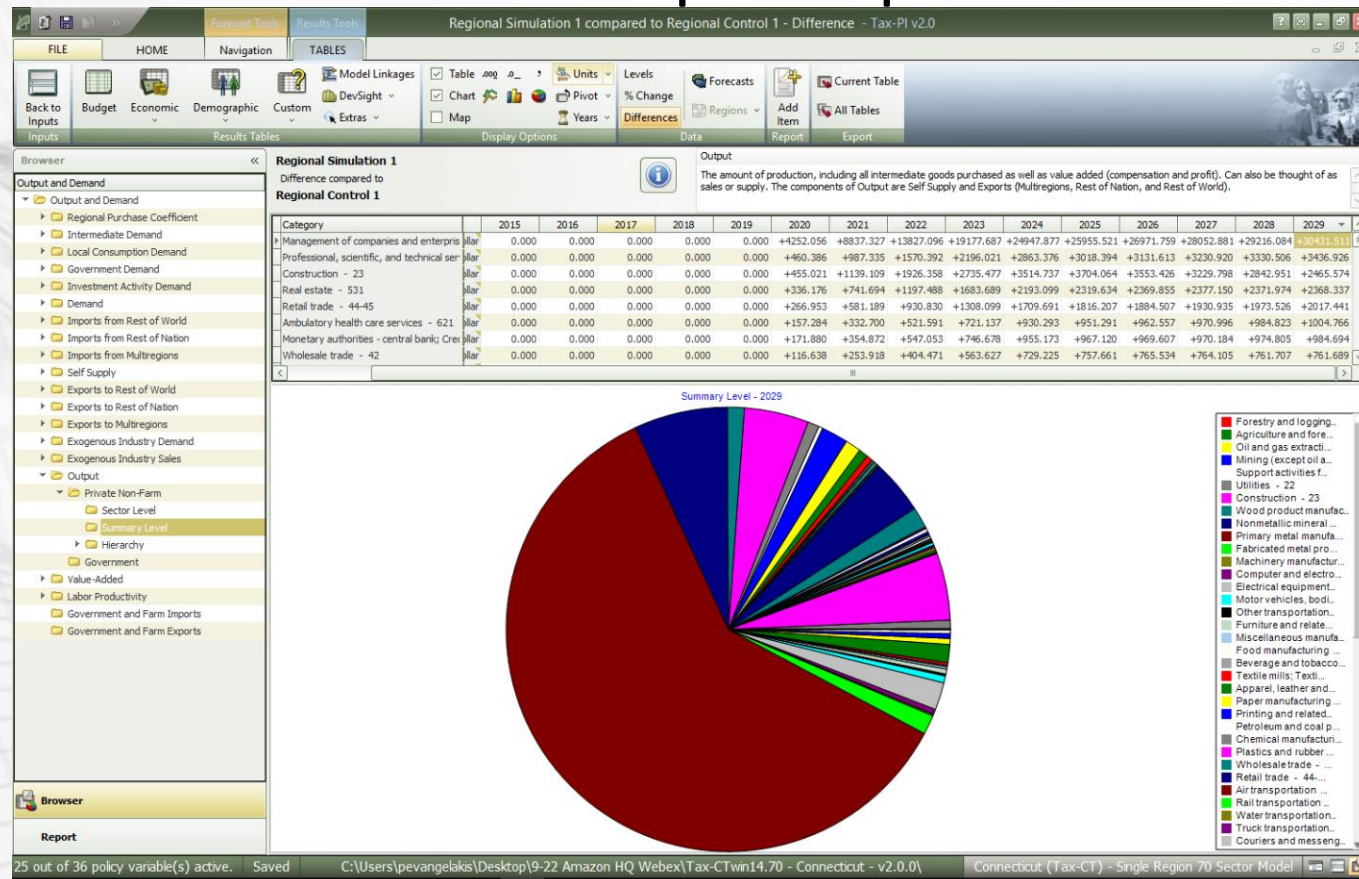


what does REMI say? <sup>sm</sup>

# Operations (50k, Fast)



## □ Private non-farm output impact breakdown



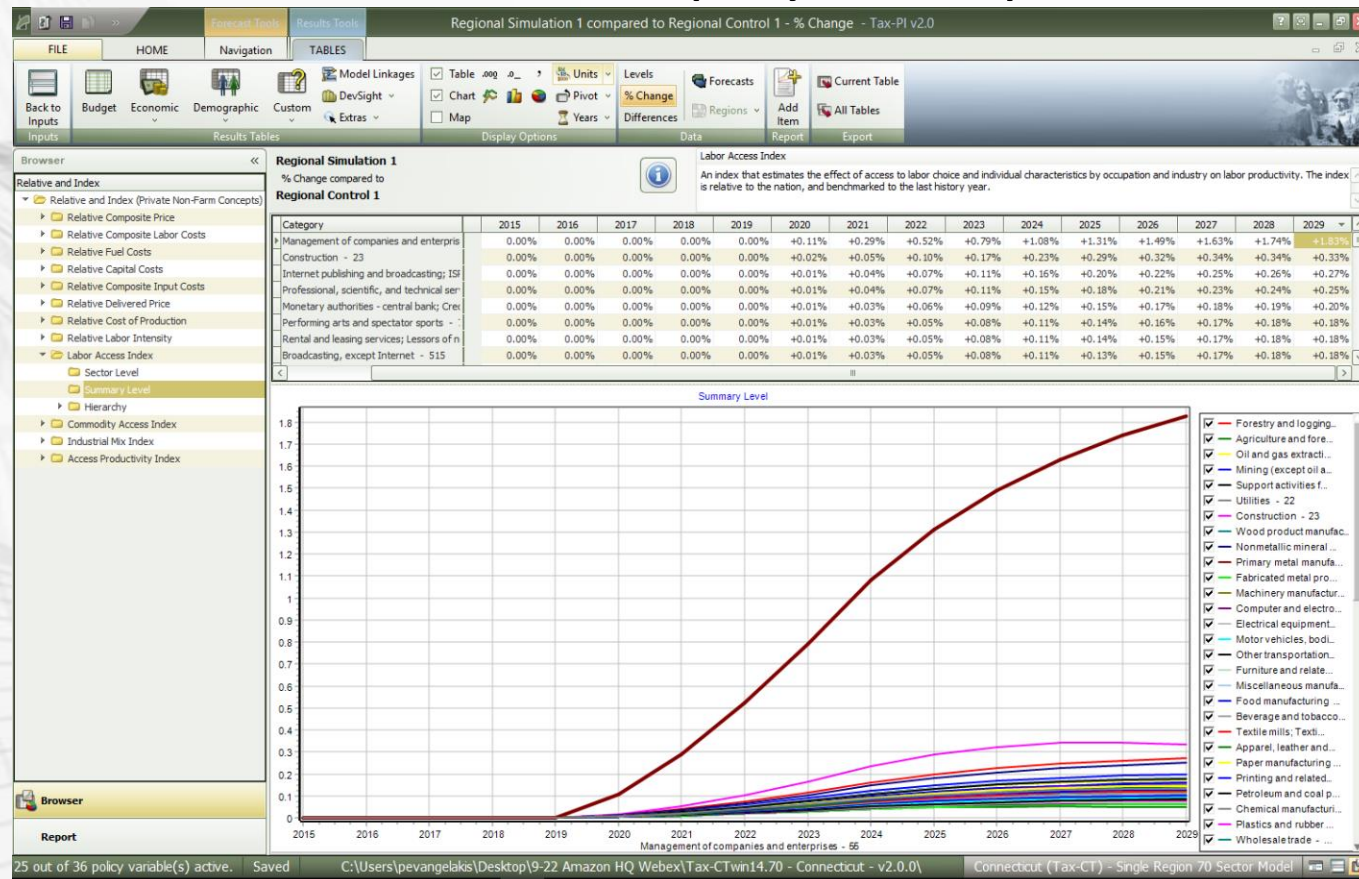
what does REMI say? <sup>sm</sup>



# Operations (50k, Fast)



- The volume of new employees improves labor access

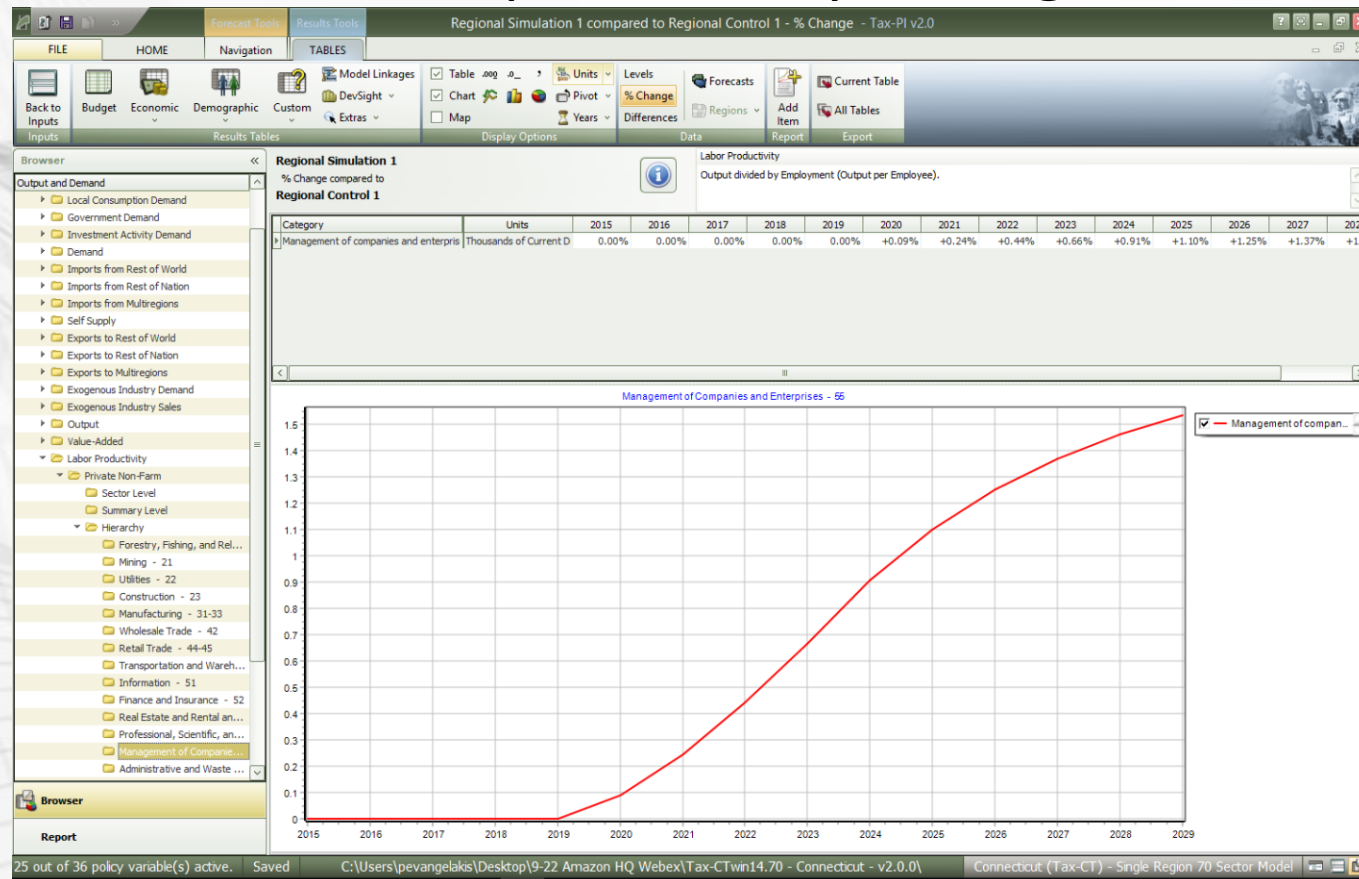


what does REMI say? <sup>sm</sup>

# Operations (50k, Fast)



- This raises labor productivity through clustering effects

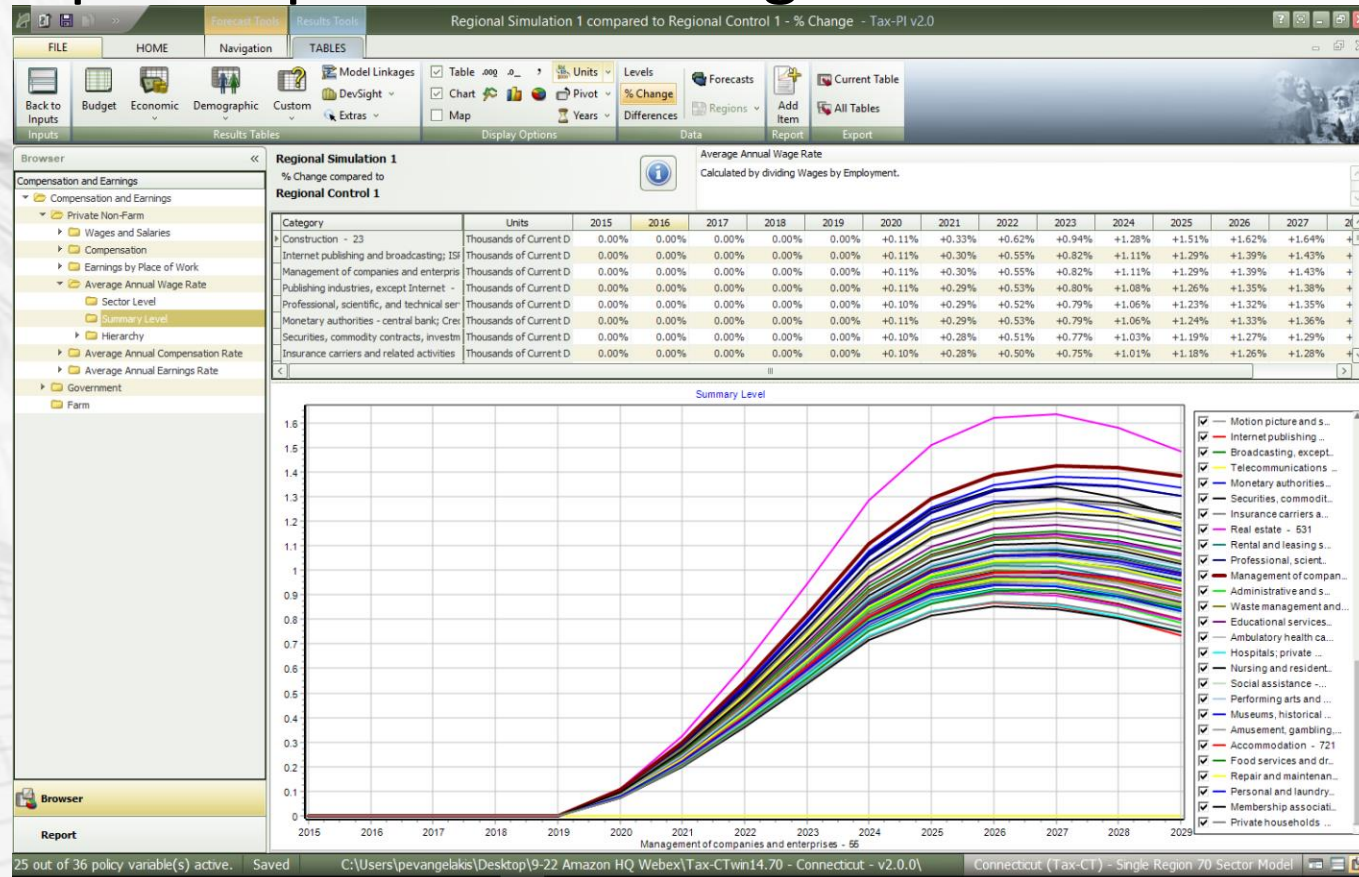


what does **REMI** say? <sup>sm</sup>

# Operations (50k, Fast)



## □ Upward pressure on wages

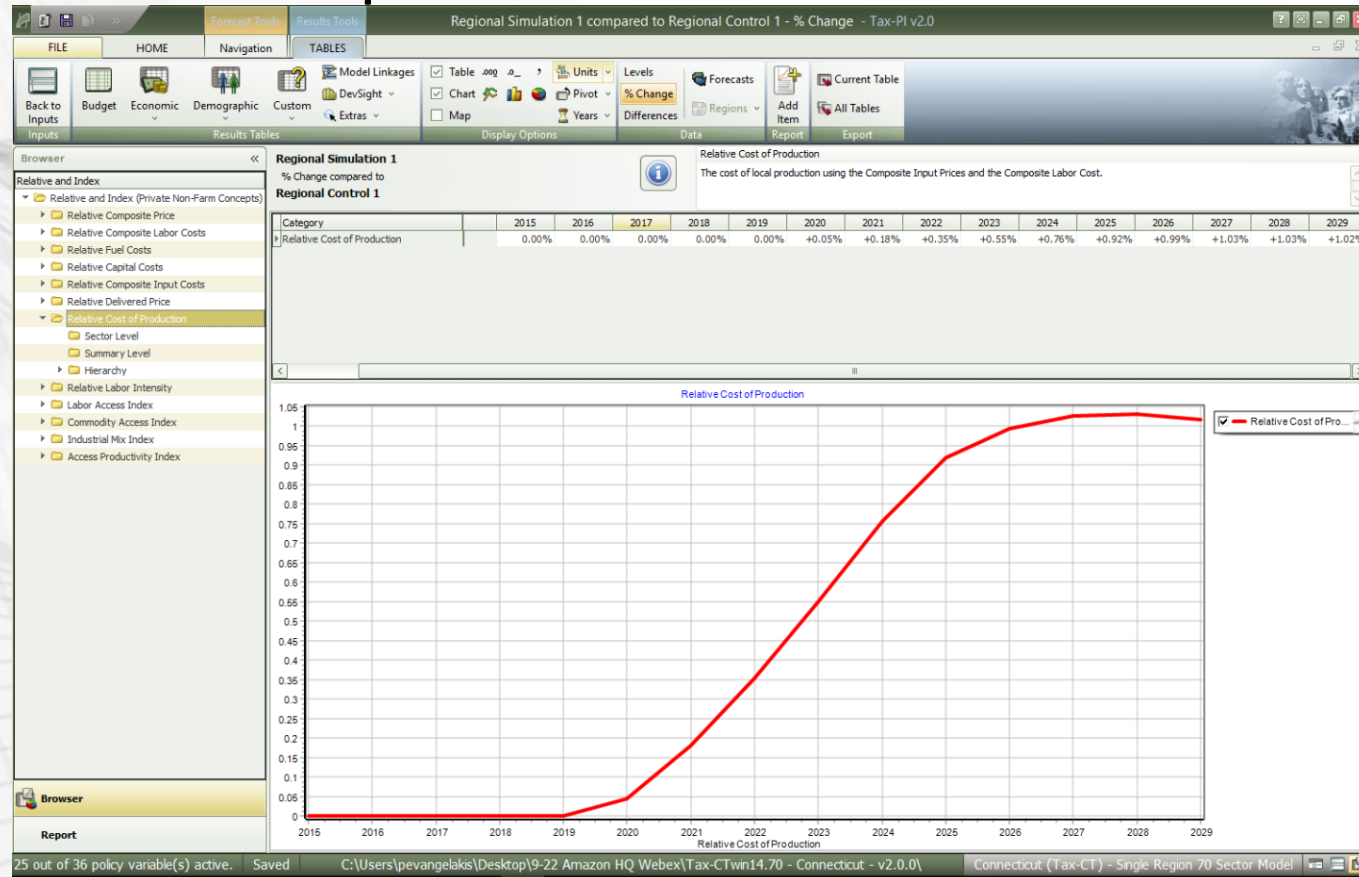


what does REMI say? <sup>sm</sup>

# Operations (50k, Fast)



- This raises production costs across the economy



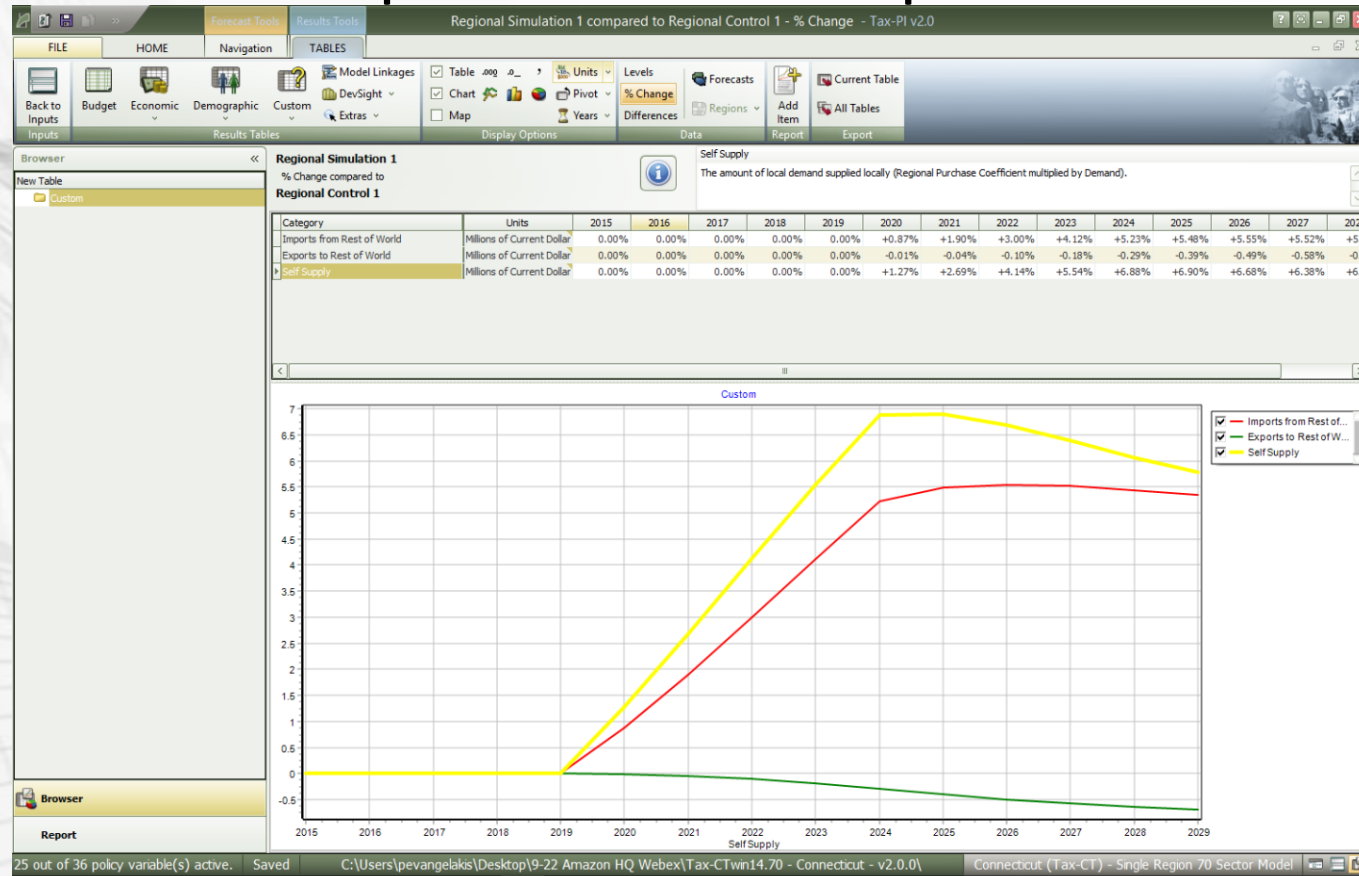
what does **REMI** say? <sup>sm</sup>



# Operations (50k, Fast)



## □ Downward pressure on competitiveness



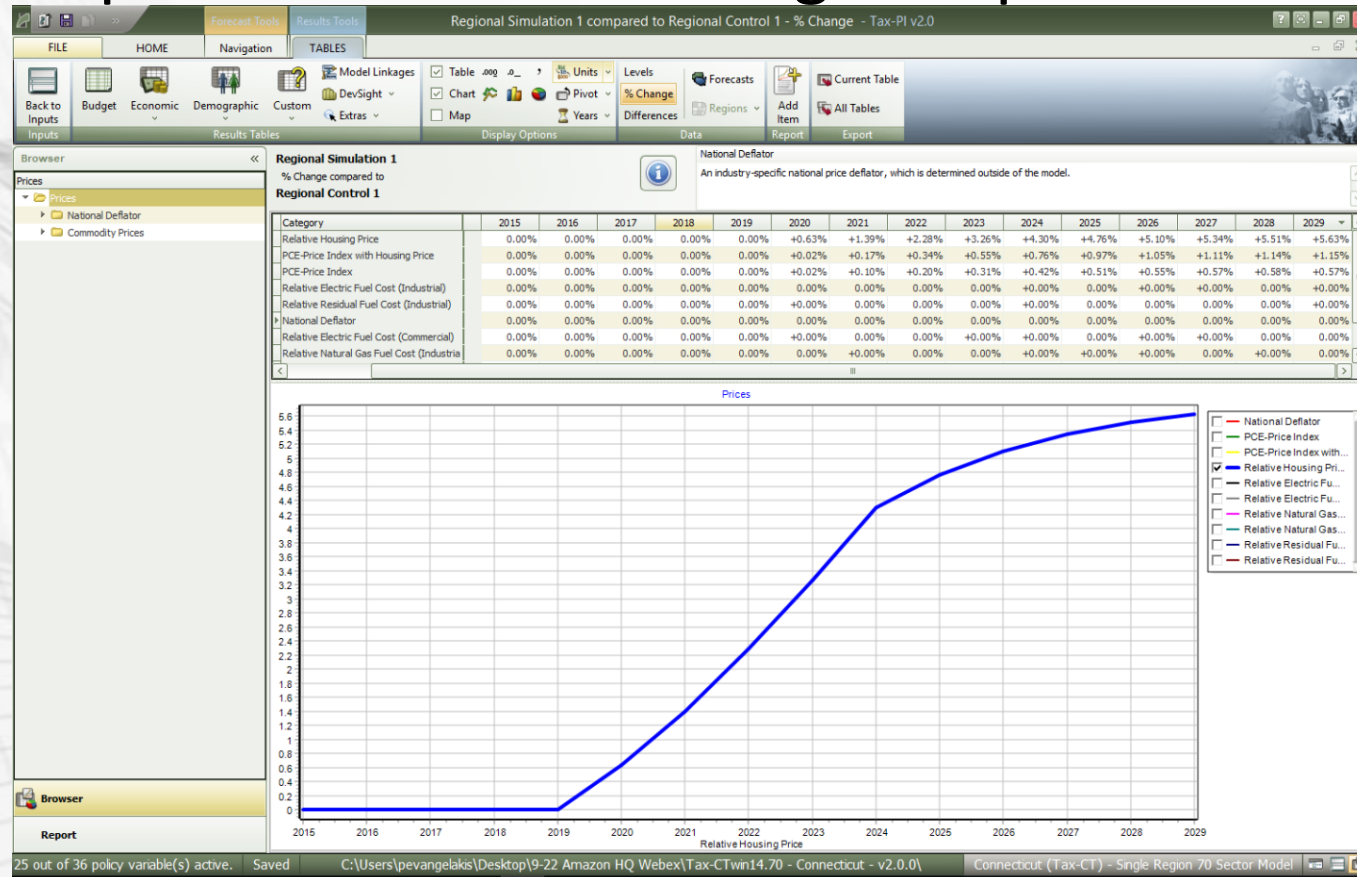
what does **REMI** say? <sup>sm</sup>



# Operations (50k, Fast)



- Population influx and wages impact housing prices



what does REMI say? <sup>sm</sup>

# Fiscal Impacts (50k, Fast)

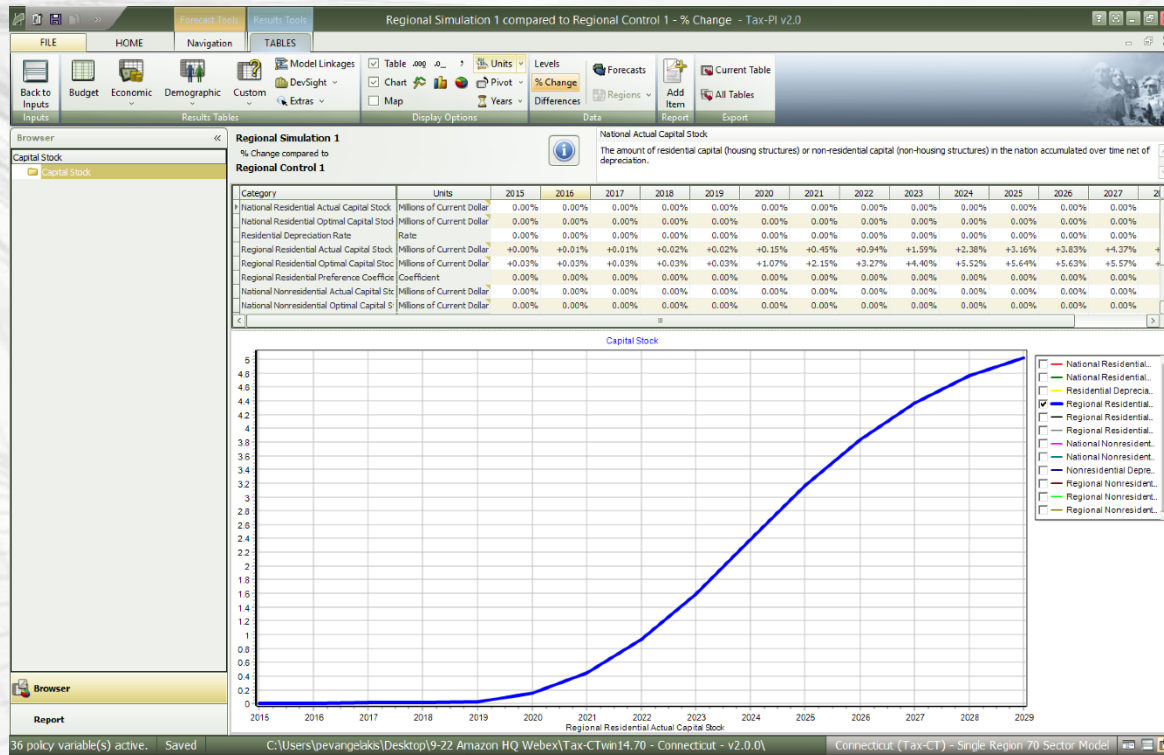


- Combine construction and operations
- Analyze state and local budget impacts

# Fiscal Impacts (50k, Fast)



- Housing stock rises along with housing prices
- Raises property tax base for local government

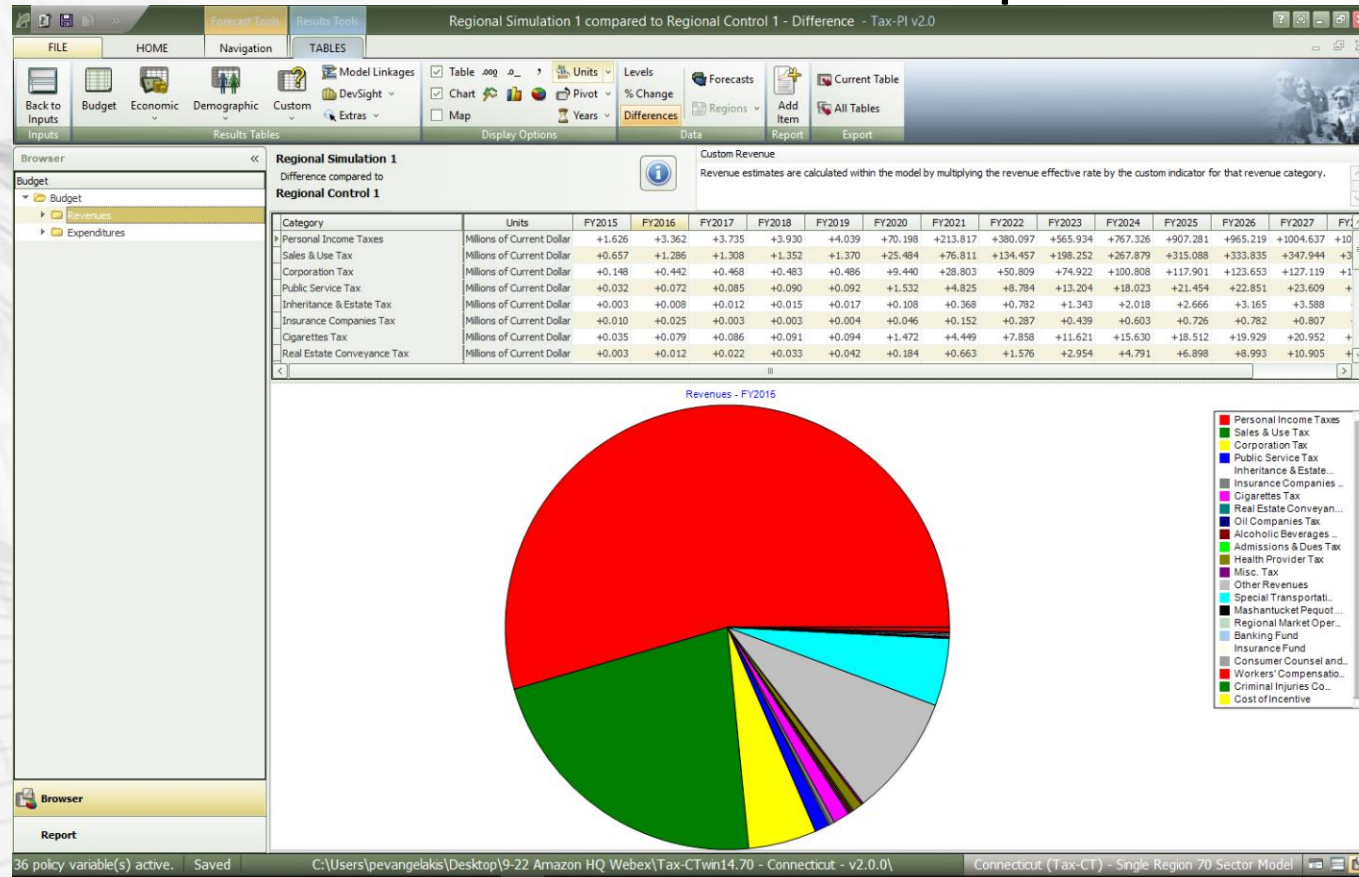


what does REMI say? <sup>sm</sup>

# Fiscal Impacts (50k, Fast)



## □ Breakdown of state revenue impacts

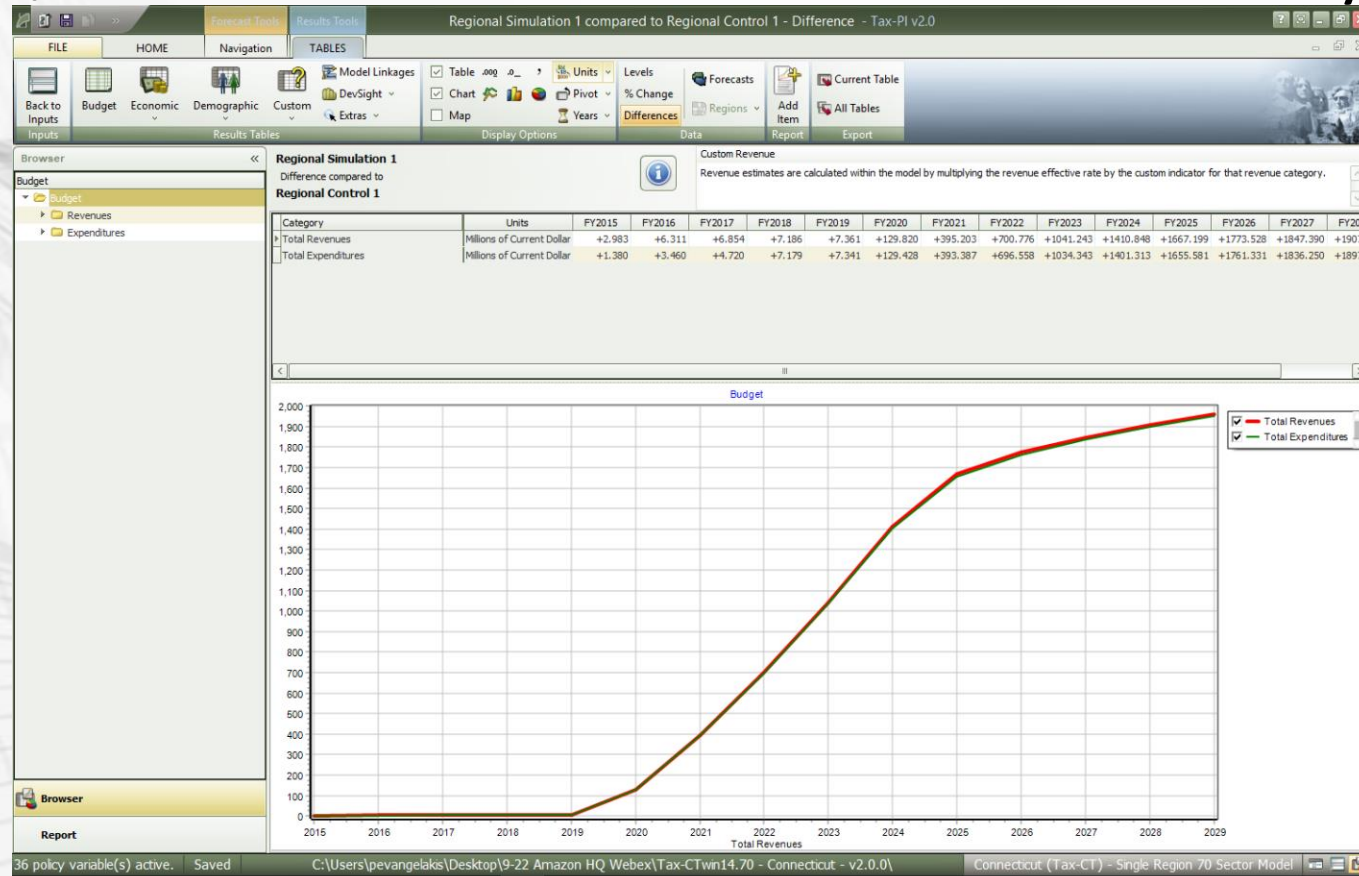


what does **REMI** say? *sm*

# Fiscal Impacts (50k, Fast)



- \$12.9 billion increase in revenues over 15 years



what does **REMI** say? <sup>sm</sup>



# Operations (50k, Slow)

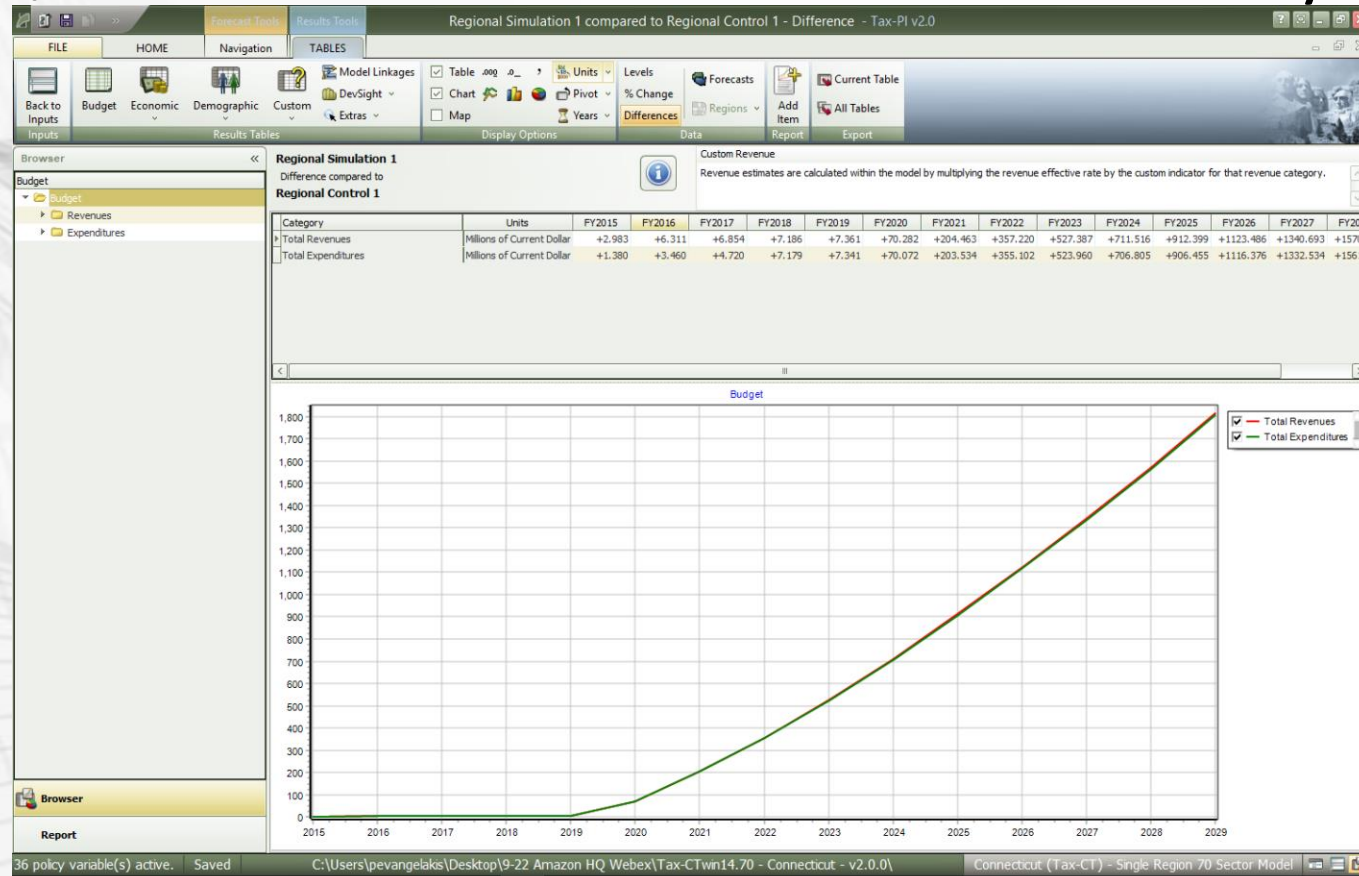


- 50,000 new management employees
  - ▣ NAICS 55: Management of companies and enterprises—for executive/management
  - ▣ Added steadily over 10 years during Phases 2 & 3

# Fiscal Impacts (50k, Slow)



- \$8.7 billion increase in revenues over 15 years



what does **REMI** say? <sup>sm</sup>

# Operations (2.5k, Fast)

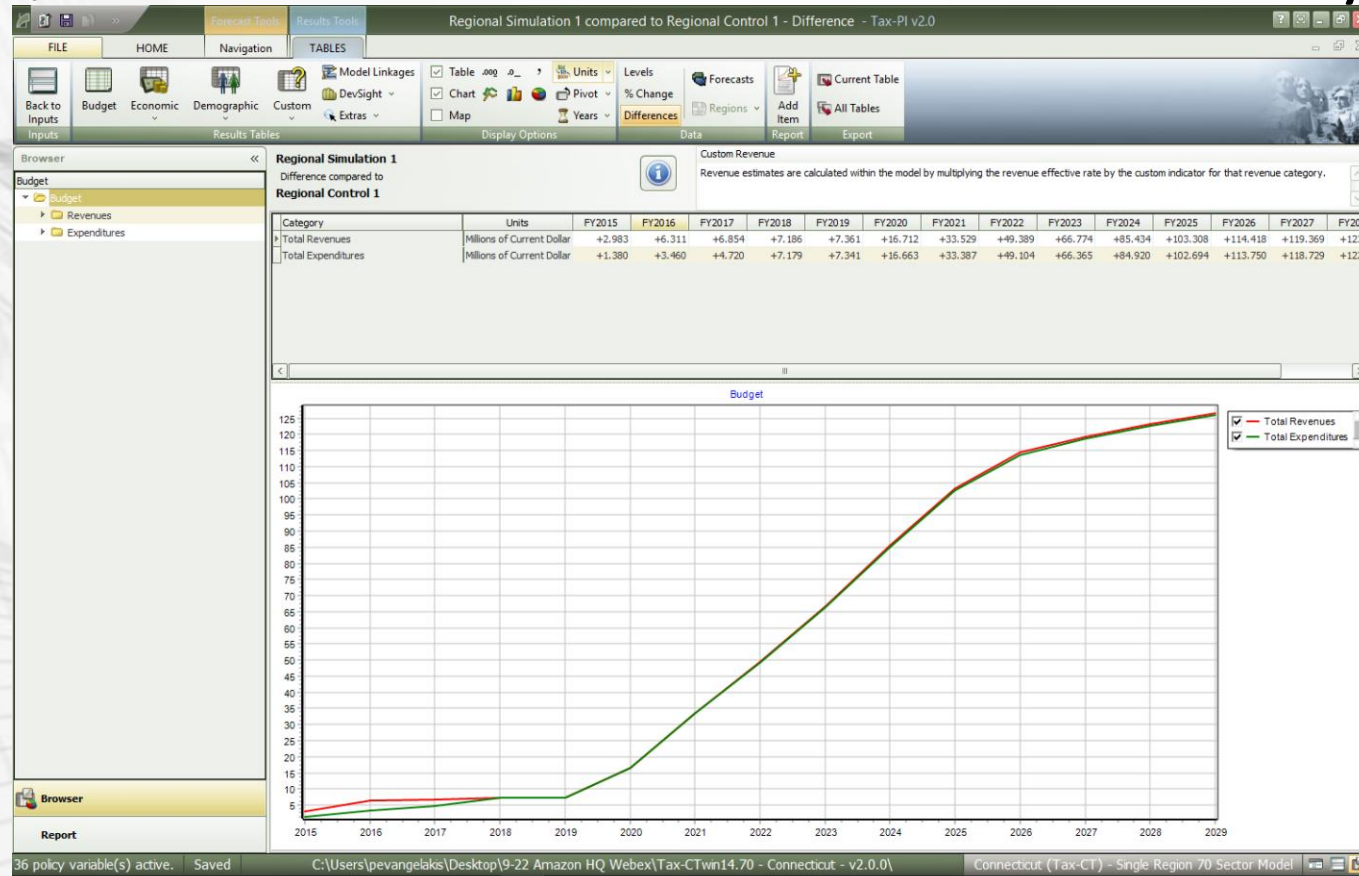


- 2,500 new management employees
  - ▣ NAICS 55: Management of companies and enterprises—for executive/management
  - ▣ Added steadily over 5 years during Phase 2

# Fiscal Impacts (2.5k, Fast)



- \$869 million increase in revenues over 15 years



what does REMI say? <sup>sm</sup>

# Incentives



- If Amazon builds employees slowly or does not hit 50k target, revenue gains can shrink significantly
- Governments need to consider these scenarios when deciding what incentives are worth offering
- Work with Amazon to ensure mutual benefit
  - Confirm employment targets
  - Tie incentives to in-state investment?
    - Education (build workforce), infrastructure, etc.



# Concluding Thoughts



- HQ2.0 increases employment and output
- Operations phase also raises:
  - ▣ Prices (housing, wages)
  - ▣ Productivity (clustering)
  - ▣ State & local tax bases (income tax, property tax, etc.)
- Work closely with Amazon on incentive package
  - ▣ City's benefit sensitive to speed, scope of operations
  - ▣ Negotiate Amazon buy-in to state/local economies

# What Price Amazon?



- Amazon HQ 2.0 Widely Sought After
- But what package is a win-win-win?
- Dynamic economic/fiscal modeling, shown with REMI Tax-PI, estimates economic and fiscal impacts
- These economic and fiscal impacts needed to inform policy decisions.