

# TOWARDS A NEW NORMAL: TRANSPORTATION AND REGIONAL ECONOMIES POST-COVID

# Agenda

- ❑ COVID & Transportation
- ❑ Infrastructure Investment
- ❑ Cities
- ❑ Labor Force
- ❑ Model Demo

# Transportation & COVID





# Coronavirus and Transportation

*“Coronavirus will have significant effect on the economy in the near term.”*

Federal Reserve Chair Jerome Powell

*“We know that many of our nation’s public transportation systems are facing extraordinary challenges...”*

FTA Acting Administrator Jane Williams

*“During times like this, we as a nation realize and appreciate the vital role the transportation infrastructure plays in the ‘supply chain’ to stock our grocery stores, get needed medicine and equipment to hospitals, and allow the rest of us to carry on our daily lives.”*

U.S. Secretary of Transportation Elaine Chao



# Challenges Faced by DOTs and MPOs

- Health Crisis
  - ▣ Transportation ensures that communities can access needed goods and services
    - Transportation agencies must still provide these services while facing labor, supply, and funding challenges
- Economic Crisis
  - ▣ During an economic crisis, the provision of these services is even more critical
    - Networks enable the flow of workers, goods and services within regions and between regions
  - ▣ Infrastructure can be a key tool in responding to recessionary pressures



# Infrastructure Investment



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

# Fiscal Shortfalls

- State and local governments face revenue shortfalls and expenditure increases
  - ▣ Increased UI claims as employees are furloughed and businesses close permanently
  - ▣ Decrease in gas tax revenue – fewer people traveling and commuting

*Exhibit 4: Estimated Combined Fiscal Shock as a Percentage of Pre-COVID-19 Revenue Estimates by Region (USD millions)*

REGION	PRE-COVID-19 REVENUE FORECAST (FYE2020 AND 2021)	ESTIMATED REVENUE DECLINE BY FYE2021	ESTIMATED MEDICAID SPENDING INCREASE BY FYE2021	COMBINED FISCAL SHOCK PERCENTAGE OF PRIOR REVENUE FORECAST
East	\$493,013	-\$43,615	\$6,820	-10.2%
Midwest	\$380,767	-\$34,852	\$6,790	-10.9%
South	\$512,423	-\$36,044	\$8,078	-8.6%
West	\$492,617	-\$67,461	\$7,586	-15.2%
<b>U.S.</b>	<b>\$1,878,819</b>	<b>-\$181,972</b>	<b>\$29,273</b>	<b>-11.2%</b>

# Federal Funding

- ❑ Funding for federal highway and transit investment agencies and programs is set to expire at the end of September
- ❑ House of Representatives passed a 5-year \$500B reauthorization act in June
  - ❑ \$319B for Federal-aid Highway Program
  - ❑ \$105B for transit programs under the FTA
  - ❑ \$60B for passenger rail programs under the FRA
  - ❑ House and Senate GOP seek more modest spending
- ❑ House unveiled bill to extend funding until December
- ❑ A lapse in funding will lead to the FTA and other federal transportation regulatory agencies shutting down



# Stuck in the Middle/Delayed Projects

- ❑ Major projects may have been derailed or face budget shortfalls as the bottom falls out on common state-level transportation funding mechanisms
- ❑ Federal relief funds
  - ❑ Across all jurisdictions ~10% shortfall in expected gas tax related revenues since March
  - ❑ AASTO requested \$17B to support ongoing transportation projects
- ❑ Active state governments can save stranded projects
  - ❑ Move funds from other budget accounts to mitigate losses

# Cities



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

# Cities, COVID, Mobility

- The pandemic will shift perceptions of how cities should serve its residents
  - ▣ Less centralized as previously downtown workers have the option to work from home
  - ▣ Walking and biking as alternative options to transit commutes
- Cities and towns are:
  - ▣ Repurposing roadways for bus, bike, and pedestrian use
    - Sales of children's and adult leisure bicycles have increased by 56% and 121% from March 2019, respectively
    - Boston is making protected bike lanes permanent and expanding bus lanes in the absence of normal car traffic
  - ▣ Allowing businesses (restaurants) to repurpose outside space (car parking, sidewalks) for extra seating



# Pedestrianization

- Cities and towns are:
  - Repurposing roadways for bus, bike, and pedestrian use
    - Sales of children's and adult leisure bicycles have increased by 56% and 121% from March 2019, respectively
    - Boston is making protected bike lanes permanent and expanding bus lanes in the absence of normal car traffic
  - Allowing businesses (restaurants) to repurpose outside
- Pedestrianization of streets
  - Copenhagen, 1962
    - Main stretch of commercial street → 35% increase in foot traffic, 81% increase in restaurant seating
  - Waltham, MA closed down Moody Street to car traffic → supports the small businesses and restaurants that, otherwise, would not be open for business

# Urban Land Use

- Commercial property
  - ▣ Researchers do not expect firms to shift away from downtown (core) offices
    - Face-to-face interactions still of high value
    - New firms form and lease offices once occupied by firms that have moved out or gone under
- Residential property
  - ▣ Housing Stock
    - Interest rates are projected to stay low for the next couple of years; opportunity to expand housing stock
    - Decentralization of work for “high skilled” workers → less spatially constrained → can expand search for quality, low cost/rent housing

# Labor Force



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



# Employment Shifts

## □ Employment

### ▣ Work from home

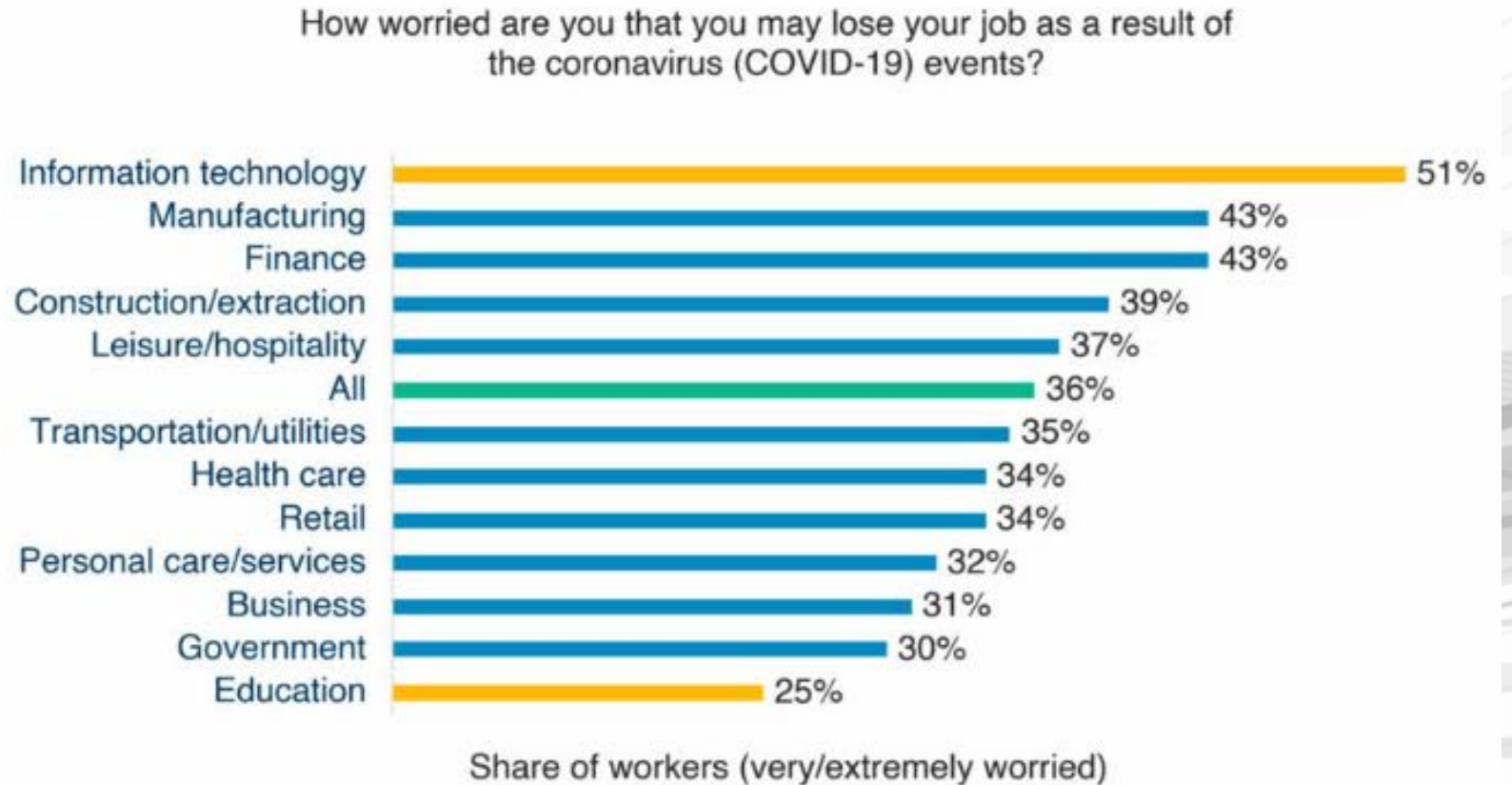
- About 43% of the United States' labor force is able to transition to telework
  - Telework is feasible for 63% of workers with a bachelors or graduate degree whereas that number drops to 24.7% for workers with only a high school degree
- Essential workers bear greater health risks in the short-term

### ▣ Business Closures

- Temporary business closures are becoming permanent
  - Lack of sustained federal and state support
  - Case spike in summer and potential "second wave" this winter
  - Future market uncertainty

# Automation & Worker Confidence

- Firm-level technological uptake has accelerated
- Economists at the Becker-Friedman Institute predict 32-42% of COVID-induced layoffs will be permanent

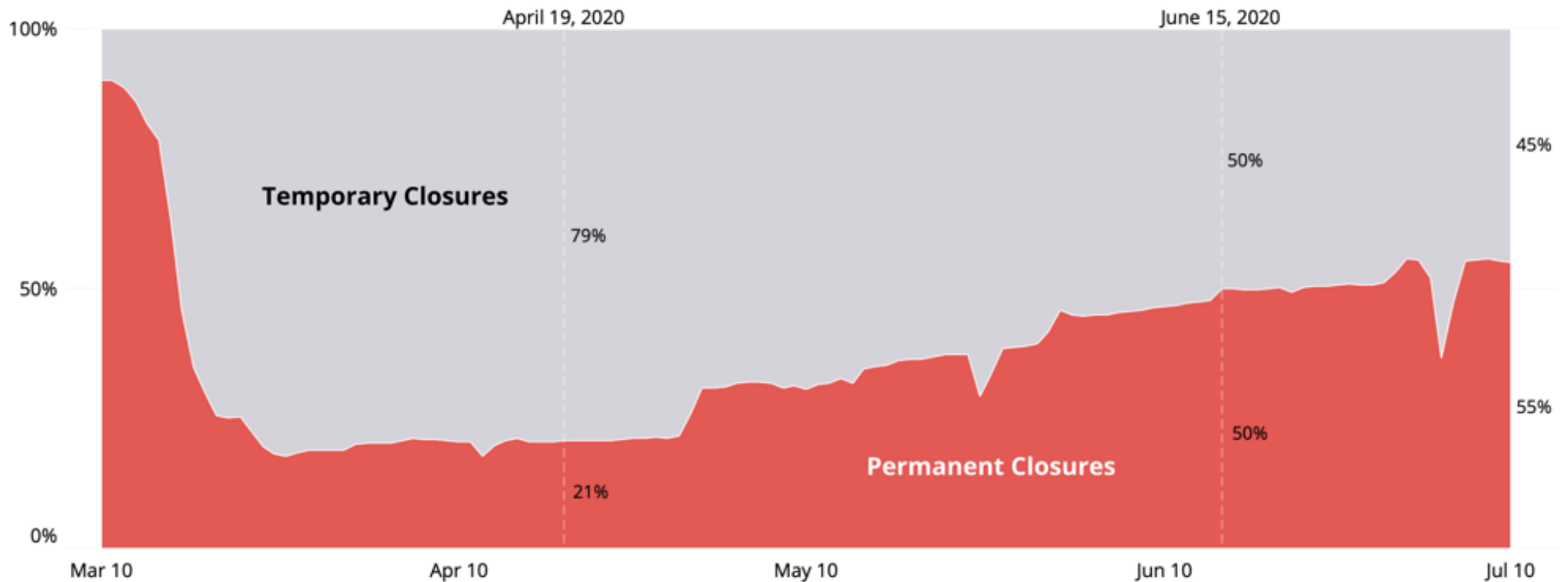


Public Viewpoint: COVID-19 Work and Education Survey STRADA EDUCATION NETWORK

# Permanent Business Closures

## The Share of Permanently Closed Businesses is Rising

Share of business closures on Yelp that were temporary vs. permanent





# About REMI

REMI's 35-year history of rigorous academic research and software development has led to the development of the the industry standard in macroeconomic research methodology:

## Input-Output

Close analysis of inter-industry relationships

## Econometrics

Advanced statistical analyses underpinning the model

## General Equilibrium

Estimate of long-run stability of the economy allows for analysis of policy decisions

## Economic Geography

Effects of geographic concentration of labor and industry

Integrated REMI  
economic modelling  
approach



# Transportation and Economic Development



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

# Static vs. Dynamic Analysis

## Static Analysis

- Construction spending
- O&M spending

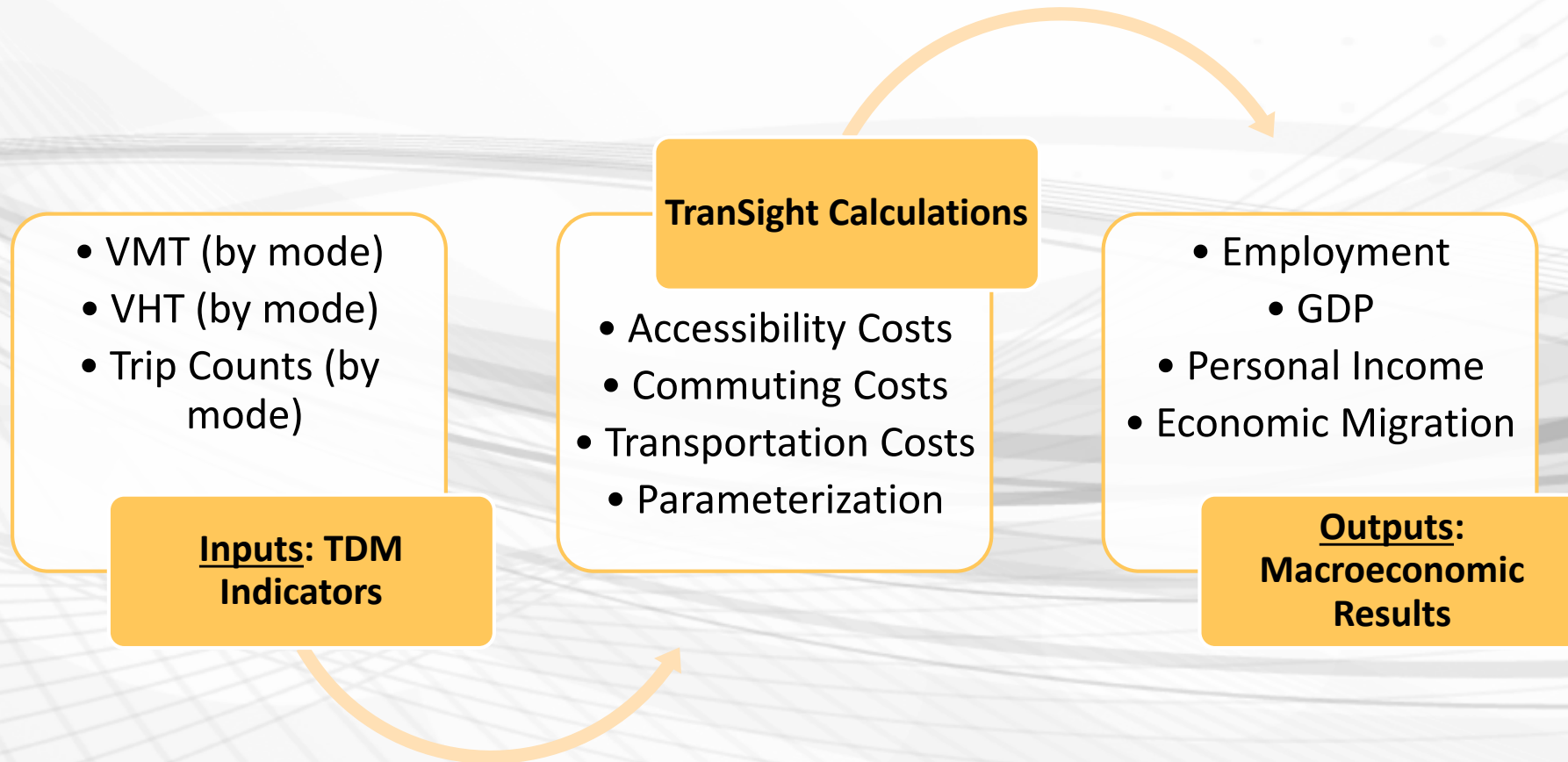
## Dynamic Analysis

- Construction spending
- O&M spending
- Travel time savings
- Emissions savings
- Safety improvements
- Fuel expenditures
- Non-fuel VOCs
- Network speed improvements
- Access to labor
- Access to intermediate inputs

**FHWA:** TranSight is among the “best equipped to estimate *productivity* impacts”\*



# TranSight Process



# Applications of TranSight

Long-Range Planning

Project Prioritization

Transportation Finance

Economic Impact Analysis

Grant Applications

TIP and STIP Planning

Regional Transportation Plans

# Model Demonstration



# Challenges Faced by DOTs

- Mission of a DOT
  - ▣ Provide a safe and efficient transportation system for people and goods
  - ▣ Enhance economic prosperity and livability in the region through transportation

Due to unprecedented circumstances posed by COVID-19 pandemic the efforts of a DOT have been thrown into disarray

# Challenges Faced by DOTs

- Impacts of COVID 19 on transportation
  - ▣ The pressure on transportation demand during this coronavirus pandemic has shifted from moving people and goods for economic prosperity and growth to making a core transportation system operational to ensure freight, key essential workers and the economy can continue to function
    - In such circumstances it is important to maintain a resilient transportation infrastructure system for COVID and other unforeseen events (natural disasters, etc.)

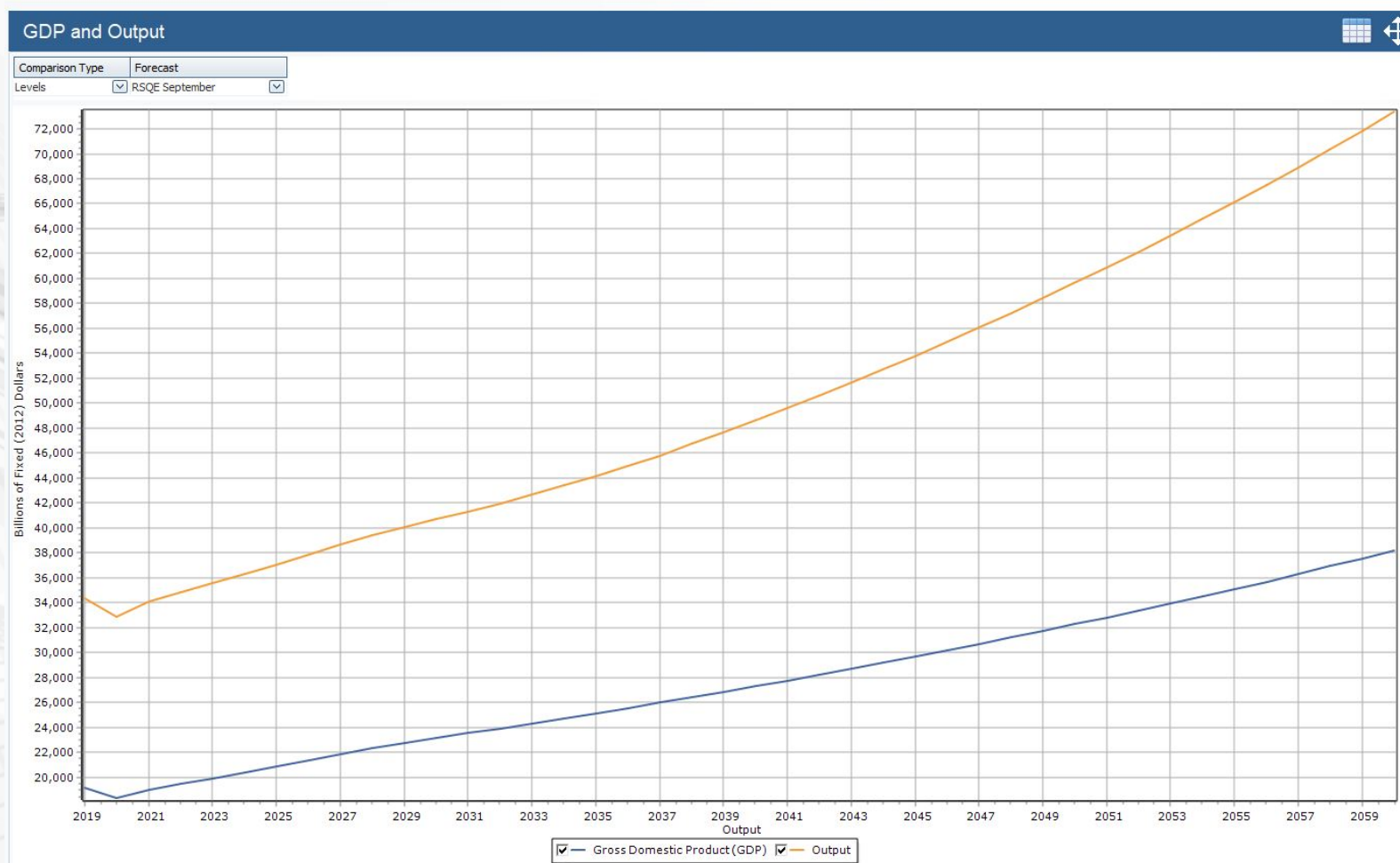
# Challenges Faced by DOTs

Given the impacts of COVID-19 on the economy and the transportation sector it is important to know

- What is the impact?
  - ▣ Scale of the impact
  - ▣ What sectors?
  - ▣ Regional and national effects
- Will the impact be short term or will it be a long term impact?

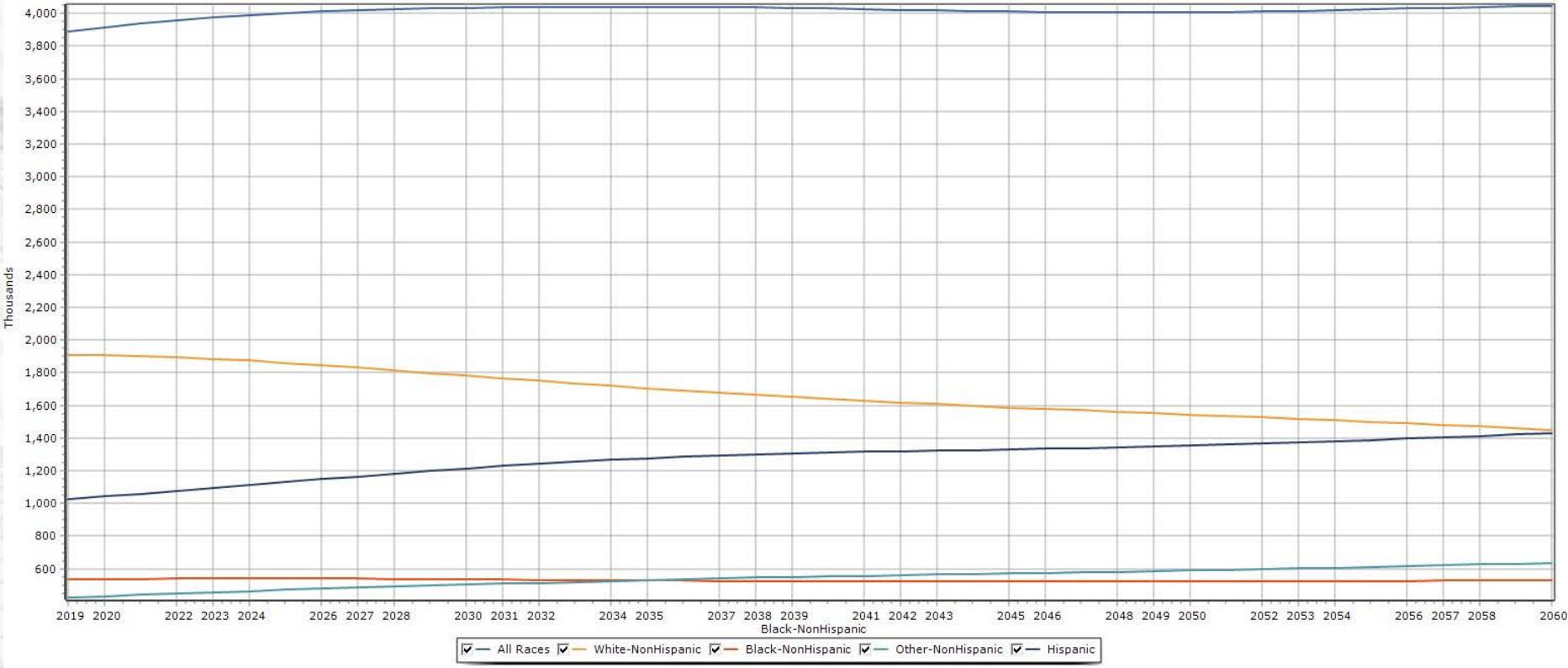


# US Output and GDP with COVID Impact

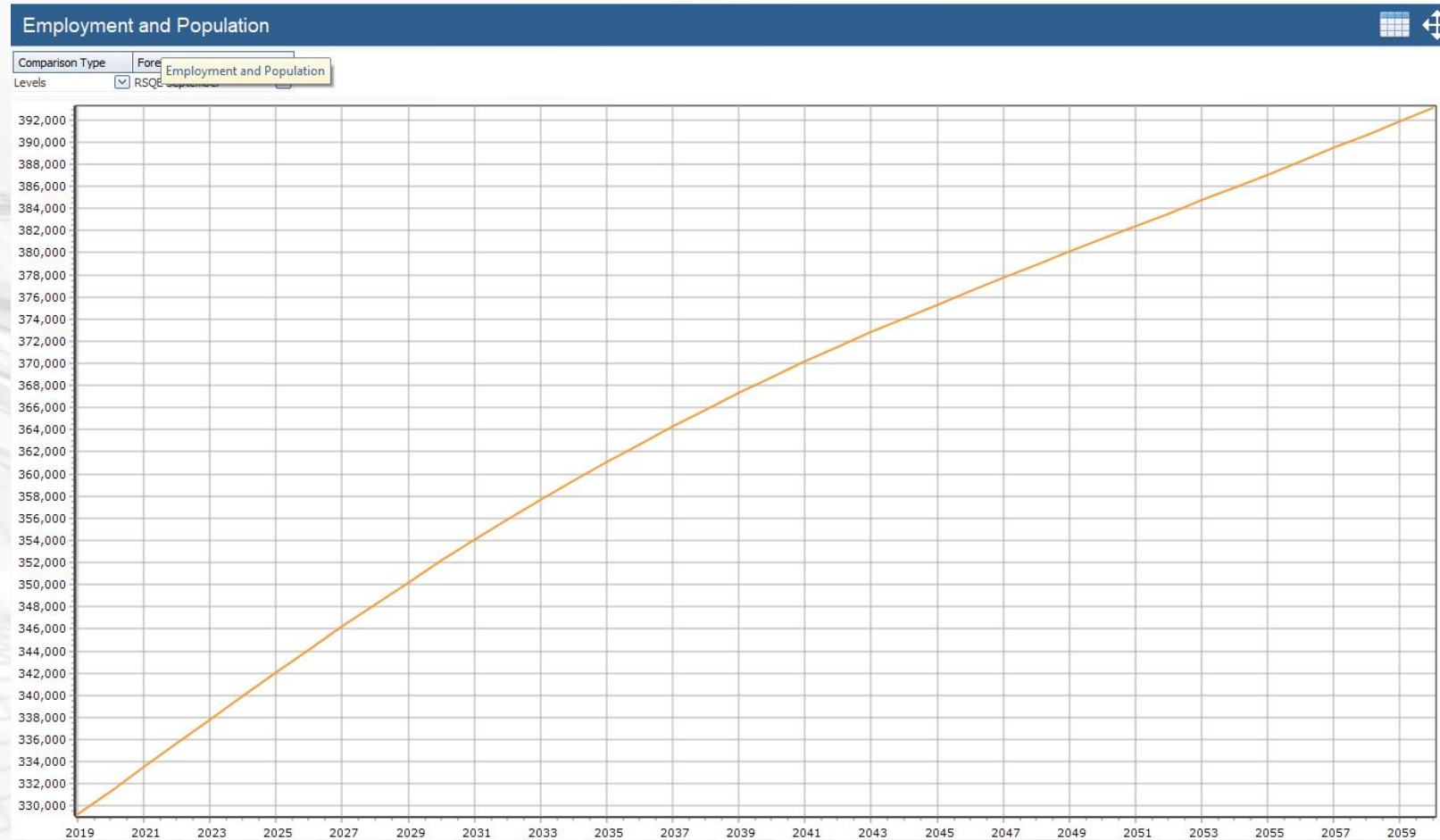


what does REMI say? <sup>sm</sup>

# Births by Ethnicity



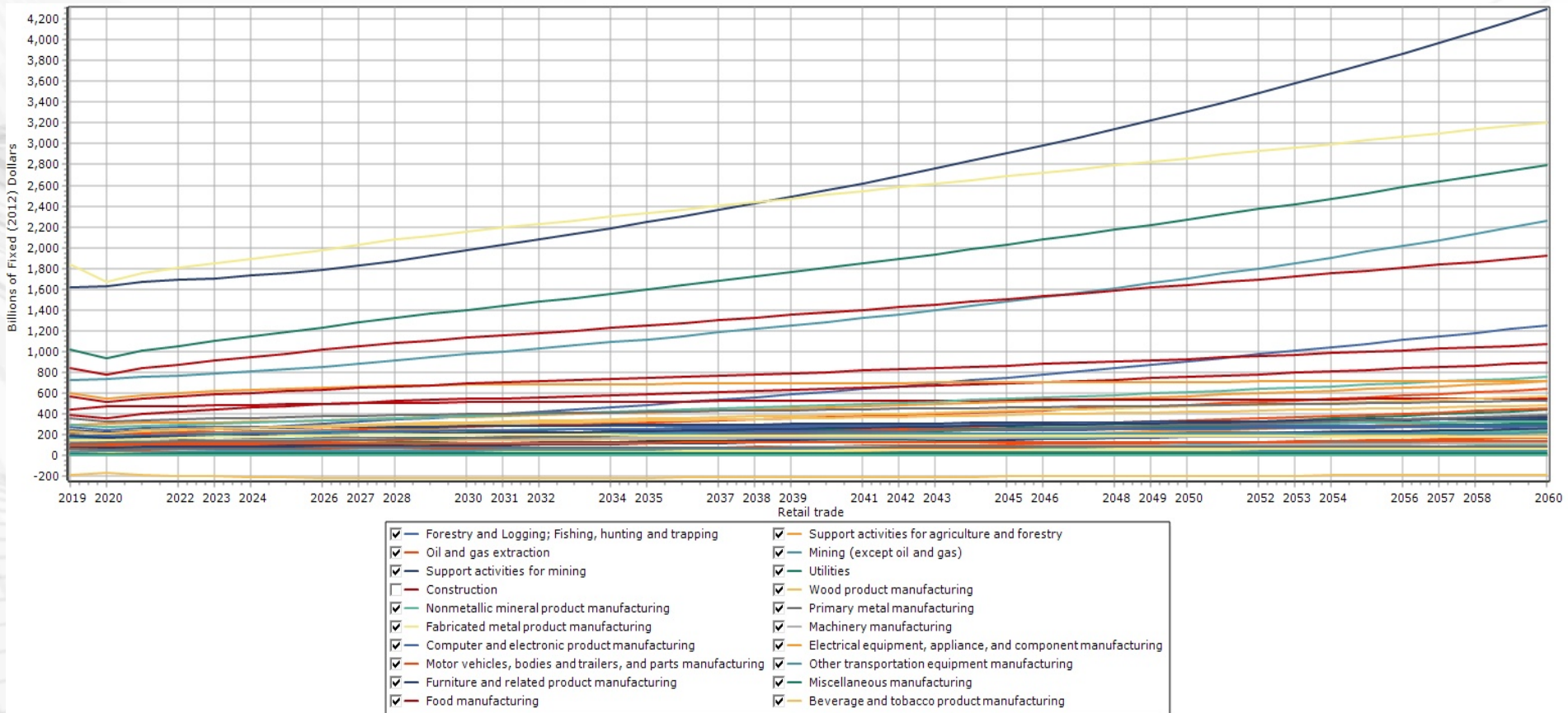
# Population Growth Over Time



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



# National Consumption



# Challenges Faced by DOTs

- Although there is a disruption in the economy for a few years due to COVID the overall economy's outlook of the country will maintain a positive trajectory
- Given the current low rates of borrowing, States can invest in infrastructure for immediate economic impacts and for future economic prosperity through construction and enhancement in transportation

# Simulation Inputs

The following simulations were done with the TranSight Arizona model


Policy Variable Inputs


Active

Edit





Group

☒





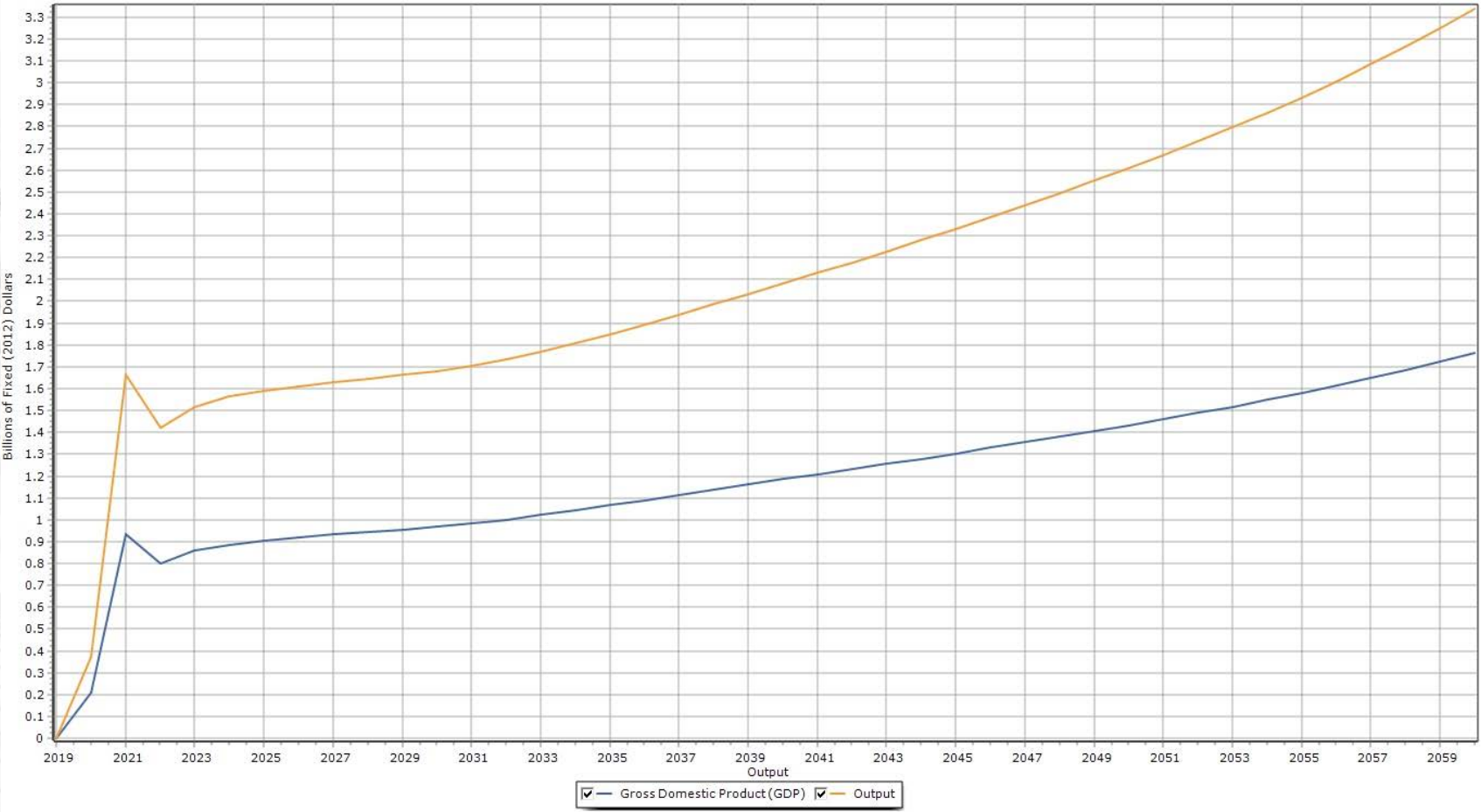
New Industries

Ac	View	Category	Detail	Region	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
<input checked="" type="checkbox"/>		Exogenous Final Demar	Construction	Arizona	2018 Fixed T	0	200	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<div><input checked="" type="checkbox"/>   Transportation Cost Matrix</div>																													
Ac	View	Category	Detail	Region	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
<input checked="" type="checkbox"/>		Transportation Costs	Arizona to Arizona	Interregional	Proportion	0	0	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01

Inputs to the simulation: Investment of 200 Million in the years 2020 – 21, and reduction in transportation costs by 1% from 2023-2060

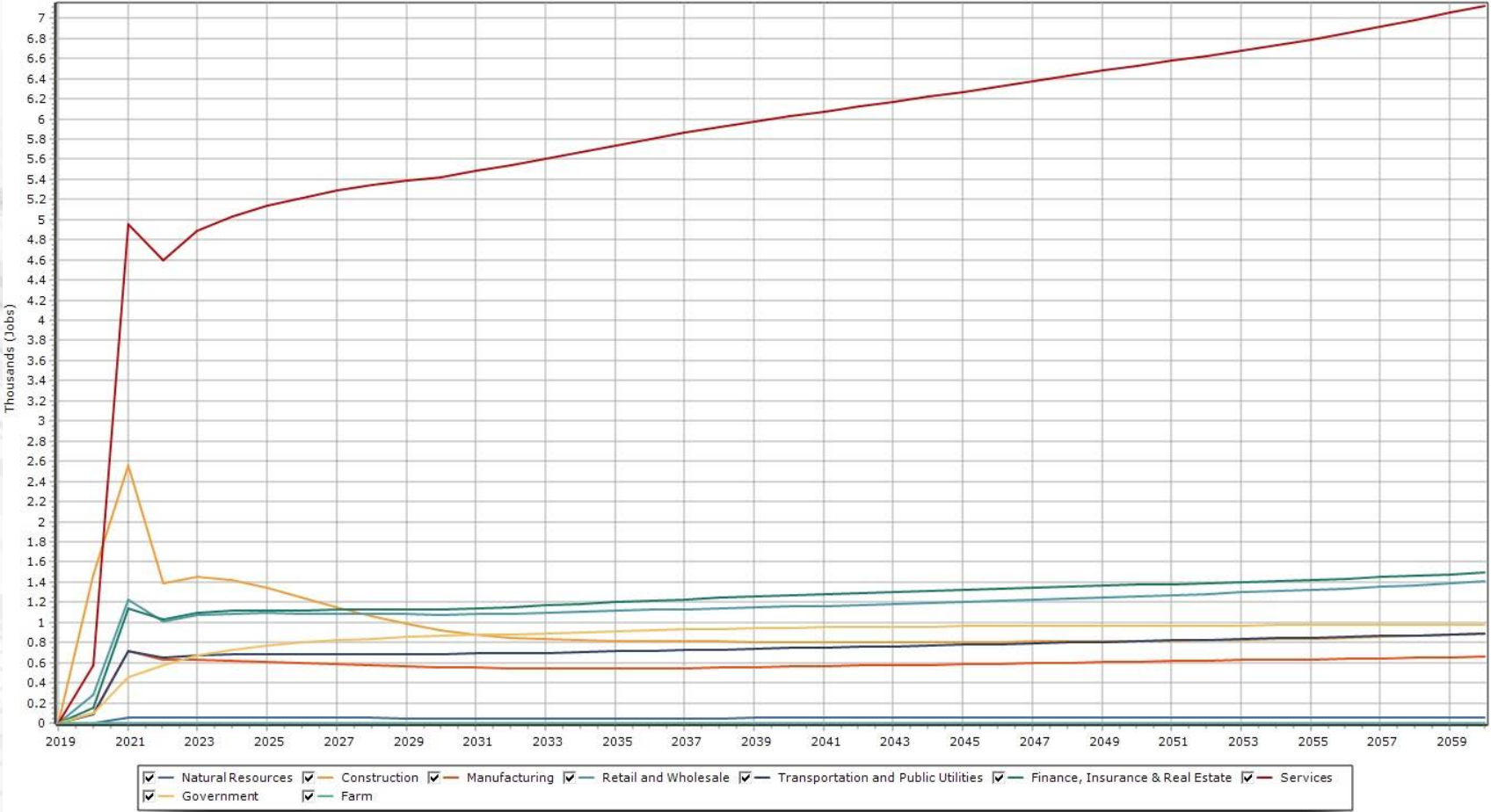


# GDP & Output After Investment

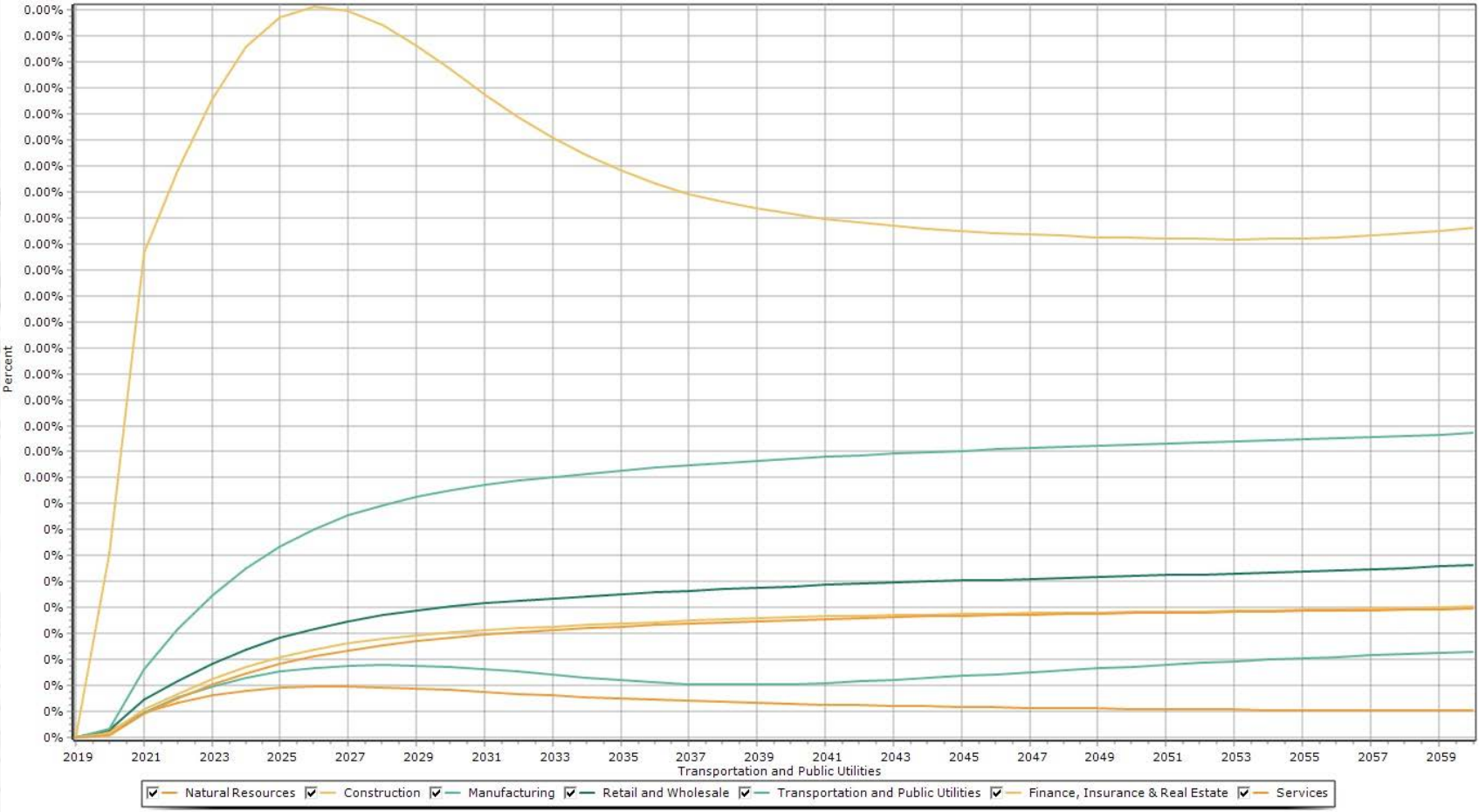


what does REMI say? <sup>sm</sup>

# Employment by Industry



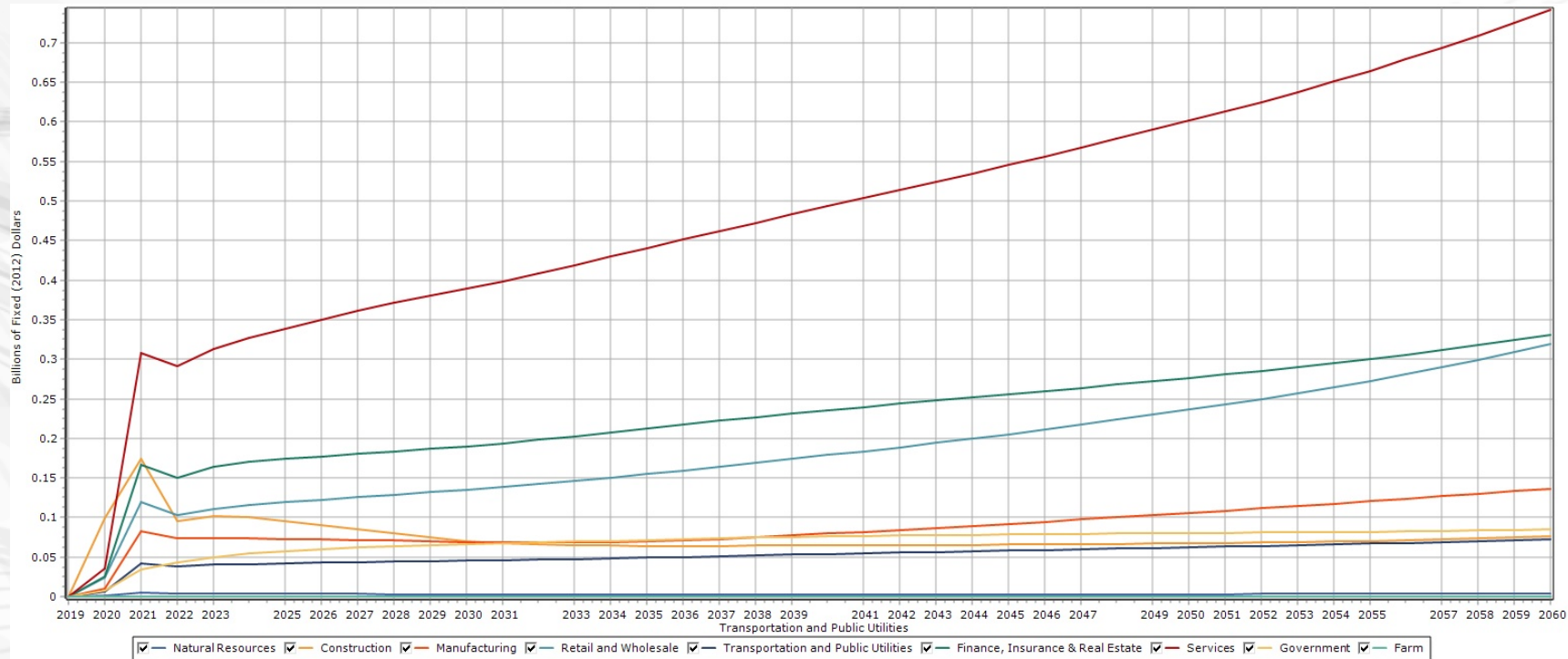
# Commodity Access Index



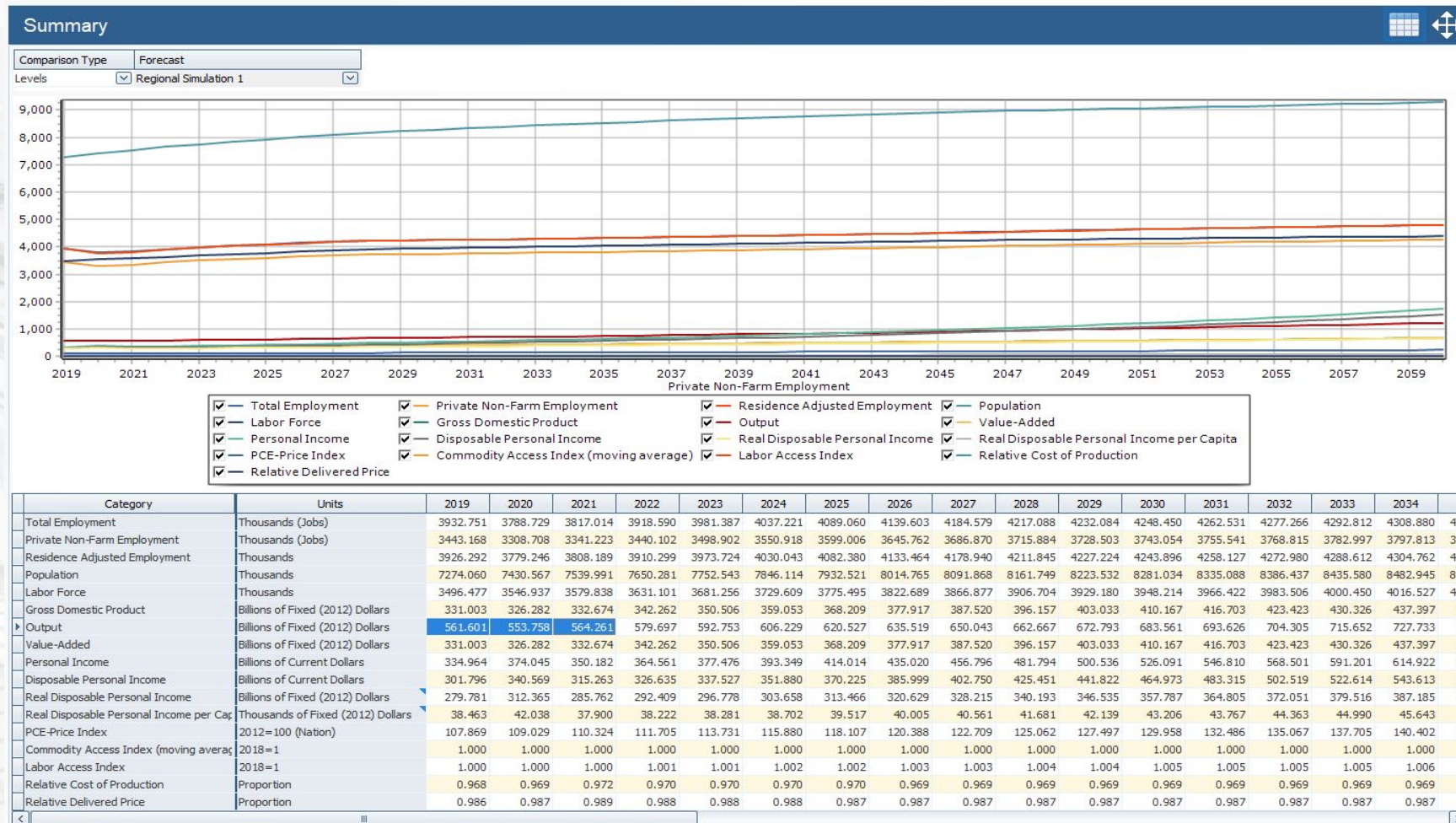
what does REMI say? <sup>sm</sup>



# Value Added by Industry

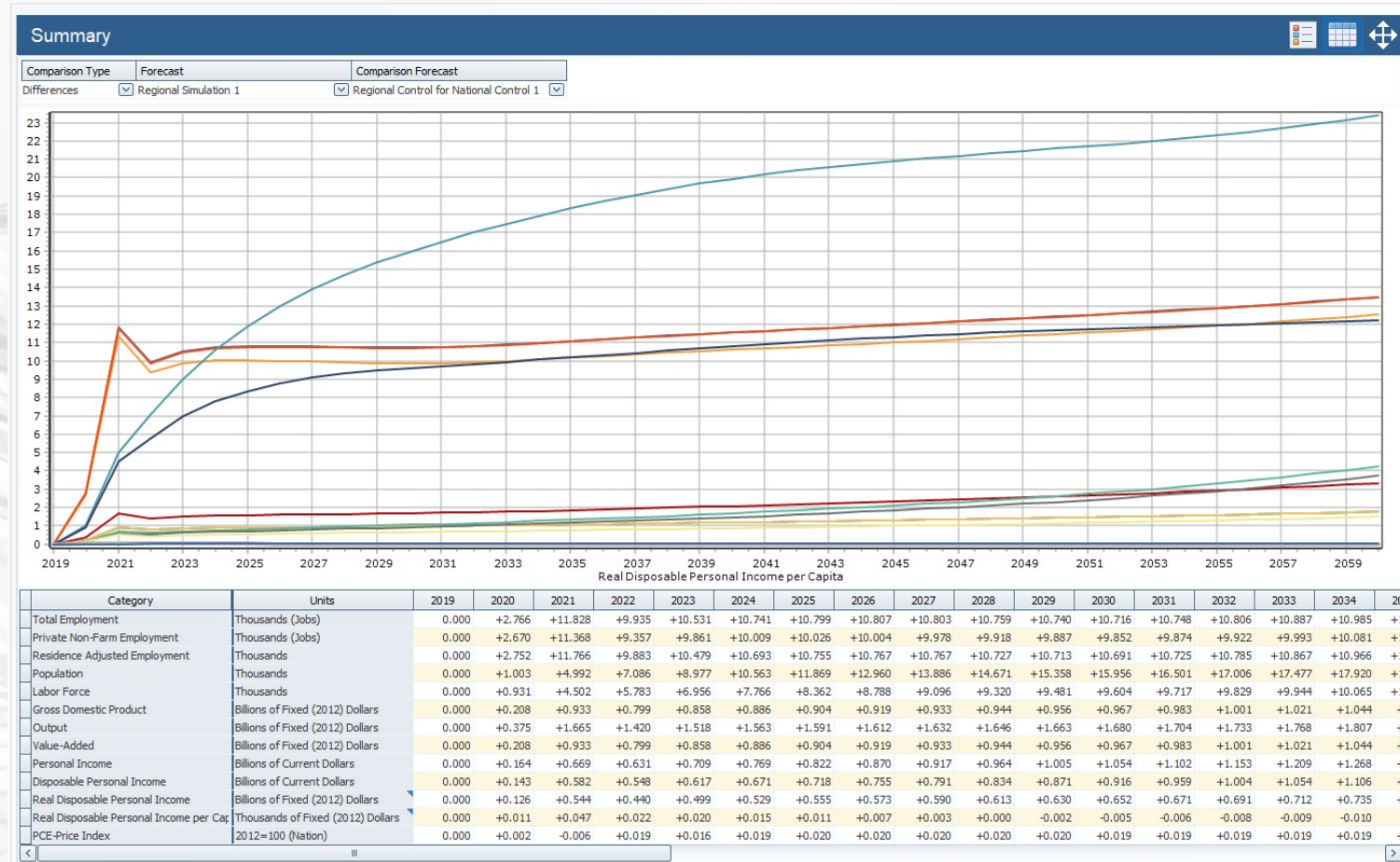


# Economic Summary



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

# Summary



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



# Summary

- While COVID is significant and temporarily has disrupted the economy, The long term US economy has a positive outlook
- While COVID funding might not completely mitigate the economic pain, due to low rates it might be a good time to invest in infrastructure to increase a region's economic competitiveness and prosperity