Budget Forecasting Solutions with REMI

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Regional Economic Models, Inc.

what does REMI say?sm

Agenda

- **Importance of Economic Modeling**
- Introduction to REMI
- REMI Tax-PI: Modeling Fiscal Policy Changes
- REMI SEI: Evaluating Socioeconomic Indicators
- Regional Simulation & Notable Results
- Conclusion
- Q&A

Economic Modeling: Why does it matter?

Clarify

- Understand economic, fiscal and demographic implications of policies before implementation
- Ensure that public policy serves the broad-based interests of the public

Calculate

- Make predictions about the effects of policies before implementation
- Avoid unwanted negative impacts
- Make effective use of resources

Communicate

- Inform policy with standard metrics rather than ideology or intention
- Address stakeholders with evidence that communicates how policy benefits or disadvantages their communities broadly

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About Us

We are the nation's leader in dynamic local, state and national policy modeling.

From the start, REMI has sought to improve public policy through economic modeling software that informs policies impacting our day-to-day lives.

We were founded in 1980 on a transformative idea: government decision-makers should test the economic effects of their policies before they're implemented.

what does REMI say? sm

About Us

At REMI, we're inspired by a single goal: *improving public policies*.

Our models are built for any state, county, or combination of counties in the United States.

Our Representative Clients

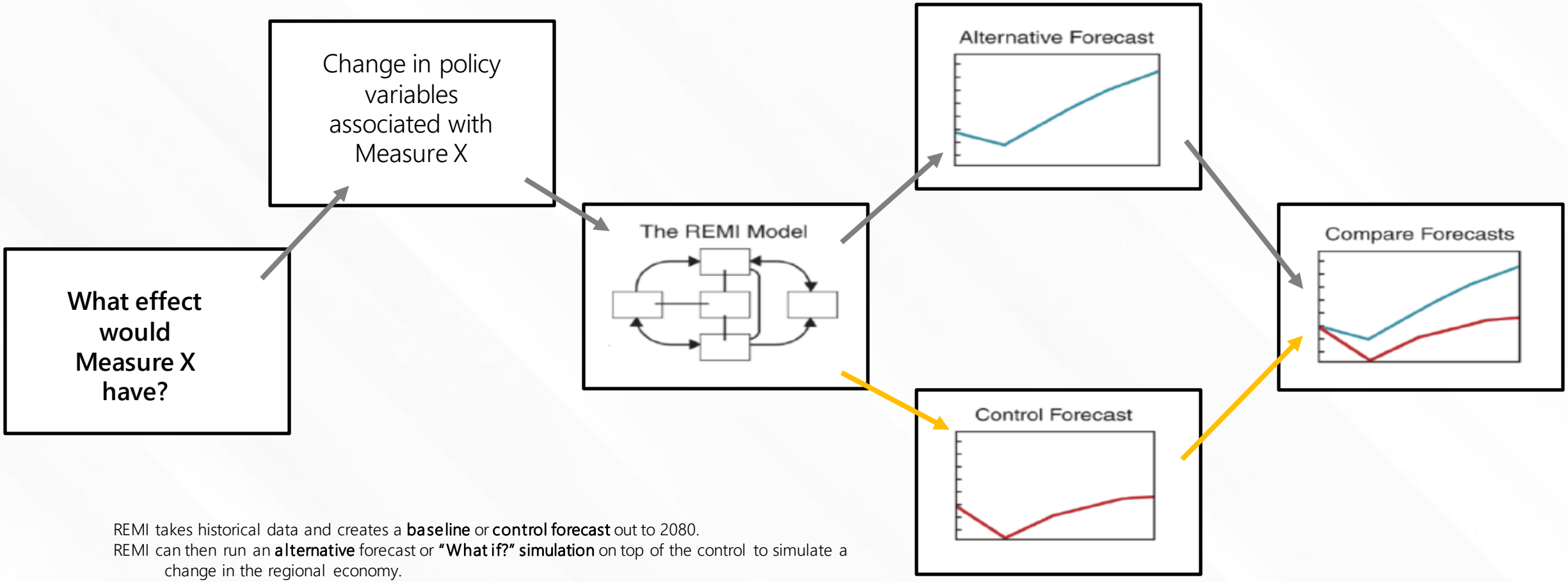
Our model users and consulting clients use REMI software solutions to perform rigorous economic analysis that critically influences policy.

what does REMI say?℠

The REMI Model: Our Studies & Applications

- *Missouri Tax Credit Review Commission analysis*
- *Washington State Aerospace tax credit analysis*
- *Ohio Historic Preservation Tax Credit Program study*
- *Economic and Fiscal Impacts of Modernizing Nebraska Tax Codes and Supporting Innovation to Advance the Prosperity of Nebraska*
- *Maryland: Corporate Tax Rate Reduction Analysis*

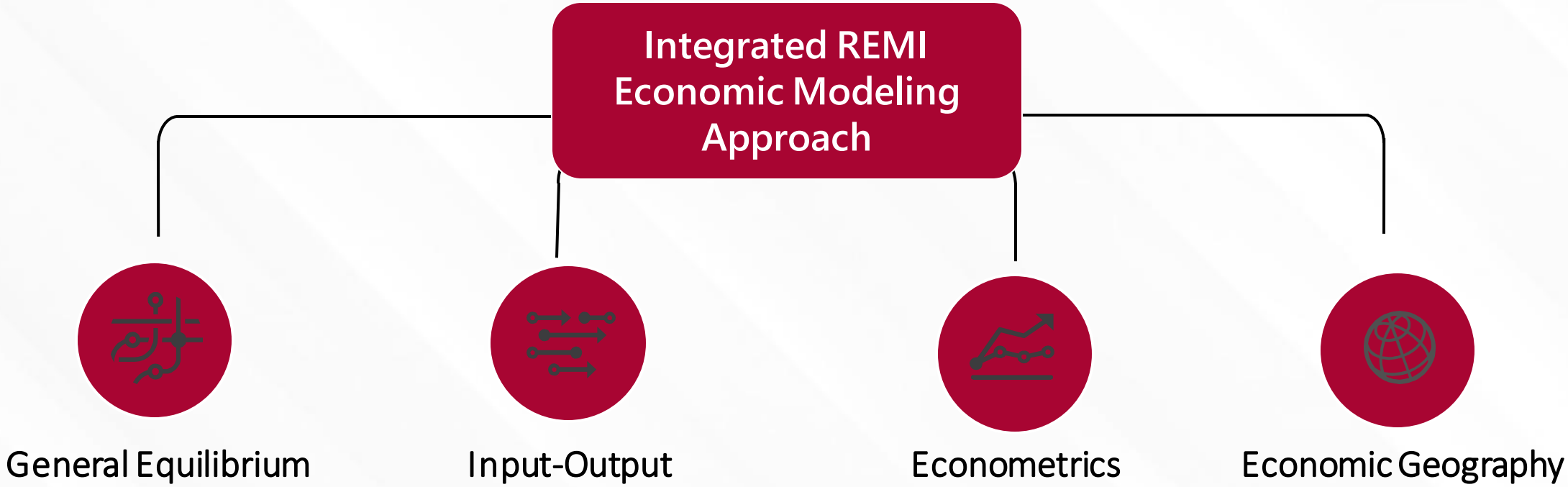
Dynamic Forecasting



REMI takes historical data and creates a **baseline** or **control forecast** out to 2080.
REMI can then run an **alternative** forecast or **"What if?" simulation** on top of the control to simulate a change in the regional economy.
These data are then compared to baseline data, giving a difference (as a level or %) that shows the **economic impact of the given policy**.

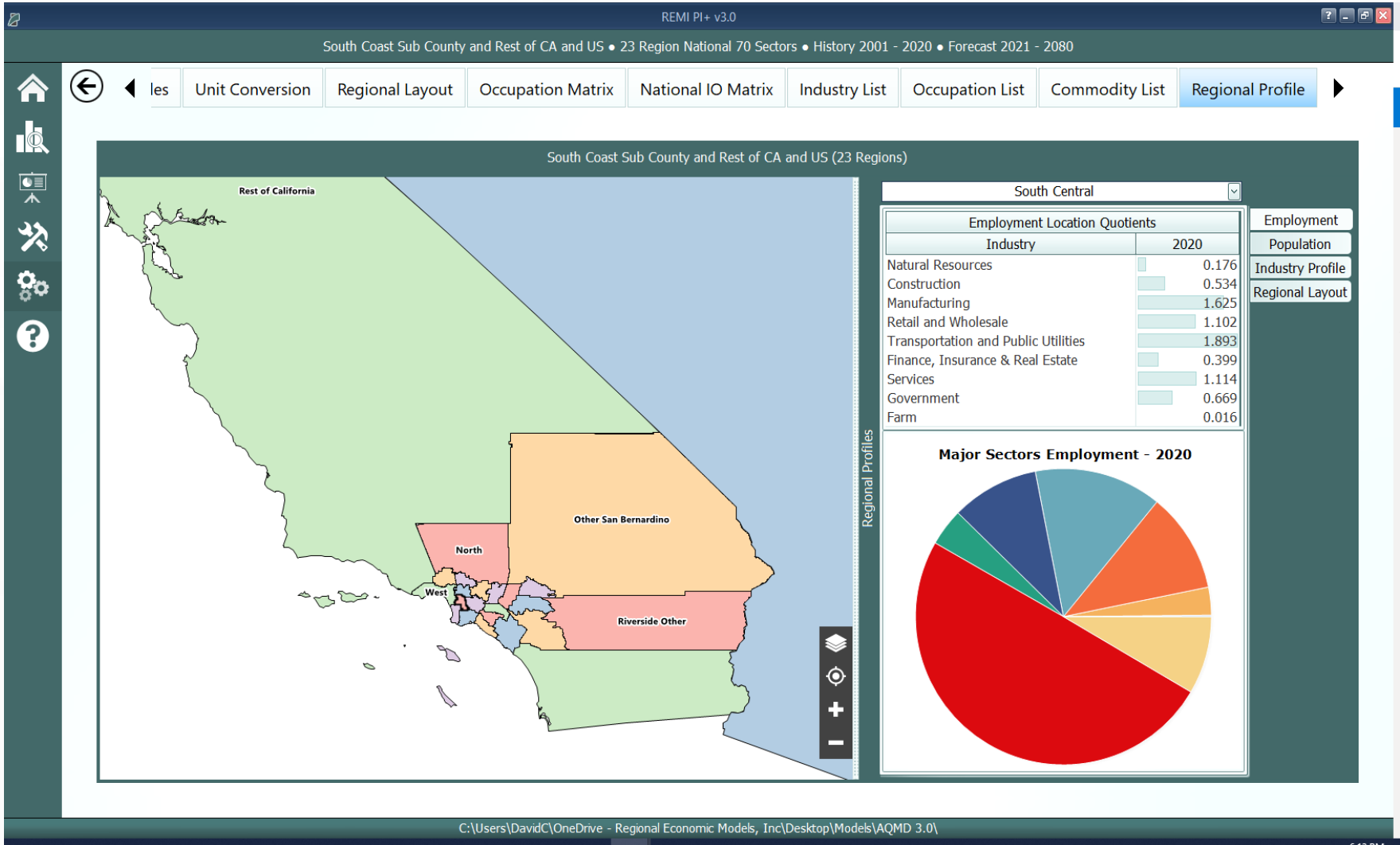
what does REMI say?[sm]

Model Methodology



Model Methodology & Structure

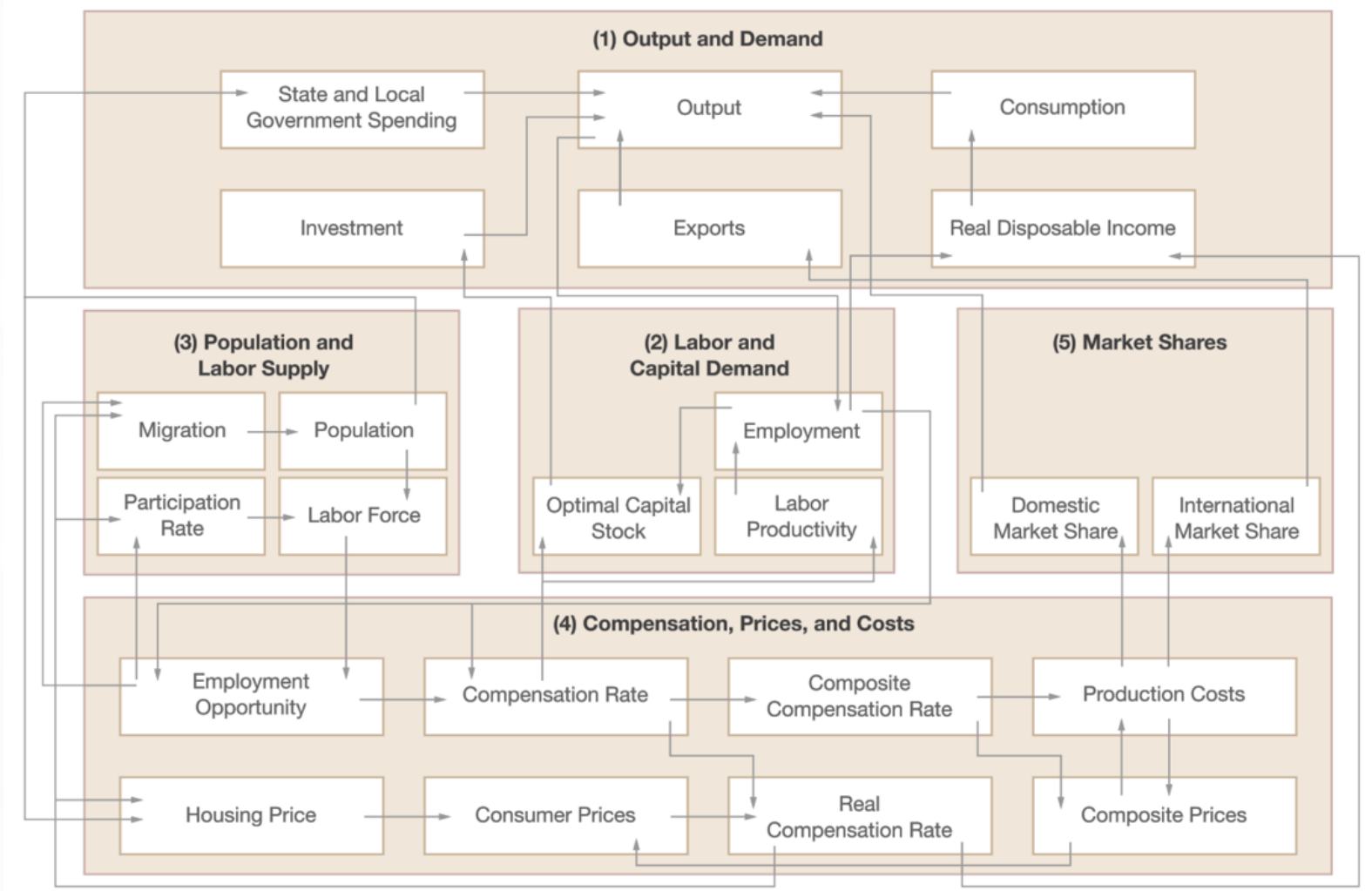
- The model's underling principles of **economic geography** reflect spatial constraints and positions of the regions
- Each region is assigned values corresponding to input data, and may interact with one another via migration, competition, and trade



what does REMI say? sm

Model Methodology & Structure

- Components of the economy interact with one another by way of:
  - **Econometrics** express building blocks of an economy, shown here
  - **Input-output modeling** shows how firms and industries consume and produce for one another
  - Principles of **economic equilibrium** model market behavior in areas such as investment
- **Direct**, **indirect**, and **induced** impacts may finally be analyzed and visualized.



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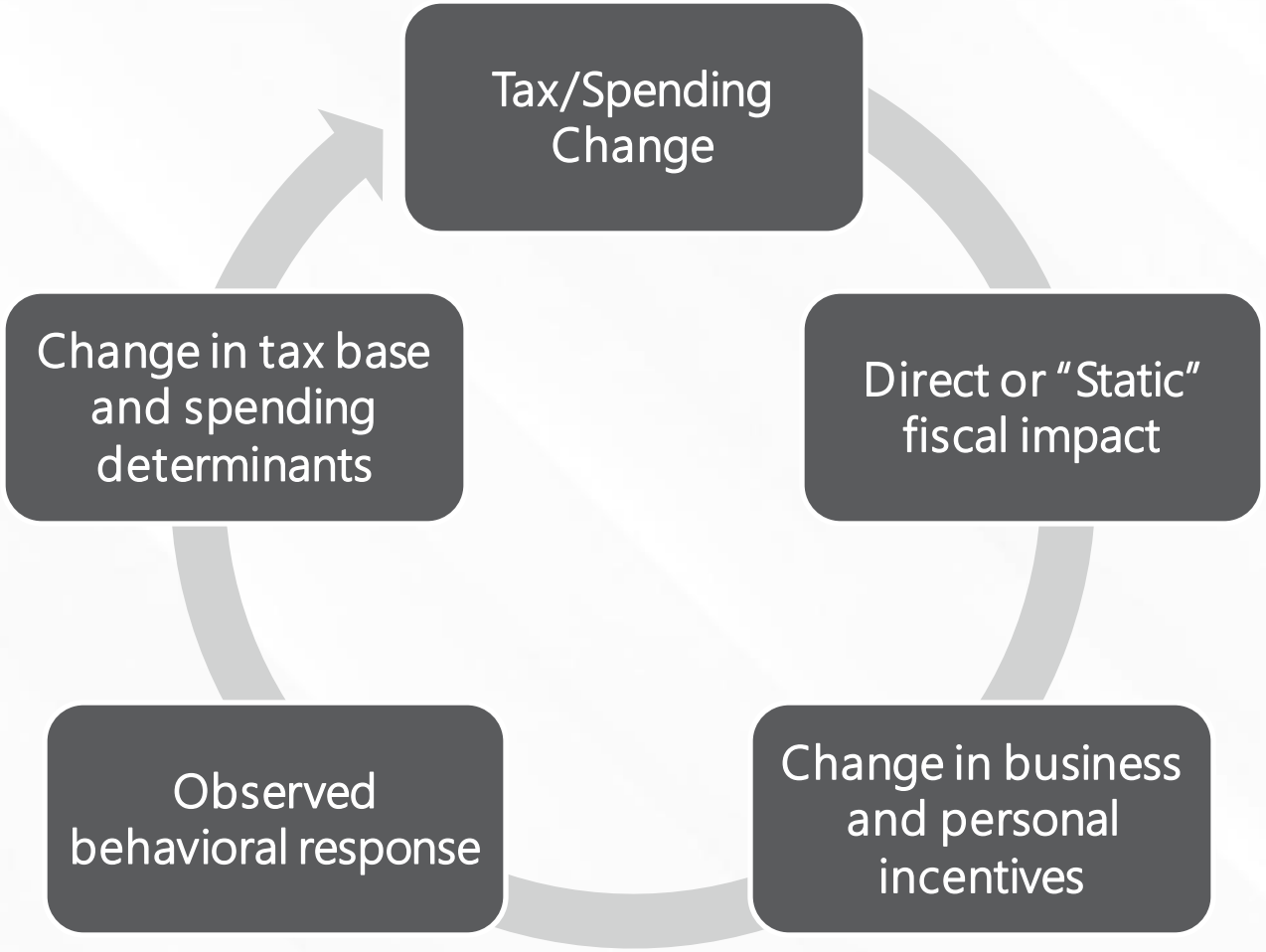
REMI Tax-PI

Tax-PI is the only widely-available model that shows both the dynamic economic and fiscal effects of policy

Decision-makers rely on Tax-PI to demonstrate the economic and fiscal impacts of policy on local and state budgets. As a result, Tax-PI informs, and guides policy decisions based on their economic and fiscal impact:

- ✓ State and Local Tax Changes
- ✓ State and Local Fiscal Budgets
- ✓ Education and Infrastructure Investments

Dynamic Fiscal Analysis



REMI Tax-PI

Forecasting revenues:

- Property taxes
- Sales/use taxes
- Licensing fees
- Alcohol taxes
- Gasoline taxes

Forecasting expenditures:

- Education
- Judicial & Corrections
- Public health
- Parks & Recreation
- Transportation

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REMI SEI

REMI SEI is the premiere modeling solution for evaluating the socioeconomic indicators (SEI) of projects and policies across a variety of topic areas.

The industries of economic development that rely on dynamic SEI impact analysis to influence their policies and practices include:

- Education
- Transportation
- Taxation
- Healthcare and Social Services
- Housing and Community Development
- Labor and Workforce Development
- Consulting Firms
- Energy and Environment
- Immigration

REMI SEI

Capabilities

Jobs by Race/Gender

Jobs by Education Level

Regional Disparities by County

Income by Quintile

Labor Force by Race/Gender

Inflation Impact by Income

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Model Simulation: Variables and Inputs

Increase in Transfer Payments

- Benefits distributed through the Child Tax Credit in Oregon can be modeled through REMI using the Transfer Payments policy variable
- **Assumption**: payments total $100 million per year for the program, the inputs to the model are $100 million in Transfer Payments annually

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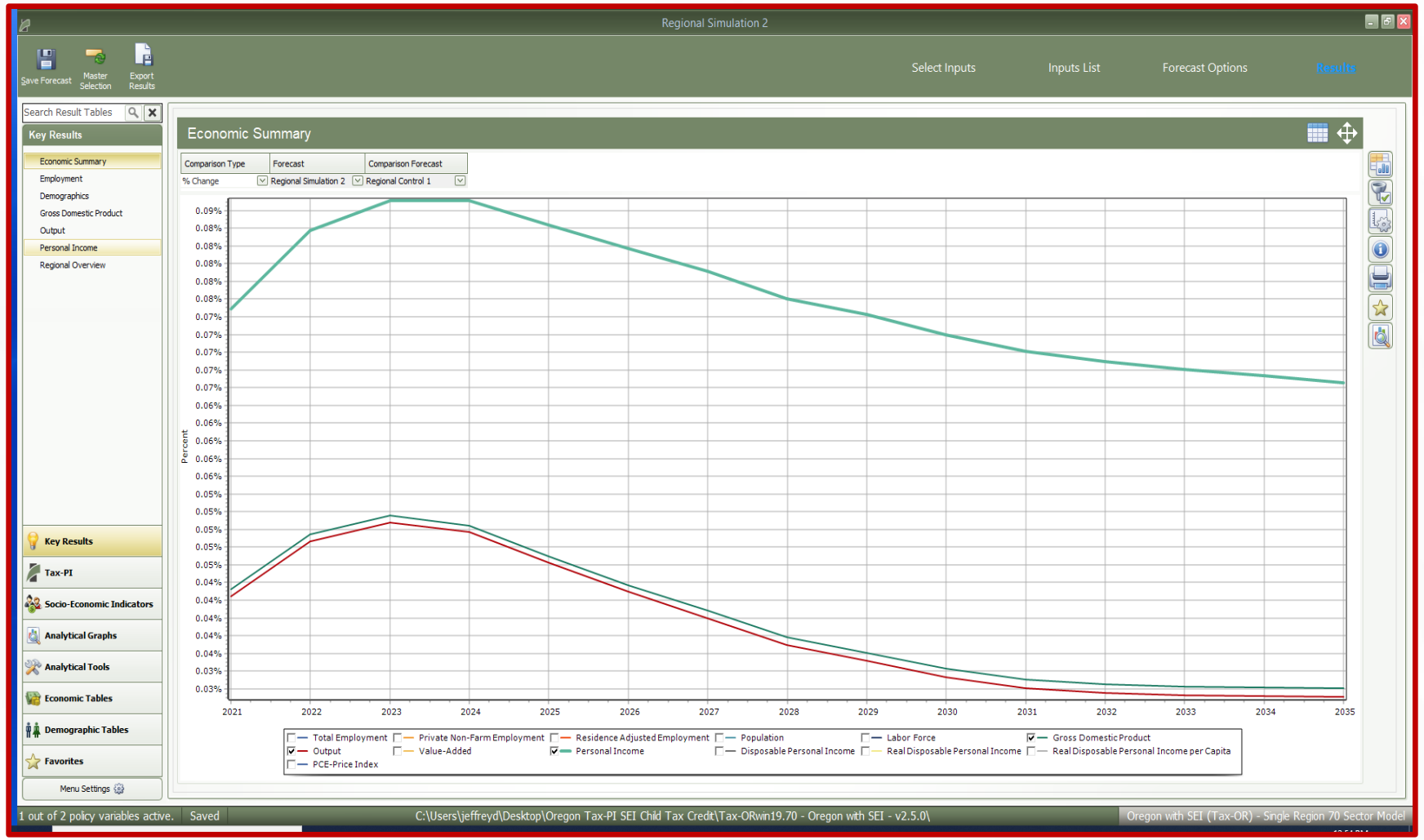
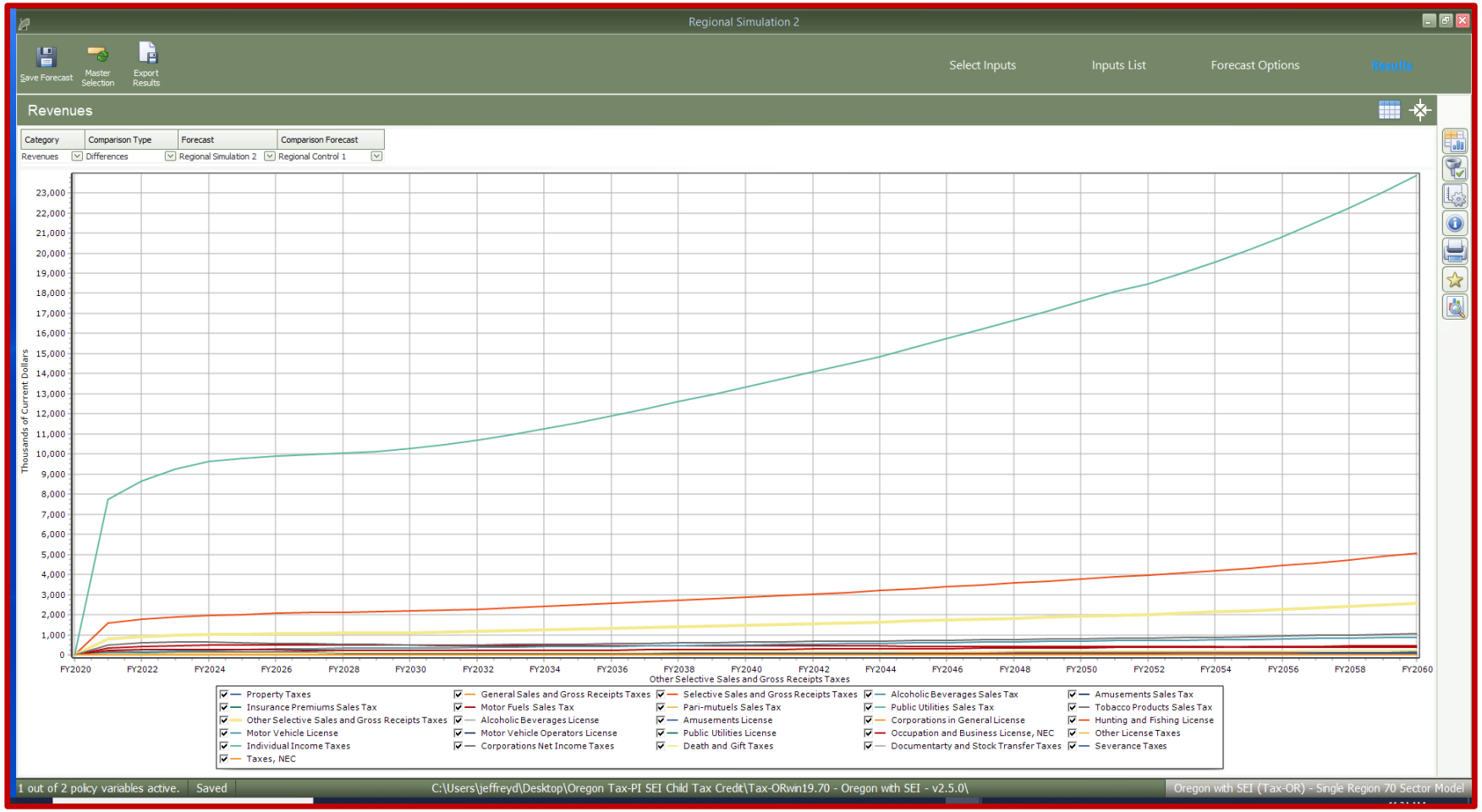
Economic Results – GDP, Output, and Income



- Increases in all years for Personal Income, Output, and GDP

Economic Results – Fiscal Impacts (Revenues)

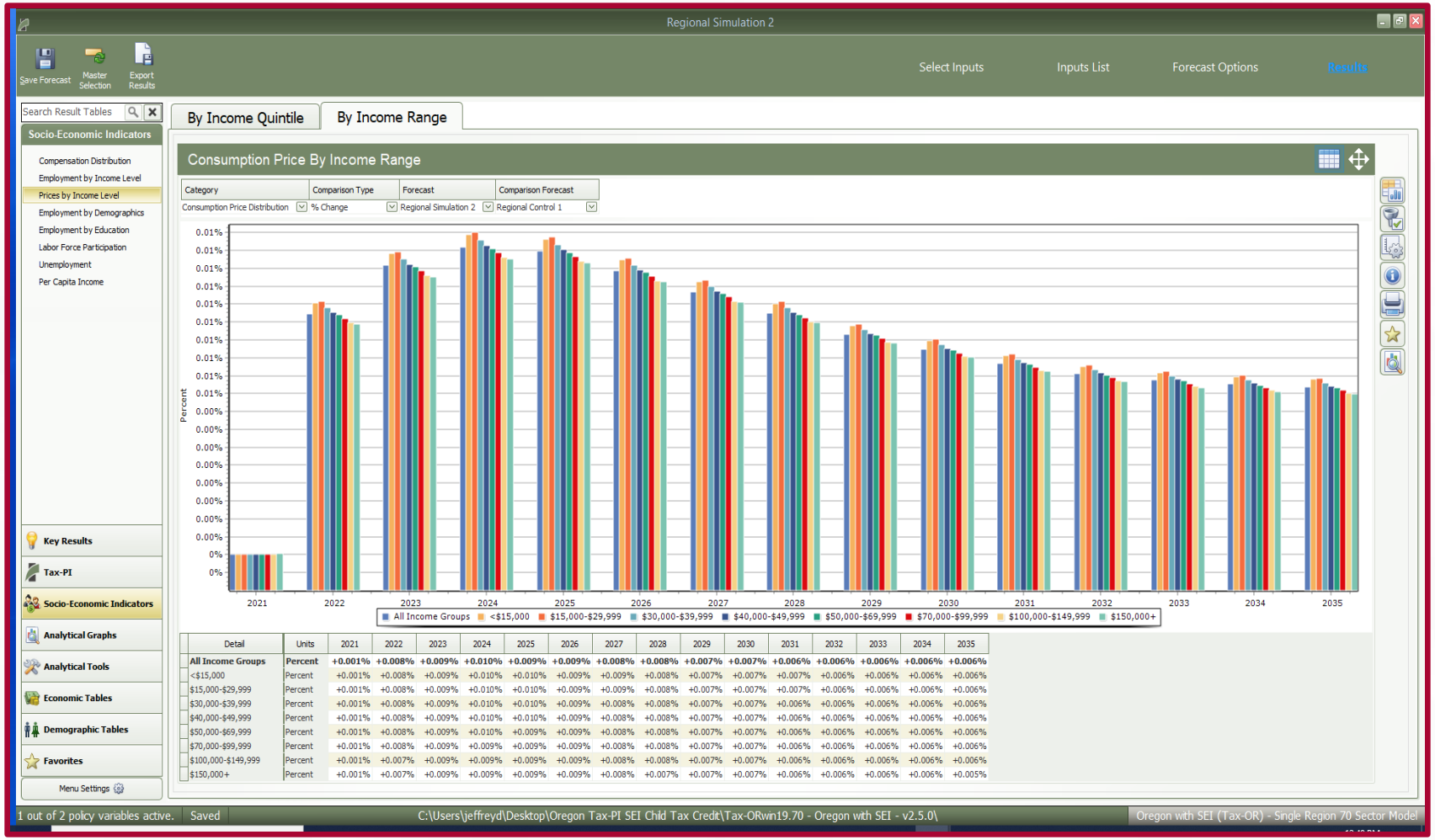


- Revenues stemmed primarily from **'Individual Income Taxes'** and **'Selective Sales Taxes'**

Note: Oregon does not have a general sales or use/transaction tax.

what does REMI say?[sm]

SEI Results – Consumption Price by Income Range

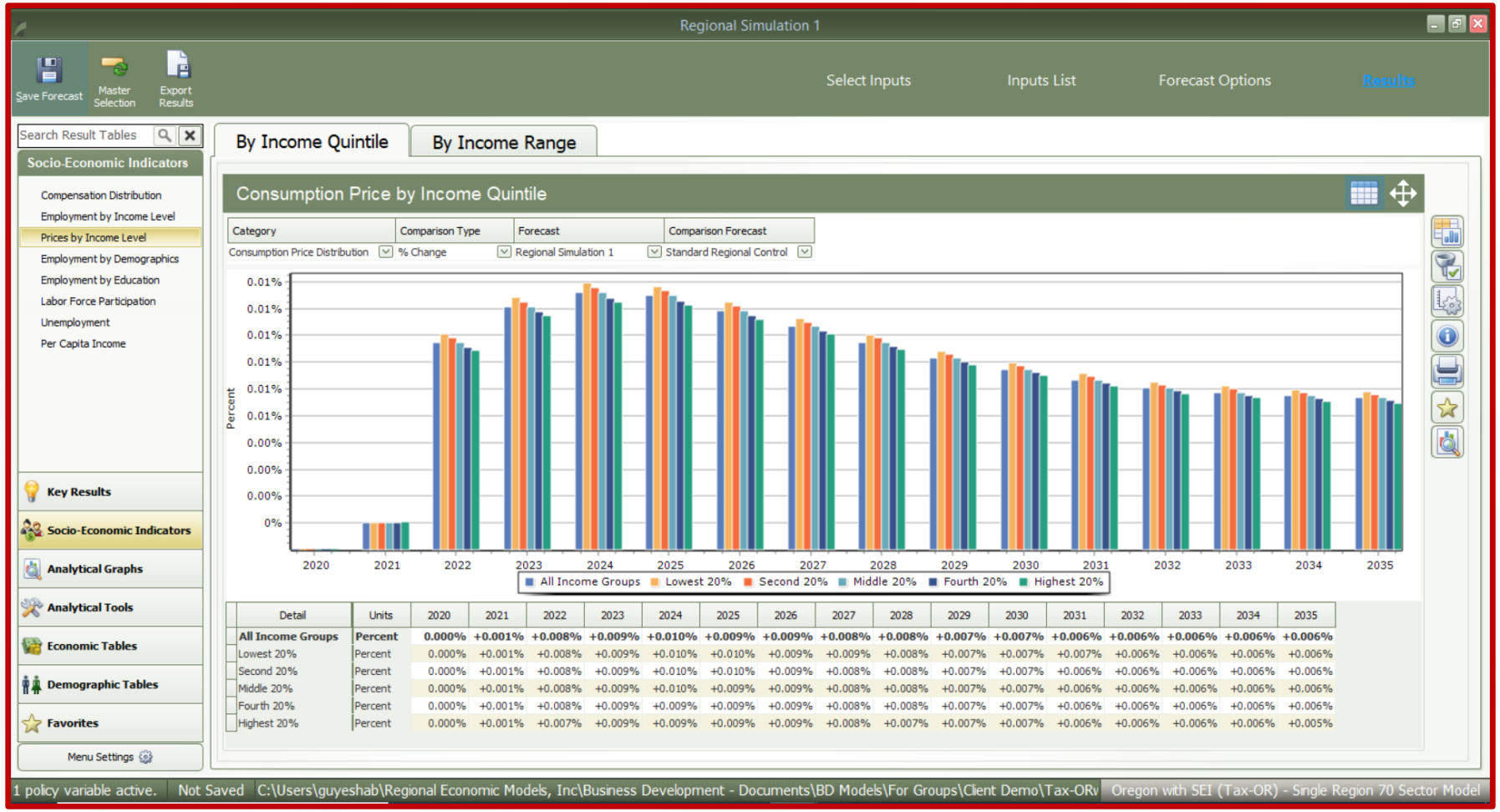


Detail	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
All Income Groups	**Percent**	**+0.001%**	**+0.008%**	**+0.009%**	**+0.010%**	**+0.009%**	**+0.009%**	**+0.008%**	**+0.008%**	**+0.007%**	**+0.007%**	**+0.006%**	**+0.006%**	**+0.006%**	**+0.006%**	**+0.006%**
<$15,000	Percent	+0.001%	+0.008%	+0.009%	+0.010%	+0.010%	+0.009%	+0.009%	+0.008%	+0.007%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%
$15,000-$29,999	Percent	+0.001%	+0.008%	+0.009%	+0.010%	+0.010%	+0.009%	+0.009%	+0.008%	+0.007%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%
$30,000-$39,999	Percent	+0.001%	+0.008%	+0.009%	+0.010%	+0.010%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
$40,000-$49,999	Percent	+0.001%	+0.008%	+0.009%	+0.010%	+0.010%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
$50,000-$69,999	Percent	+0.001%	+0.008%	+0.009%	+0.010%	+0.009%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
$70,000-$99,999	Percent	+0.001%	+0.008%	+0.009%	+0.009%	+0.009%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
$100,000-$149,999	Percent	+0.001%	+0.007%	+0.009%	+0.009%	+0.009%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
$150,000+	Percent	+0.001%	+0.007%	+0.009%	+0.009%	+0.009%	+0.009%	+0.008%	+0.007%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.005%

- The **first, second,** and **middle 20% income groups** increased their consumption power within Oregon

what does REMI say?[sm]

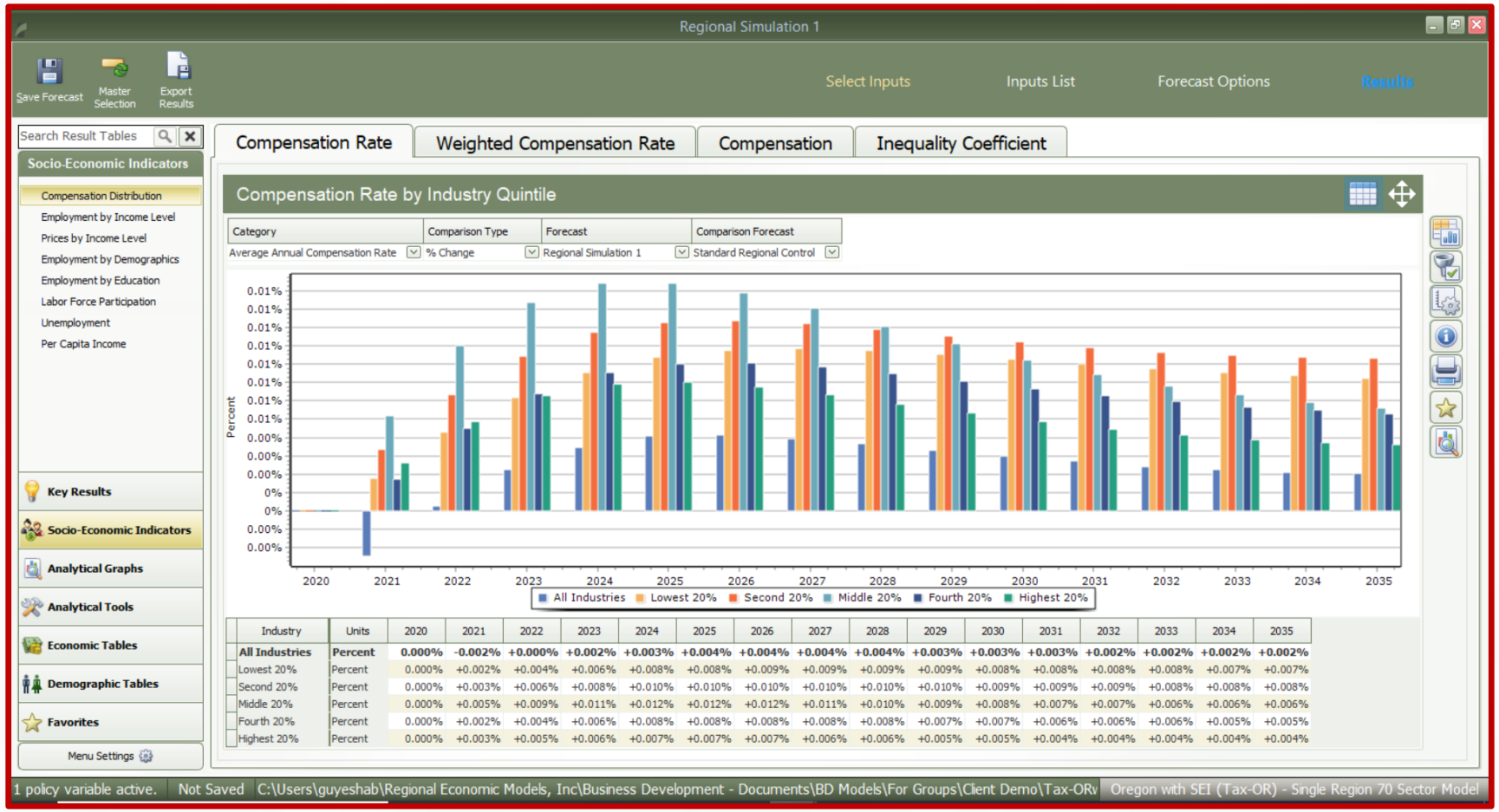
SEI Results – Consumption Price by Income Quintile



Detail	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
All Income Groups	**Percent**	**0.000%**	**+0.001%**	**+0.008%**	**+0.009%**	**+0.010%**	**+0.009%**	**+0.009%**	**+0.008%**	**+0.008%**	**+0.007%**	**+0.007%**	**+0.006%**	**+0.006%**	**+0.006%**	**+0.006%**	**+0.006%**
Lowest 20%	Percent	0.000%	+0.001%	+0.008%	+0.009%	+0.010%	+0.010%	+0.009%	+0.009%	+0.008%	+0.007%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%
Second 20%	Percent	0.000%	+0.001%	+0.008%	+0.009%	+0.010%	+0.010%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
Middle 20%	Percent	0.000%	+0.001%	+0.008%	+0.009%	+0.010%	+0.009%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
Fourth 20%	Percent	0.000%	+0.001%	+0.008%	+0.009%	+0.009%	+0.009%	+0.009%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.006%
Highest 20%	Percent	0.000%	+0.001%	+0.007%	+0.009%	+0.009%	+0.009%	+0.009%	+0.008%	+0.007%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.006%	+0.005%

- There is a relatively even distribution for consumption price changes across income quintiles

SEI Results – Compensation Distribution

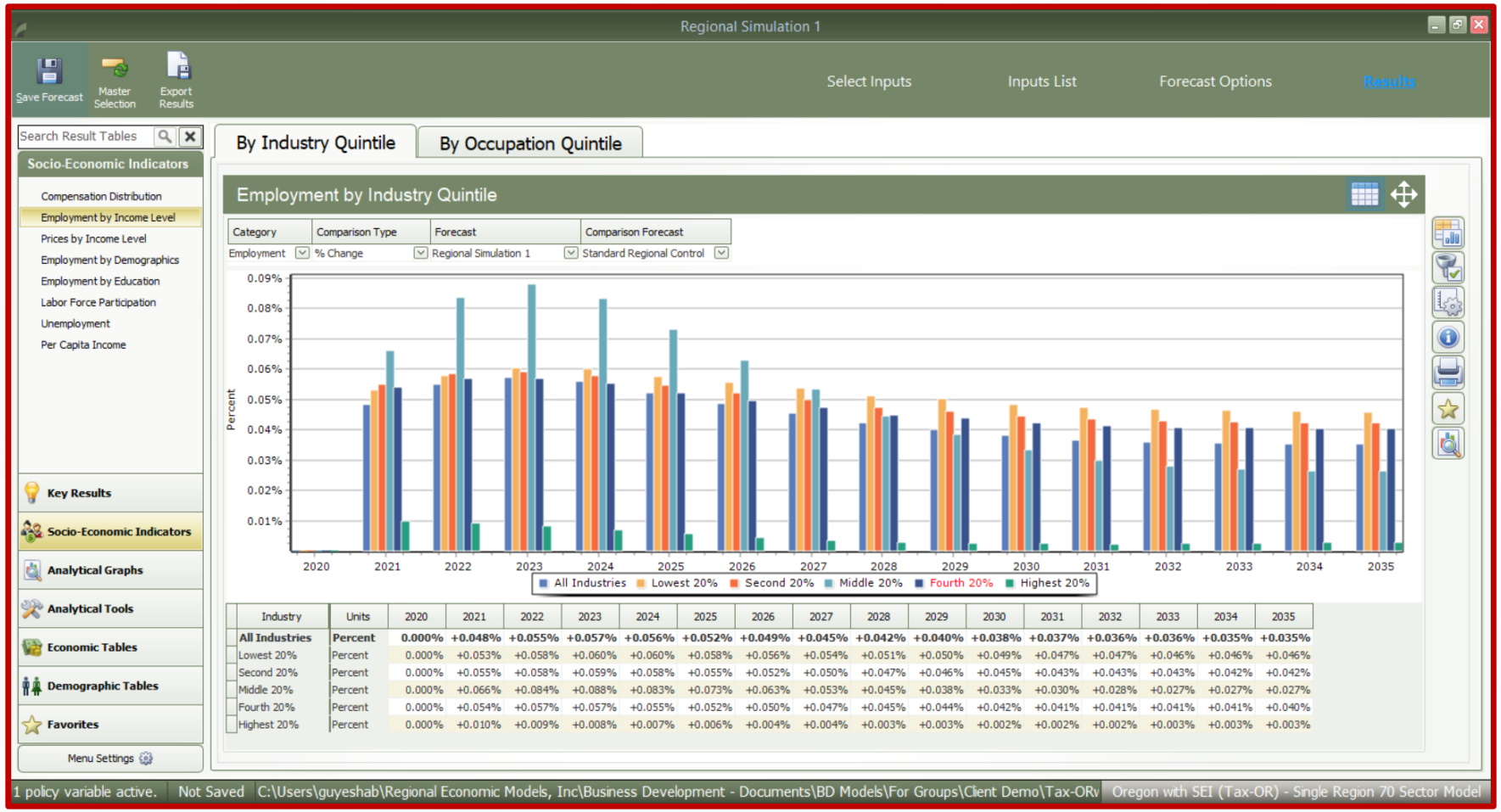


Industry	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
All Industries	**Percent**	**0.000%**	**-0.002%**	**+0.000%**	**+0.002%**	**+0.003%**	**+0.004%**	**+0.004%**	**+0.004%**	**+0.004%**	**+0.003%**	**+0.003%**	**+0.003%**	**+0.002%**	**+0.002%**	**+0.002%**	**+0.002%**
Lowest 20%	Percent	0.000%	+0.002%	+0.004%	+0.006%	+0.008%	+0.008%	+0.009%	+0.009%	+0.009%	+0.009%	+0.008%	+0.008%	+0.008%	+0.008%	+0.007%	+0.007%
Second 20%	Percent	0.000%	+0.003%	+0.006%	+0.008%	+0.010%	+0.010%	+0.010%	+0.010%	+0.010%	+0.010%	+0.009%	+0.009%	+0.009%	+0.008%	+0.008%	+0.008%
Middle 20%	Percent	0.000%	+0.005%	+0.009%	+0.011%	+0.012%	+0.012%	+0.012%	+0.011%	+0.010%	+0.009%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%
Fourth 20%	Percent	0.000%	+0.002%	+0.004%	+0.006%	+0.008%	+0.008%	+0.008%	+0.008%	+0.008%	+0.007%	+0.007%	+0.006%	+0.006%	+0.006%	+0.005%	+0.005%
Highest 20%	Percent	0.000%	+0.003%	+0.005%	+0.006%	+0.007%	+0.007%	+0.007%	+0.006%	+0.006%	+0.005%	+0.005%	+0.004%	+0.004%	+0.004%	+0.004%	+0.004%

- The **first**, **second**, and **middle 20% income groups** receive the largest percentage increase from the baseline

what does REMI say?[sm]

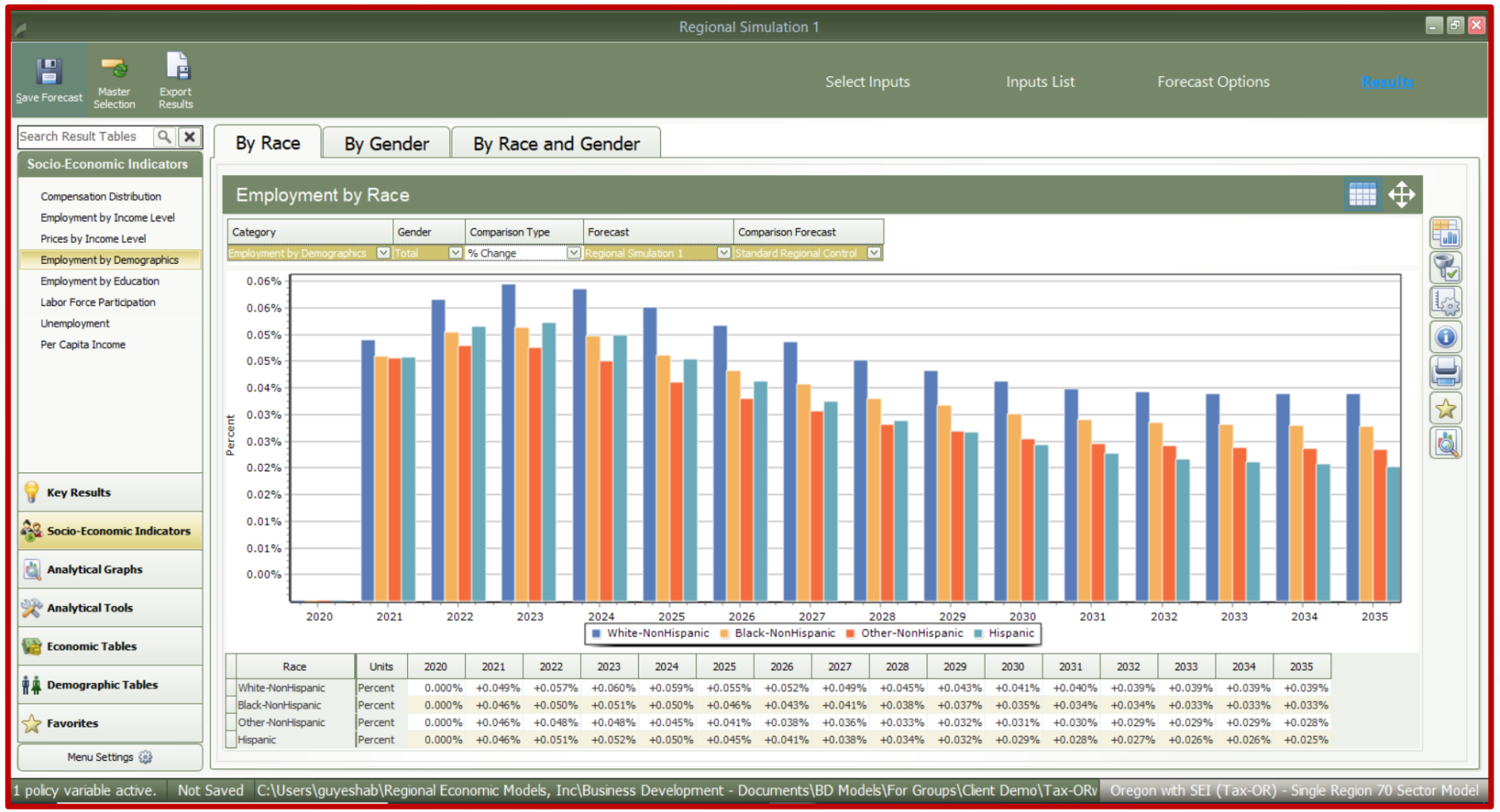
SEI Results – Employment by Industry Quintile



Industry	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
All Industries	**Percent**	**0.000%**	**+0.048%**	**+0.055%**	**+0.057%**	**+0.056%**	**+0.052%**	**+0.049%**	**+0.045%**	**+0.042%**	**+0.040%**	**+0.038%**	**+0.037%**	**+0.036%**	**+0.036%**	**+0.035%**	**+0.035%**
Lowest 20%	Percent	0.000%	+0.053%	+0.058%	+0.060%	+0.060%	+0.058%	+0.056%	+0.054%	+0.051%	+0.050%	+0.049%	+0.047%	+0.047%	+0.046%	+0.046%	+0.046%
Second 20%	Percent	0.000%	+0.055%	+0.058%	+0.059%	+0.058%	+0.055%	+0.052%	+0.050%	+0.047%	+0.046%	+0.045%	+0.043%	+0.043%	+0.043%	+0.042%	+0.042%
Middle 20%	Percent	0.000%	+0.066%	+0.084%	+0.088%	+0.083%	+0.073%	+0.063%	+0.053%	+0.045%	+0.038%	+0.033%	+0.030%	+0.028%	+0.027%	+0.027%	+0.027%
Fourth 20%	Percent	0.000%	+0.054%	+0.057%	+0.057%	+0.055%	+0.052%	+0.050%	+0.047%	+0.045%	+0.044%	+0.042%	+0.041%	+0.041%	+0.041%	+0.041%	+0.040%
Highest 20%	Percent	0.000%	+0.010%	+0.009%	+0.008%	+0.007%	+0.006%	+0.004%	+0.004%	+0.003%	+0.003%	+0.002%	+0.002%	+0.002%	+0.003%	+0.003%	+0.003%

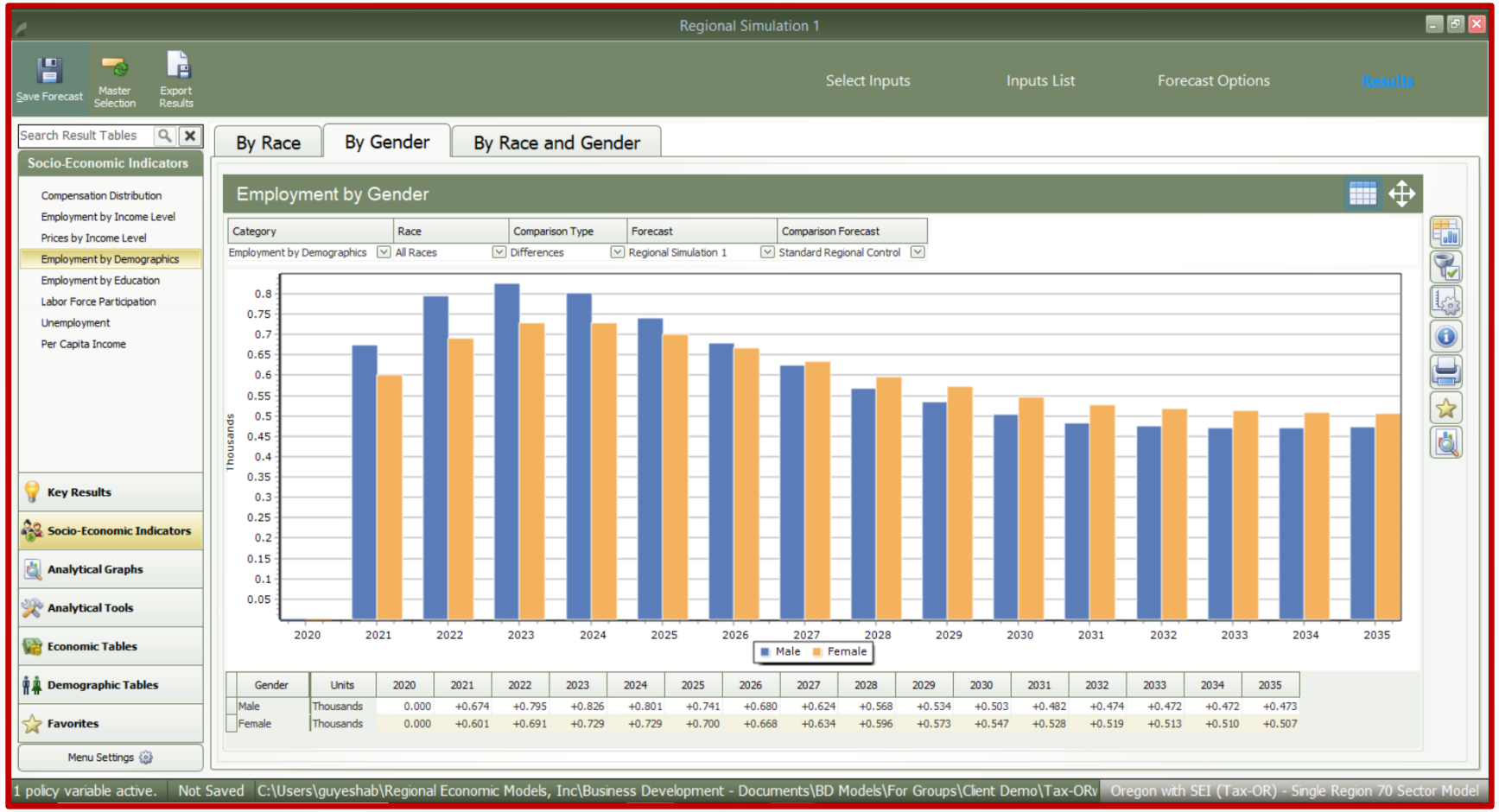
- The first four quintiles receive the largest percentage increase from baseline

SEI Results – Employment by Race



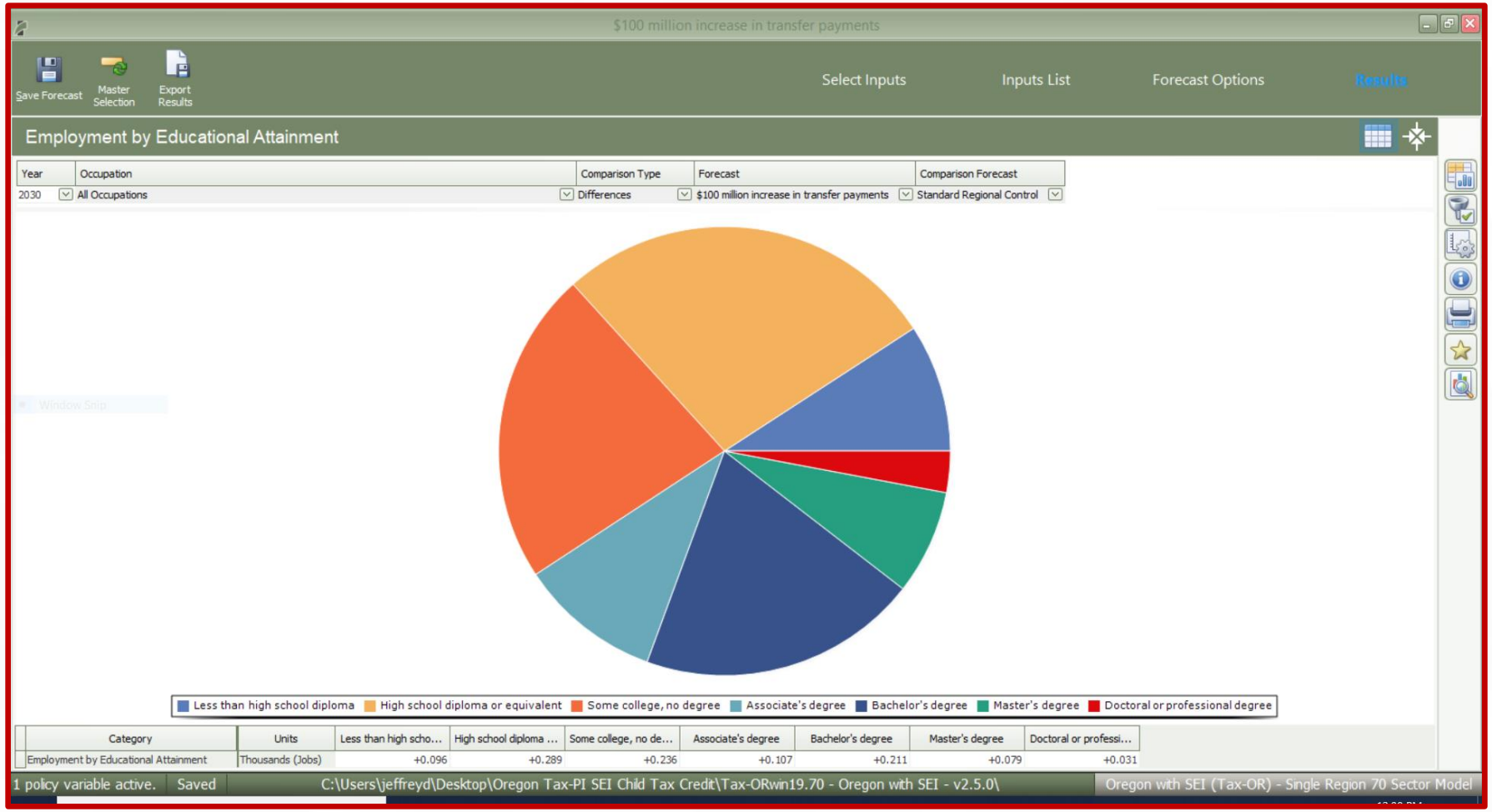
- The largest percentage increase in employment in the outer years is for the white non-Hispanic population
- Note: Oregon's population is 86% white non-Hispanic

SEI Results – Employment by Gender



- There is a larger increase in male employment in the first few years (2021- 2026), but the longer-term increases are majority female employment
- This is largely due to a construction boom at the beginning

SEI Results – Employment by Educational Attainment (2030)



- A majority of the employment increase in 2030 comes from jobs not requiring a college degree

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Conclusion

REMI SEI

- ✓ Jobs by Race/Gender
- ✓ Regional Disparities by County
- ✓ Labor Force by Race/ Gender
- ✓ Jobs by Education Level
- ✓ Income Quintile
- ✓ Inflation Impacts by Income Level

REMI Tax-PI

- ✓ 2 State and Local Tax Changes
- ✓ 1 State and Local Fiscal Budgets
- ✓ State and Local Expenditure changes (education and infrastructure)

How do they work together?

Thank you for attending!

For more information, please contact
info@remi.com