Puget Sound Regional Council

REMI Overview

March 11, 2025

Regional Economic Models, Inc.

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.

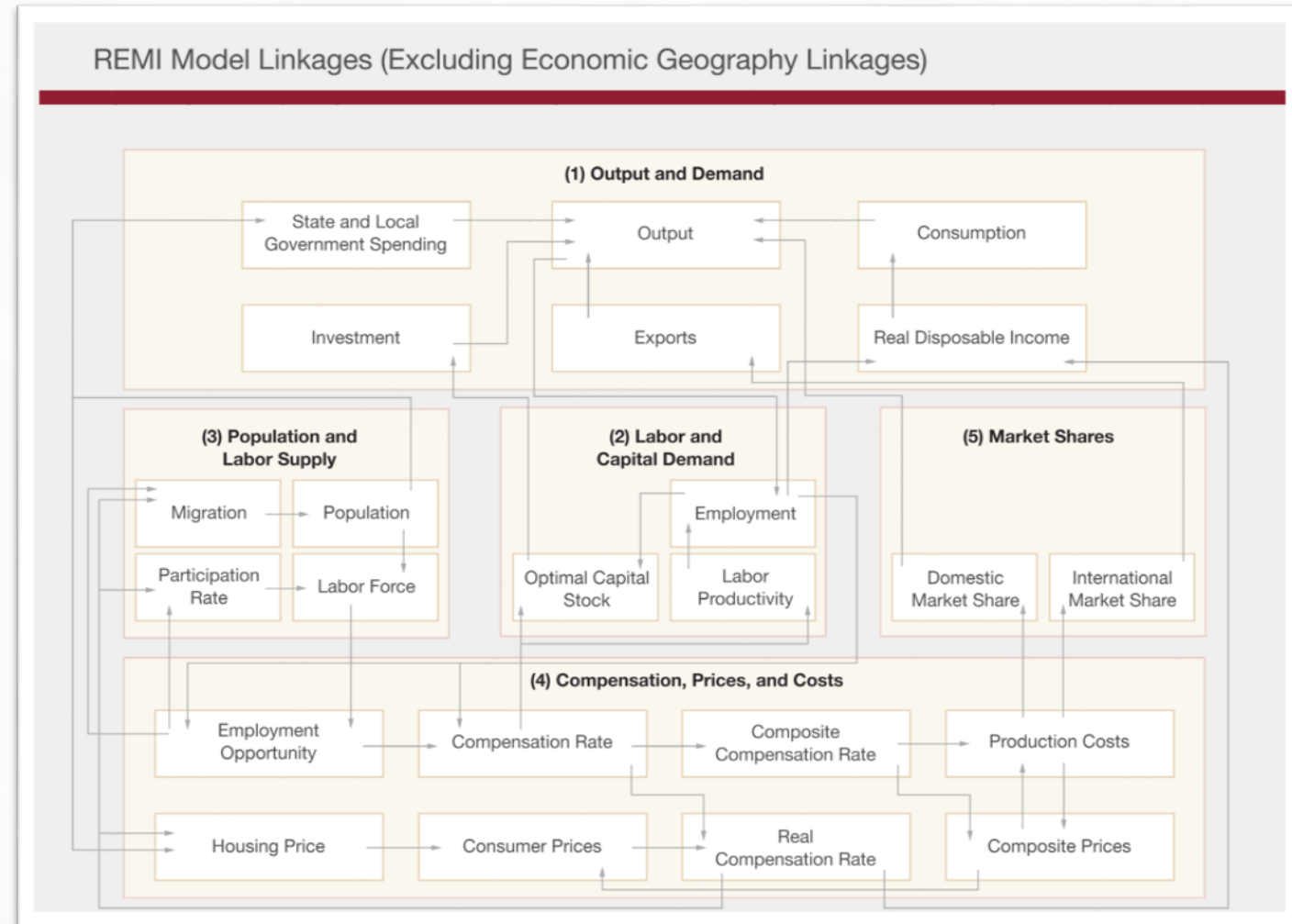At REMI, we're inspired by a single goal: *improving public policies.*

what does **REMI** say? [sm]

Model: REMI PI⁺

PI⁺ is the premier software solution for conducting dynamic macroeconomic impact analysis of public policy.

As our flagship model, PI⁺ specializes in generating realistic year-by-year estimates of the total local, state, and national effects of any specific policy initiative.

REMI Model Linkages (Excluding Economic Geography Linkages)

(1) Output and Demand

State and Local Government Spending · Output · Consumption

Investment · Exports · Real Disposable Income

(3) Population and Labor Supply

Migration → Population

Participation Rate → Labor Force

(2) Labor and Capital Demand

Employment

Optimal Capital Stock · Labor Productivity

(5) Market Shares

Domestic Market Share · International Market Share

(4) Compensation, Prices, and Costs

Employment Opportunity → Compensation Rate · Composite Compensation Rate → Production Costs

Housing Price → Consumer Prices · Real Compensation Rate · Composite Prices
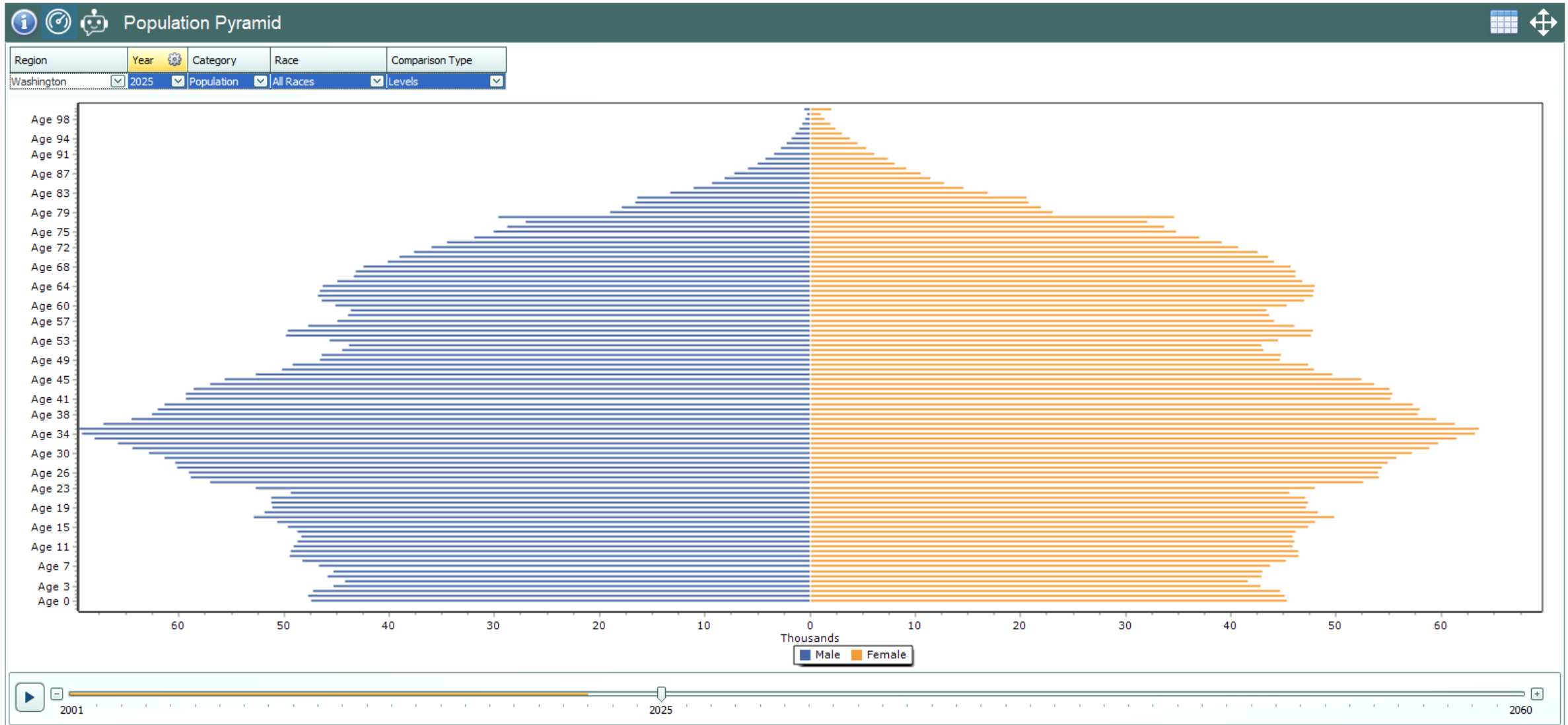
REMI's Baseline Forecast

- REMI's modeling abilities are based off our baseline forecast in the region being analyzed

- Running a simulation shocks the economy and results are based off changes in regard to our baseline forecast

- Input and Output variables are adjustable in the baseline forecast

- Our baseline forecast is based on over 40 years of research and all equations are publicly available

- Our primary data sources include: the Census, BEA, and BLS

what does REMI say?^{sm}

Example Forecast: United States Population by Census Race Category

By Ethnicity

Category	Gender	Age	Comparison Type
Population	Total	All Ages (0-100)	Levels

— All Races ☐   — White-NonHispanic ☑   — Black-NonHispanic ☑   — Other-NonHispanic ☑   — Hispanic ☑

Race	Units	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
All Races	**Millions**	333.797	336.074	338.171	340.105	342.019	343.906	345.763	347.583	349.363	351.102	352.795	354.441	356.039	357.587	359.086	360.533	361.927
White-NonHispanic	Millions	196.667	196.554	196.389	196.171	195.921	195.636	195.311	194.944	194.534	194.079	193.579	193.035	192.446	191.814	191.141	190.427	189.674
Black-NonHispanic	Millions	42.157	42.496	42.815	43.116	43.415	43.710	44.002	44.291	44.574	44.853	45.126	45.393	45.655	45.911	46.162	46.407	46.647
Other-NonHispanic	Millions	31.158	31.883	32.562	33.204	33.851	34.501	35.155	35.811	36.469	37.130	37.793	38.458	39.125	39.794	40.464	41.135	41.807
Hispanic	Millions	63.815	65.142	66.404	67.615	68.832	70.059	71.295	72.538	73.787	75.040	76.297	77.555	78.812	80.068	81.319	82.564	83.800

what does REMI say? sm

Integrated Forecast - Down to County Level - Population

*what does REMI say?*sm

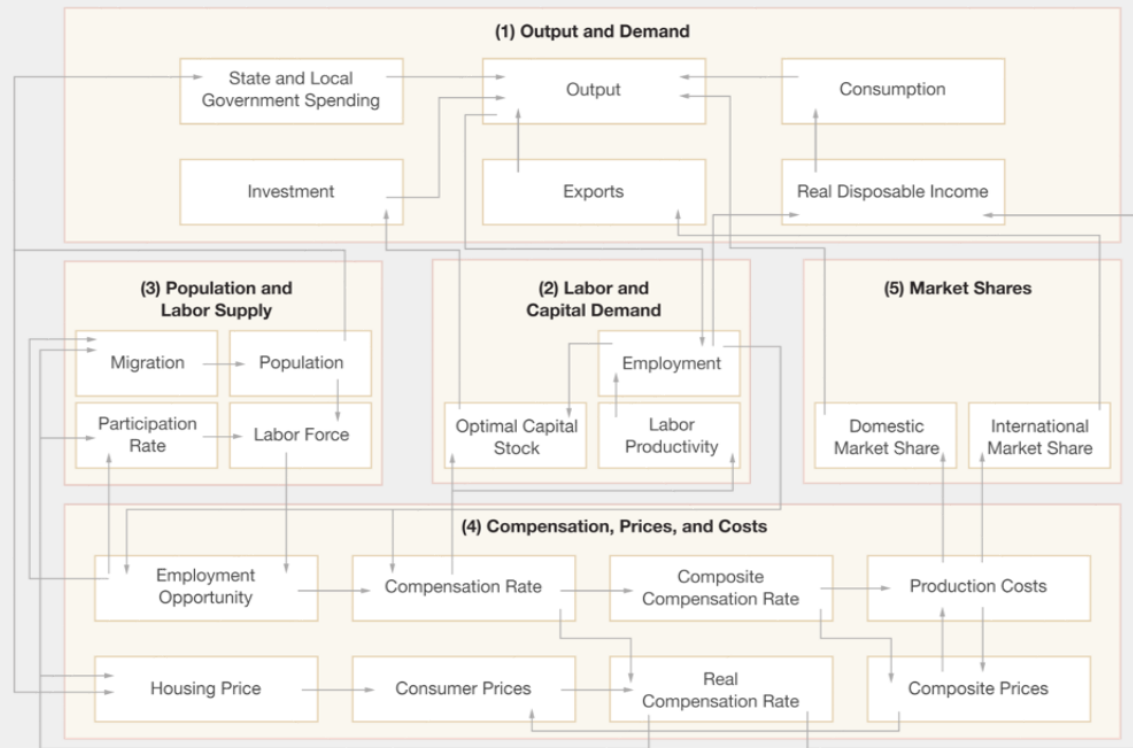# Integrated Forecast - Down to County Level - Employment
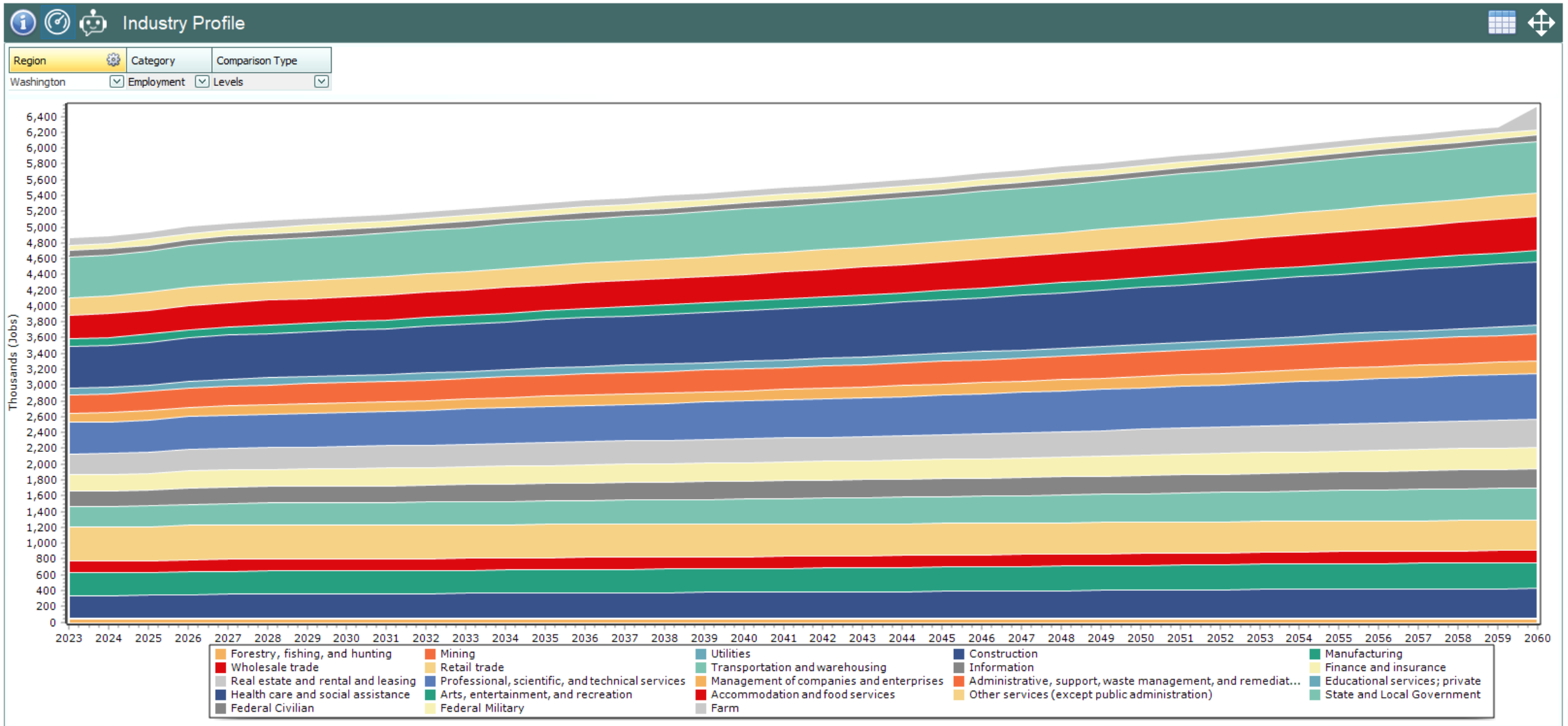
Model Structure

REMI Model Linkages (Excluding Economic Geography Linkages)

- The REMI Model is based off five main variables:
  - Output and Demand
  - Labor and Capital Demand
  - Population and Labor Supply
  - Compensation, Prices, and Costs
  - Market Shares

- Inputs to simulations known as policy variables all have result variables that they affect

- Result variables, shown as the change compared to the baseline forecast, all have variables that affect them and result variables that they affect

- Dependents of policy variables and dependents and determinants of result variables can all be found inside the model

what does REMI say? [sm]
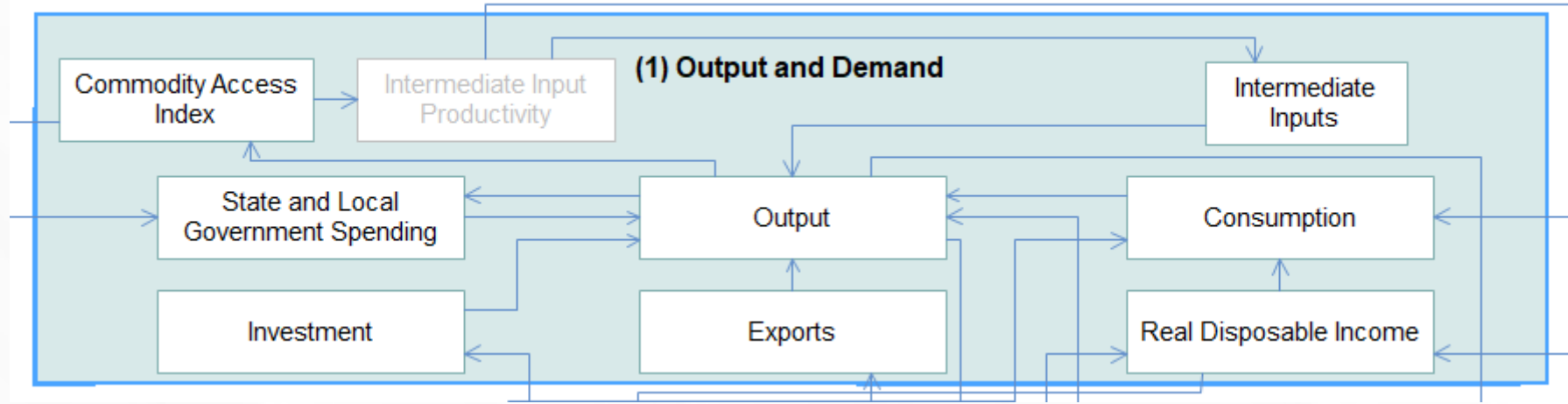
Output and Demand

- The Output and Demand block includes factors like output, demand, consumption, investment, and government spending, which are influenced by regional market share, exports, and various economic conditions.

- Industry demand is shaped by consumption, income, and investment levels, while input productivity depends on the availability of resources.

- Government spending changes mainly reflect population shifts.

Labor and Capital Demand
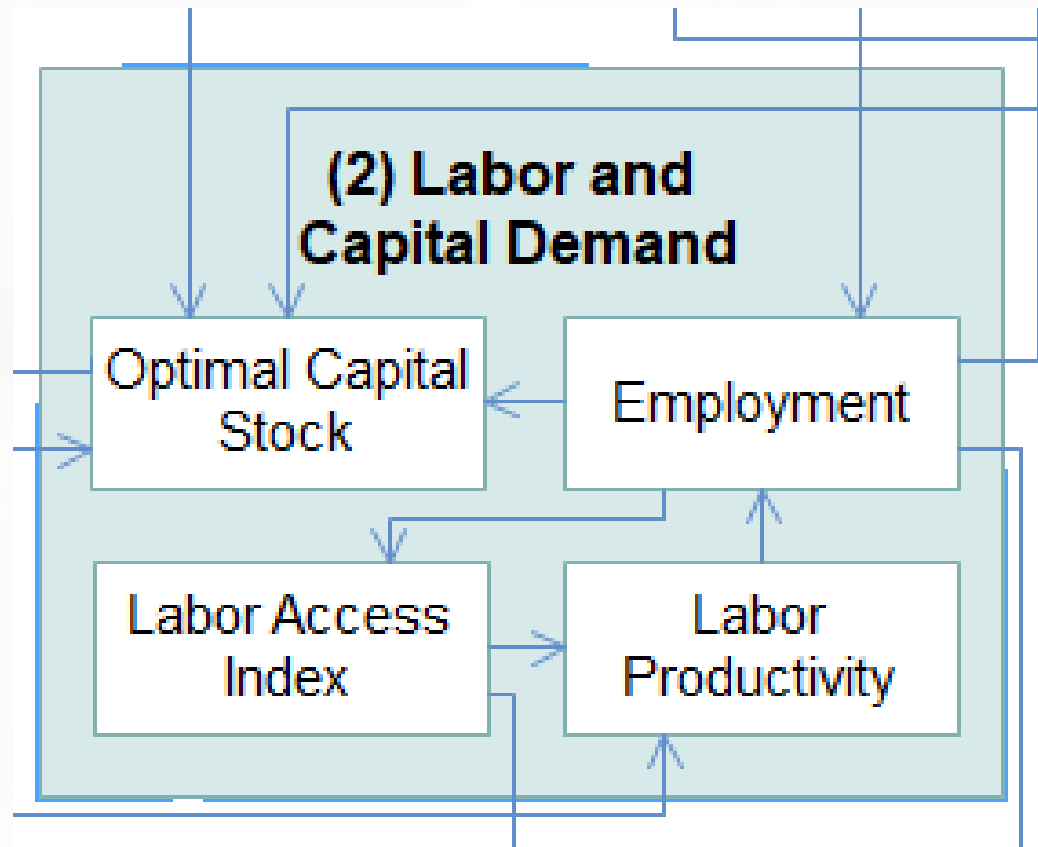
- Labor productivity depends on the availability of skilled workers and occupational labor supply, with commuting costs affecting access to specialized labor.

- Labor intensity is influenced by the cost of labor relative to capital and fuel inputs.

- Capital demand is determined by optimal capital stock for nonresidential capital and equipment, influenced by labor and capital costs.

- Employment in private industries is based on value added and employment per unit of value added for each industry.

Population and Labor Supply

(3) Population and Labor Supply

- Migration → Population
- Participation Rate → Labor Force
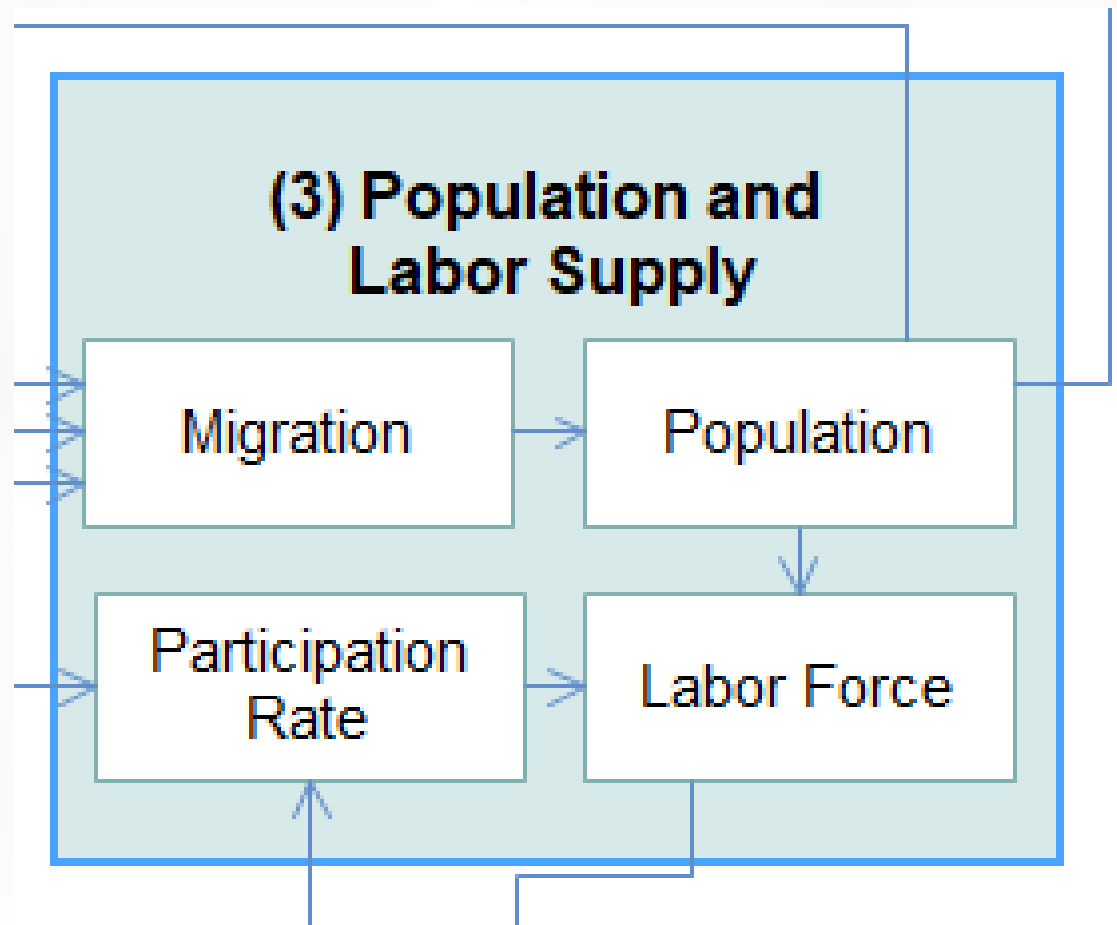
- The population and labor supply block includes demographic data by age, gender, and ethnicity, along with birth and survival rates for each group.

- Labor supply is determined by the size and participation rate of each demographic group, influenced by employment levels and after-tax compensation rates.

- Participation rates adjust based on changes in employment opportunities and real after-tax wages.

- Migration is categorized into retirement, military, international, and economic migration.

- Economic migration is driven by factors like real after-tax compensation, employment opportunities, and access to consumer variety.

Compensation, Prices, and Costs
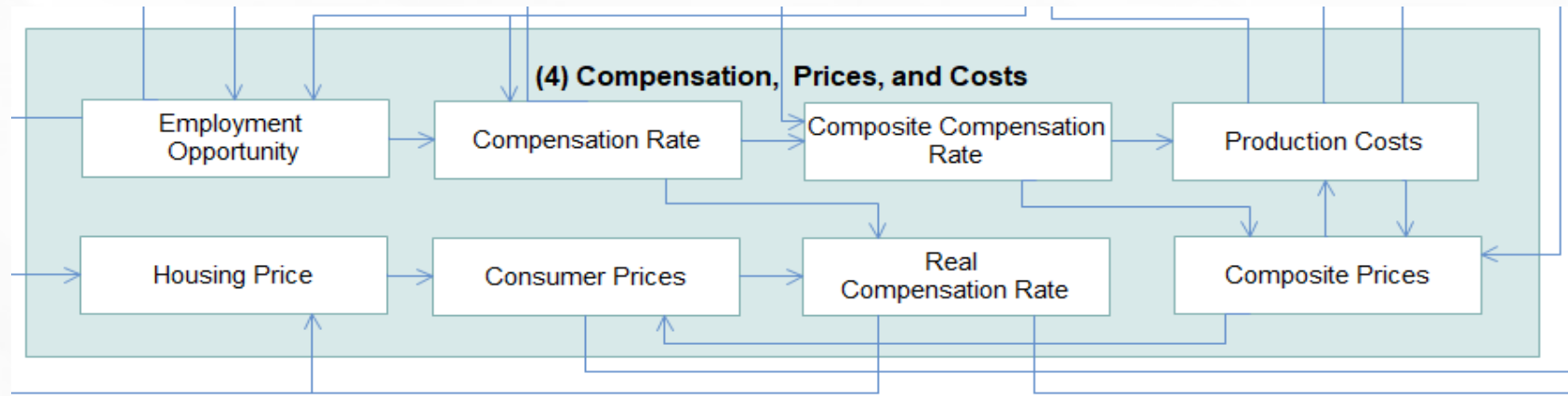
- The compensation, prices, and costs block includes factors like production costs, equipment costs, consumer prices, housing prices, and the compensation equation.

- Production costs are influenced by labor, capital, fuel, and intermediate inputs, with labor costs adjusted for productivity and access to specialized labor.

- Housing prices are affected by income changes and population density, while consumer prices are adjusted by the consumption deflator.

- Compensation rates change based on labor demand, supply conditions, national compensation rates, and employment opportunities by industry.

what does REMI say?[sm]

Market Shares

- The market shares block measures the proportion of local and export markets captured by each industry, based on relative production costs, price elasticity, and distance to other regions.

- Changes in market share depend on variations in delivered prices and production quantities compared to competitors.

- The share of local and external markets influences exports from and imports to the home economy.

what does REMI say? ^{sm}

Live Model Demonstration

PI+ Model DEMO

*what does **REMI** say?*[sm]

Conclusion

- The REMI model is based off our baseline forecast, which incorporates BEA, BLS, and Census data

- The model is based on five blocks: Output and Demand, Labor and Capital Demand, Population and Labor Supply, Compensation, Prices and Costs, and Market Shares

- Simulations can be run to show how changes in policy variables affect the equilibrium economy

- When a simulation is run, the equilibrium economy is shocked, and results are shown in the difference to the baseline forecast

what does REMI say? sm

Thank you for listening!

We now open the floor to any questions you might have.