The Economic and Demographic Outlook for Michigan and Its Counties through 2055

REMI User's Conference

October 24, 2025

Research Seminar in Quantitative Economics

Forecast Background

How the Forecast Is Produced

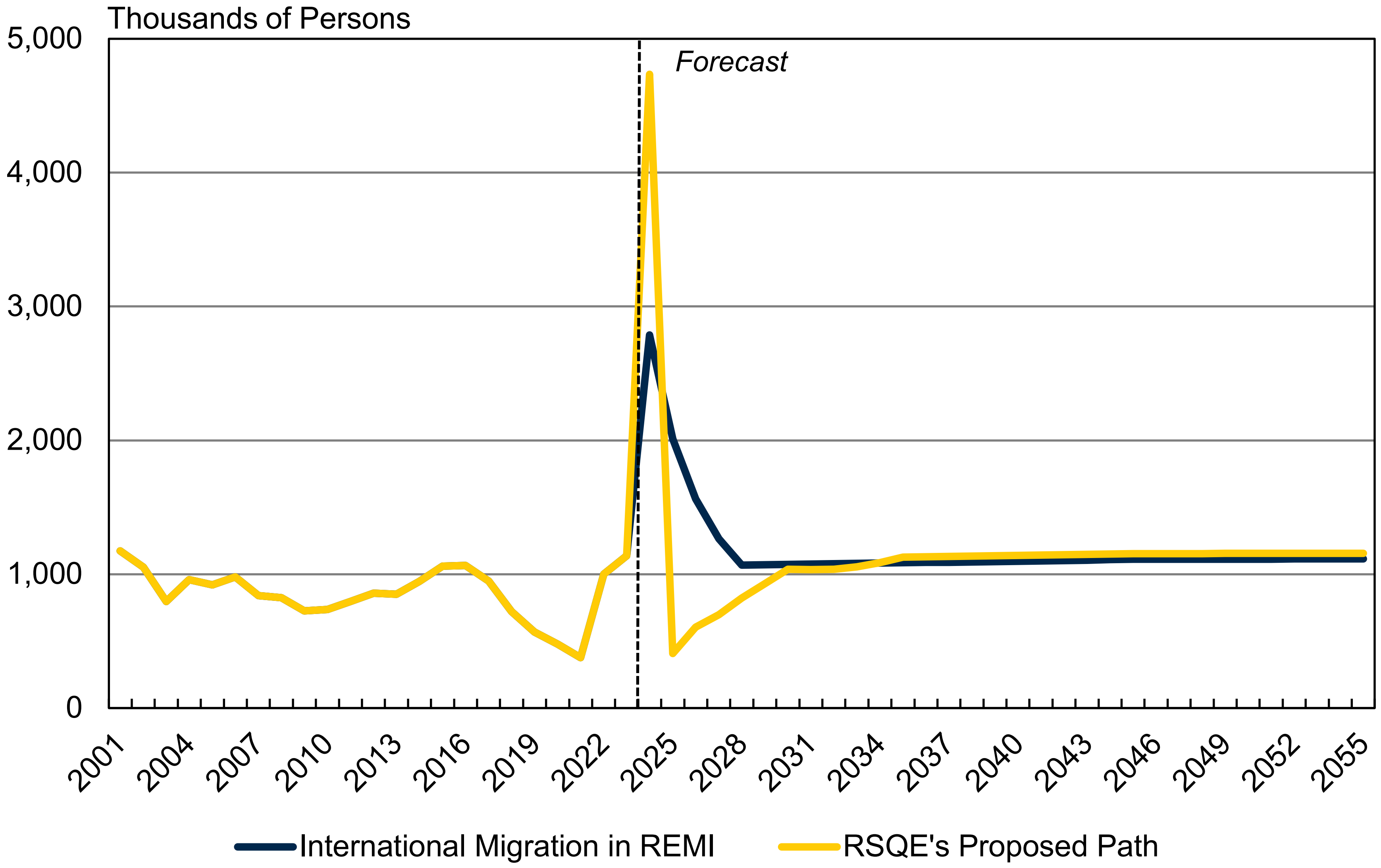
- The forecast is produced by the University of Michigan's Research Seminar in Quantitative Economics (RSQE) in partnership with the Michigan Department of Transportation (MDOT)
- We produce a new long-run economic and demographic forecast of Michigan and its counties, as well as the city of Detroit, roughly every five years
- The forecast is the product of:
  - Regional Economic Models, Inc. (REMI) TranSight
  - RSQE's U.S. and Michigan forecasts and forecasting judgment
  - Comments and insights from a number of local Metropolitan Planning Organizations and regional planning organizations
- Today I will speak about how we modify the national and regional control runs

Updating the U.S. Control Forecast in REMI

The REMI model with an outside region requires a new process to update the control runs

- With a regional model that covers the entire US, the sum of all regions will not exactly match the national control forecast
- For example, the national GDP forecast for 2025 is 1.7 percent higher than the sum of GDP across regions
- Furthermore, model updates flow from the national model to the regional model but not in reverse
- Any comparisons to the nation should be made using the sum of all regions from the regional results to represent the national results

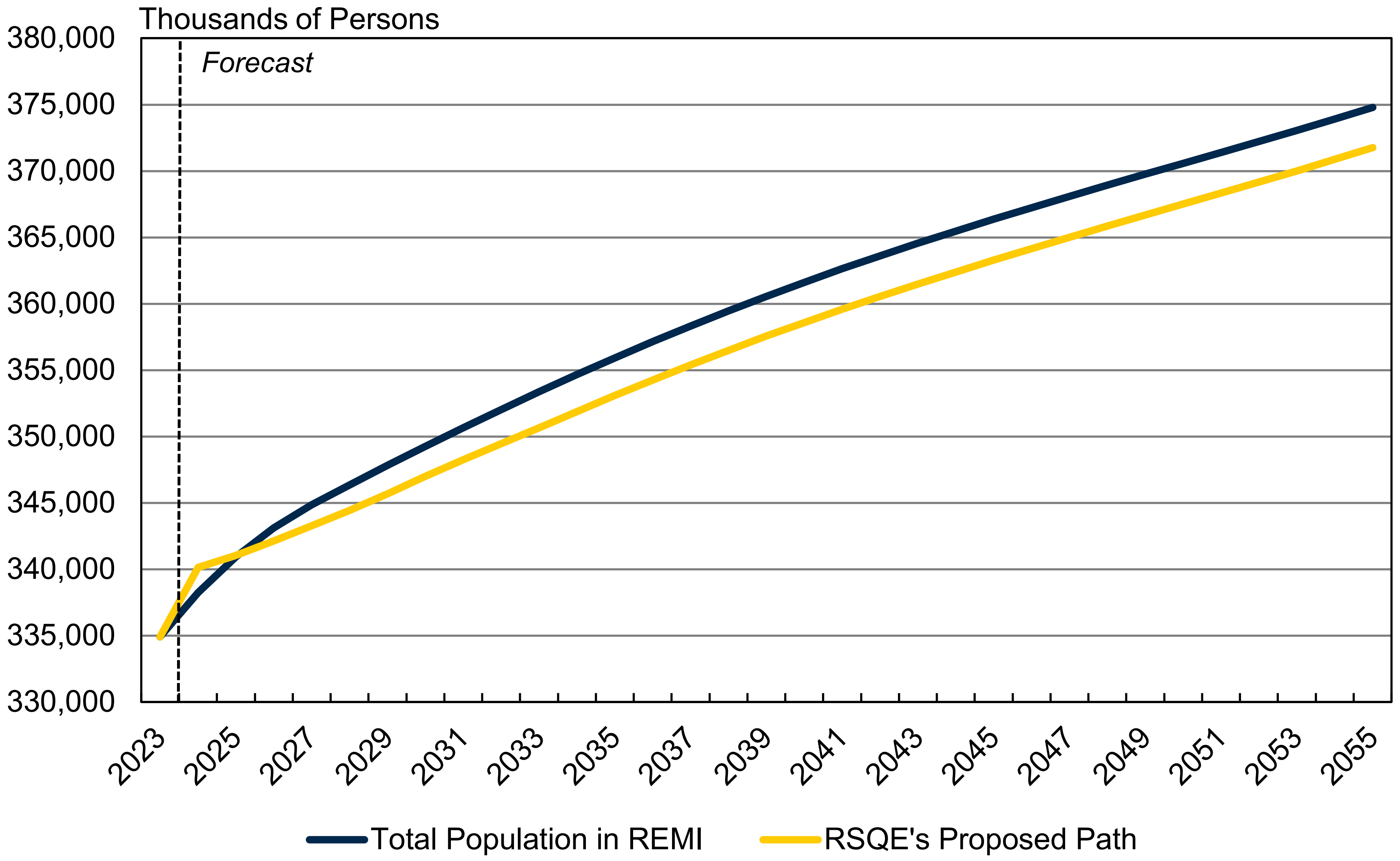
We have adjusted international migration to match CBO's new projections from September 2025



International Migration

- We change net international migration by single age, gender, and four race/ethnicity categories
- We make the adjustment proportionally to the REMI control estimates
- In 2024, we use our international migration adjustments to target the U.S. Census Bureau total population estimates by five-year age group, race, and gender
- For 2025 and beyond, the international migration adjustment reflects CBO projections from September 2025

Adjusted Total U.S. Population



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The Distribution of GDP—Personal Consumption

- The GDP numbers presented are the sum of all regions from the regional model
- We believe the share of personal consumption expenditures after 2030 will be lower than the REMI baseline, particularly for autos and other durables
- We expect the share of services will be slightly higher than REMI after 2030

	History			REMI's Forecast			RSQE's Proposed Path		
	2001	2019	2023	2025	2030	2055	2025	2030	2055
Personal Consumption Expenditures	66.7%	67.0%	68.2%	69.6%	69.2%	72.0%	69.6%	69.1%	68.5%
Durables	5.3%	6.8%	7.7%	9.3%	9.8%	13.6%	9.2%	9.8%	10.3%
Motor Vehicles	2.7%	2.7%	2.7%	2.5%	2.4%	3.1%	2.5%	2.4%	2.4%
Other Durables	2.5%	4.0%	5.0%	6.8%	7.4%	10.5%	6.7%	7.4%	7.9%
Non-Durables	14.3%	14.0%	14.4%	14.8%	14.5%	15.1%	14.9%	14.5%	13.4%
Services	47.1%	46.2%	46.1%	45.5%	44.9%	43.3%	45.6%	44.8%	44.7%

The Distribution of GDP—Investment

- In our opinion, REMI's share of private domestic fixed investment is too high in the long run, particularly for nonresidential equipment

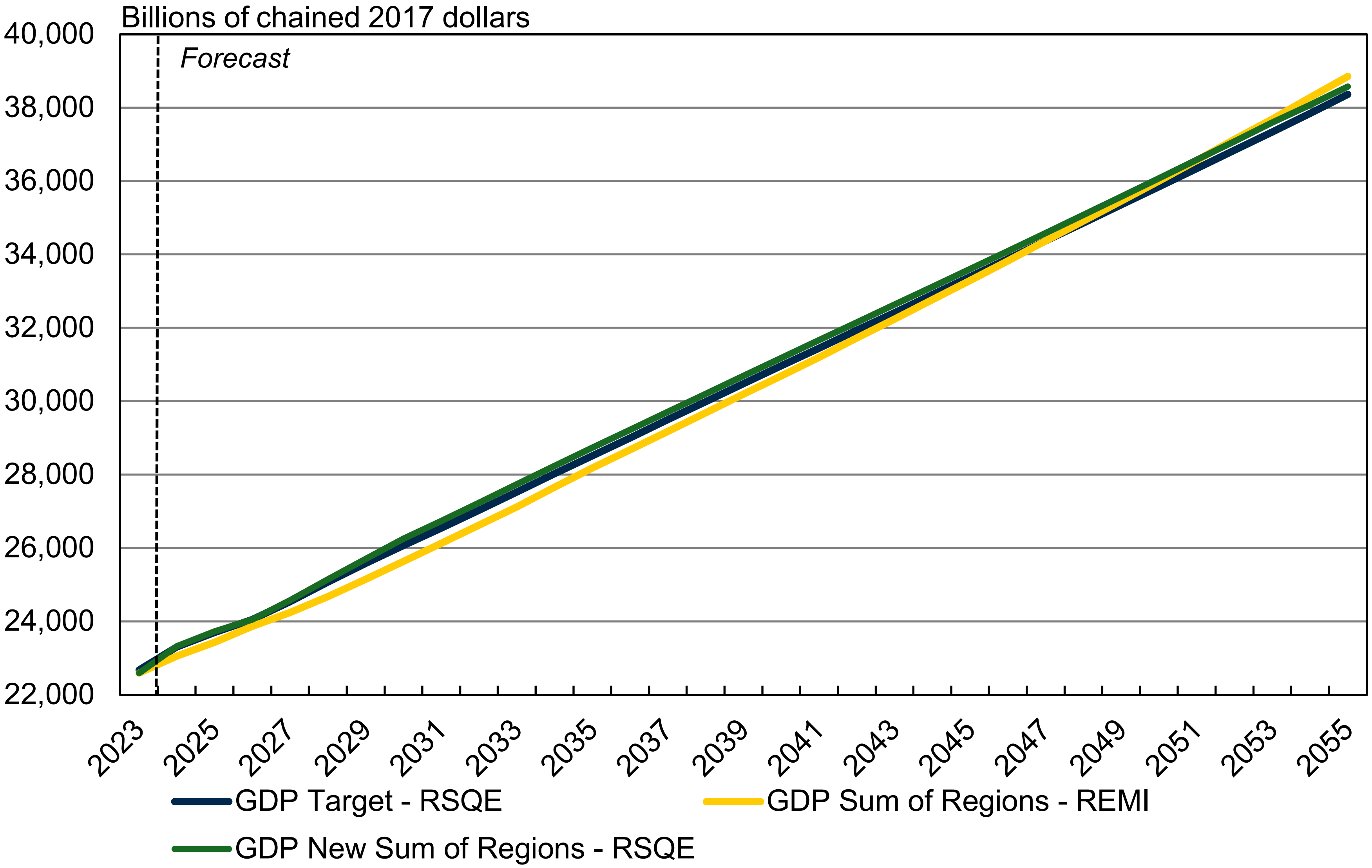
	History			REMI's Forecast			RSQE's Proposed Path		
	2001	2019	2023	2025	2030	2055	2025	2030	2055
Gross Private Domestic Fixed Investment	17.3%	18.2%	18.7%	18.4%	19.3%	23.0%	18.7%	19.8%	20.3%
Residential	5.5%	3.7%	3.3%	3.0%	3.2%	2.6%	3.1%	3.1%	2.8%
Nonresidential Structures	4.3%	3.1%	2.7%	2.6%	2.4%	2.1%	2.6%	2.2%	2.1%
Nonresidential Equipment	4.6%	6.3%	6.3%	6.3%	6.7%	9.3%	6.5%	6.7%	6.7%
Nonres. Intellectual Property Products	2.9%	5.2%	6.4%	6.6%	7.1%	9.0%	6.5%	7.9%	8.7%

The Distribution of GDP—Trade and Government Spending

- RSQE expects the trade deficit to narrow in the long-run
- Both RSQE and REMI expect the share of government consumption and investment to decline sharply
- RSQE expects the decline to be smaller than REMI

	History			REMI's Forecast			RSQE's Proposed Path		
	2001	2019	2023	2025	2030	2055	2025	2030	2055
Change in Private Inventories	-0.3%	0.4%	0.2%	0.5%	0.4%	0.3%	0.4%	0.4%	0.4%
Net Trade of Goods and Services	-4.2%	-3.0%	-4.0%	-5.2%	-4.4%	-6.2%	-5.1%	-4.9%	-2.8%
Exports of Goods and Services	8.1%	11.0%	10.9%	10.9%	11.1%	12.2%	10.5%	10.0%	11.0%
Imports of Goods and Services	-12.3%	-14.1%	-15.0%	-16.1%	-15.6%	-18.4%	-15.6%	-14.9%	-13.9%
Govt Consumption & Gross Investment	20.5%	17.5%	16.8%	16.7%	15.5%	10.8%	16.4%	15.6%	13.7%
Federal Military	4.0%	4.0%	3.7%	3.8%	3.5%	2.5%	3.6%	3.8%	3.3%
Federal Civilian	2.5%	2.7%	2.7%	2.6%	2.3%	1.7%	2.5%	2.3%	2.1%
State and Local Government	13.9%	10.8%	10.4%	10.4%	9.6%	6.7%	10.3%	9.5%	8.4%

Our projection for total real GDP growth is not substantially different from the REMI baseline



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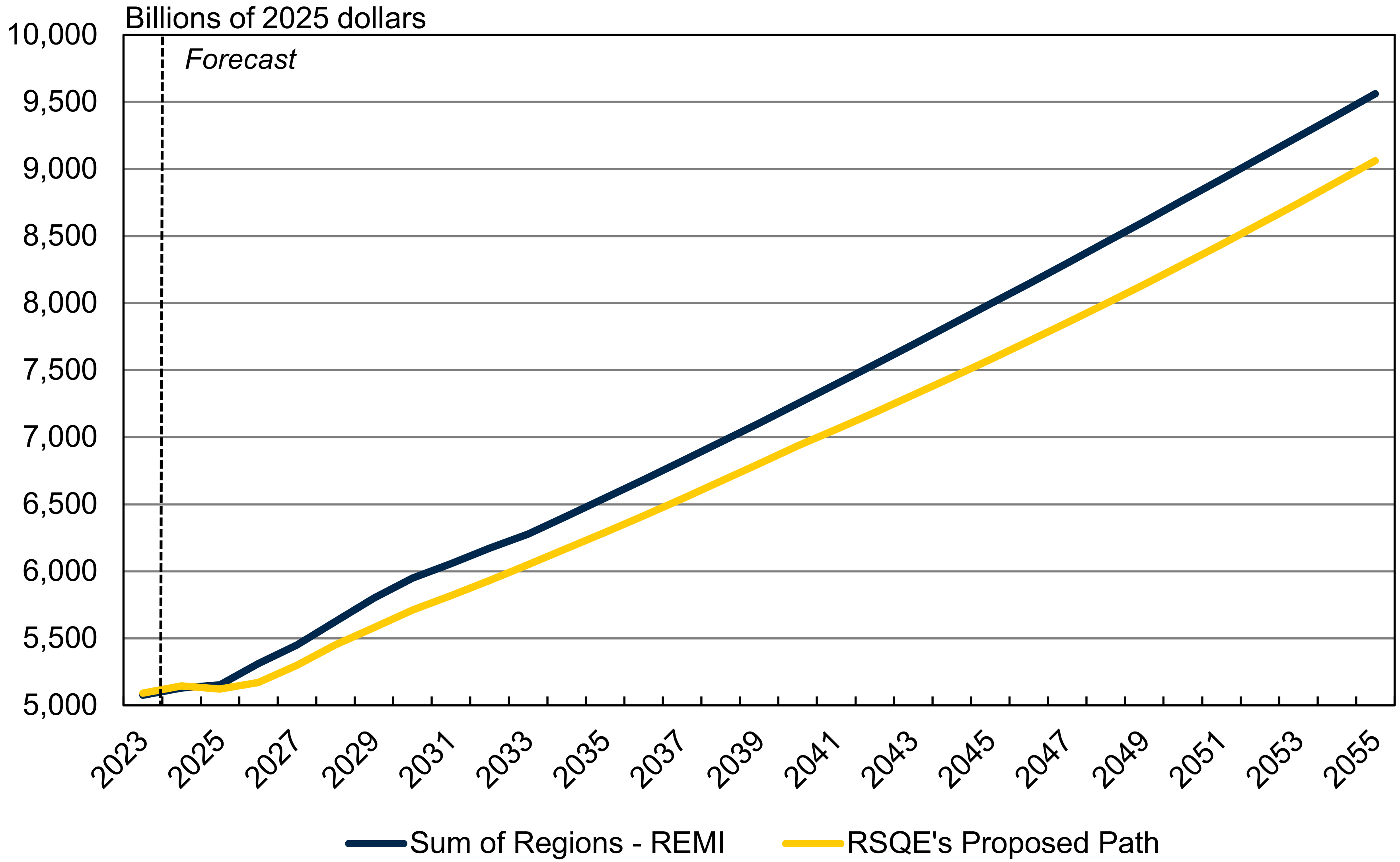
Adjustments to Personal Income and Taxes

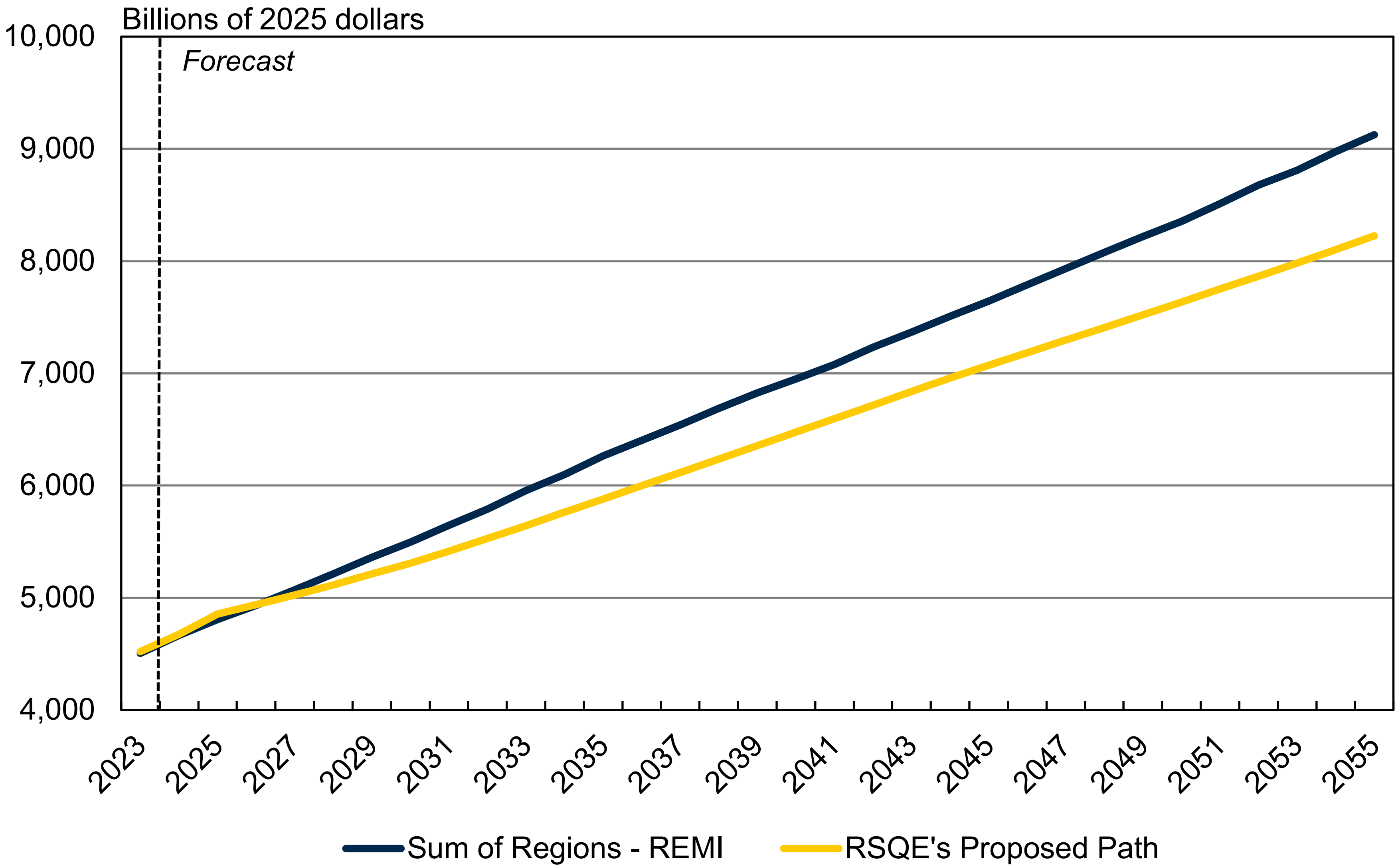
- Personal income per capita and disposable personal income per capita in the REMI control run grow faster than GDP per capita
  - We do not believe this is sustainable in the long run

- To correct for this:
  - We reduce the growth of capital income and transfer payment income
  - We increase social insurance and personal income taxes

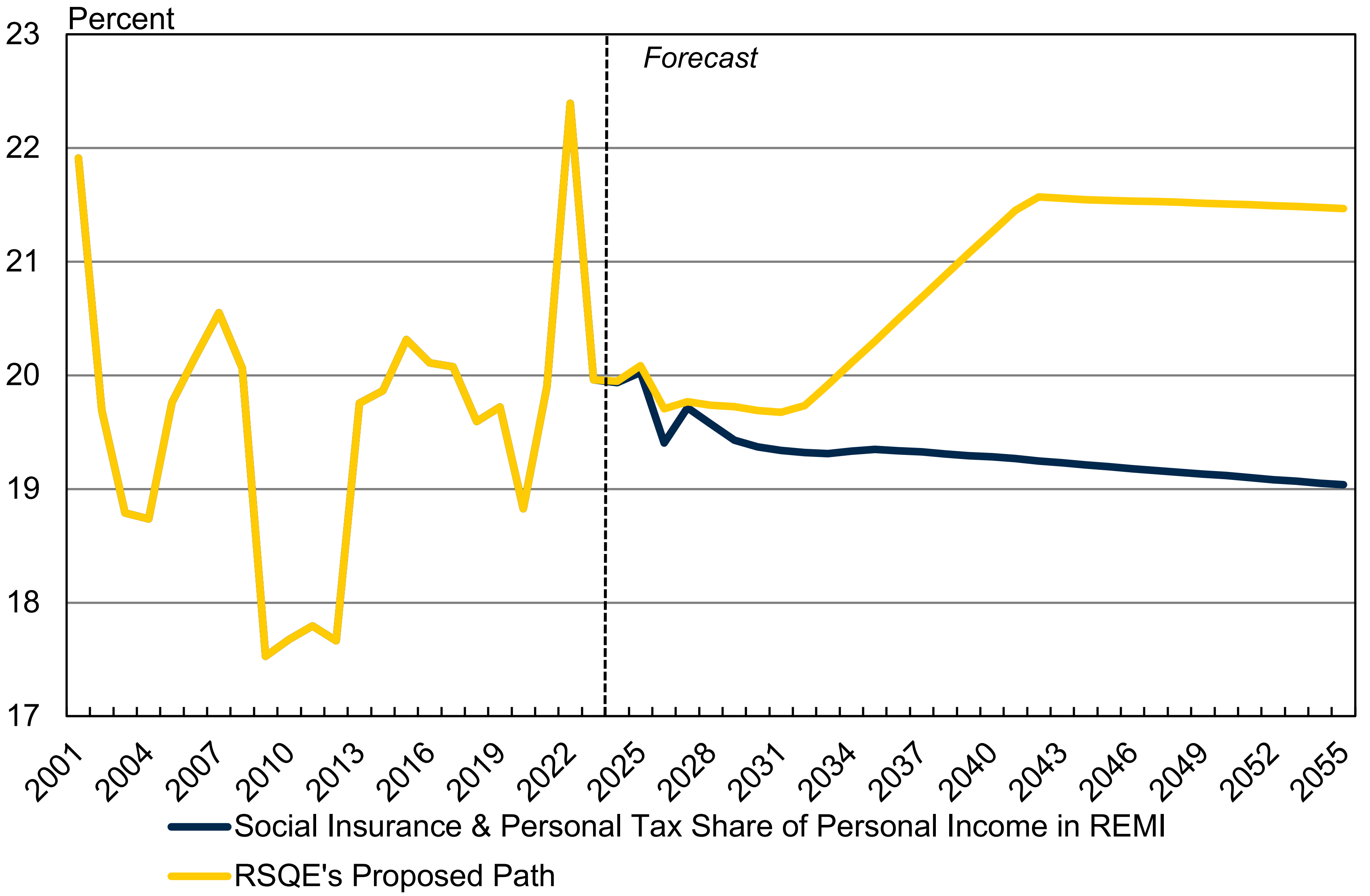
We expect property income (dividends, interest, and rent) to grow at a slower pace than in the REMI baseline forecast



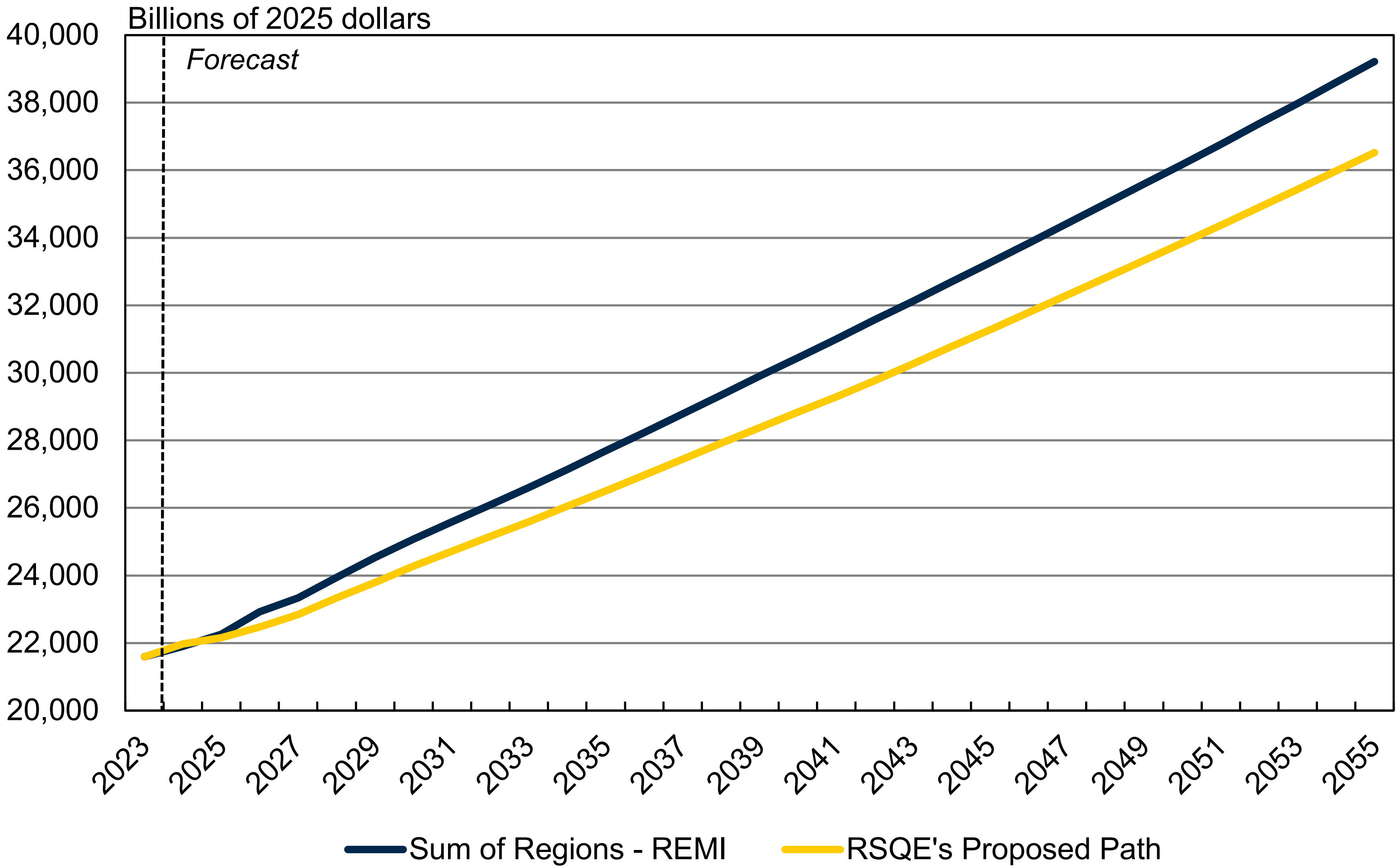
We also expect the growth of transfer income (especially Medicaid and Social Security) to be slower than in the REMI baseline



We believe social insurance and personal taxes as a share of personal income will increase in the long run to offset rising transfer payments



Altogether, our adjustments slow the growth of real personal disposable income



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Long-Run Outlook for the Auto Industry

- We pay particularly close attention to the auto industry due to its importance to Michigan

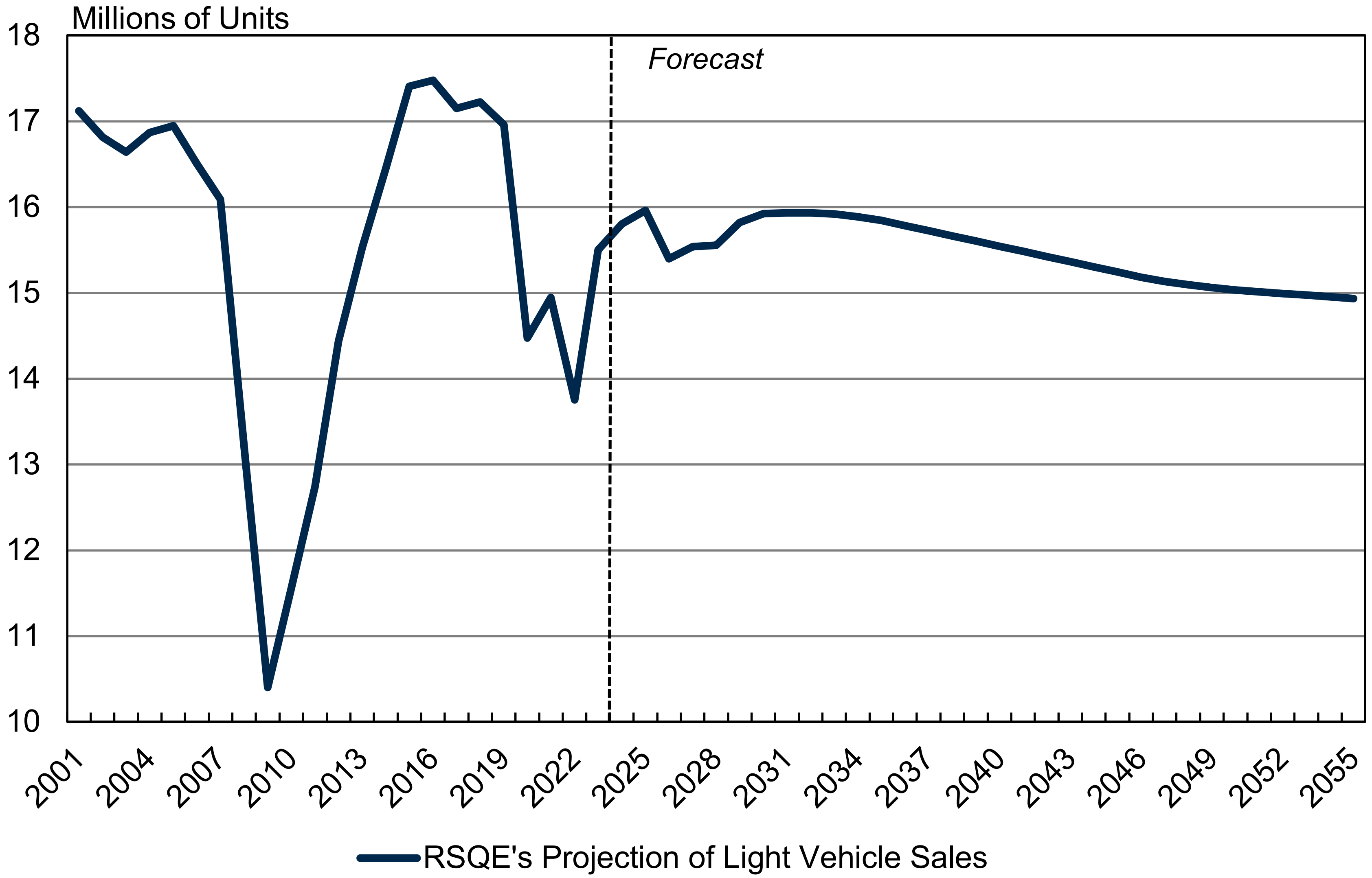
- Key issues:

  - Total vehicle sales: the long-run level of sales is determined by the longevity of the fleet and the number of vehicles needed per driving age adult

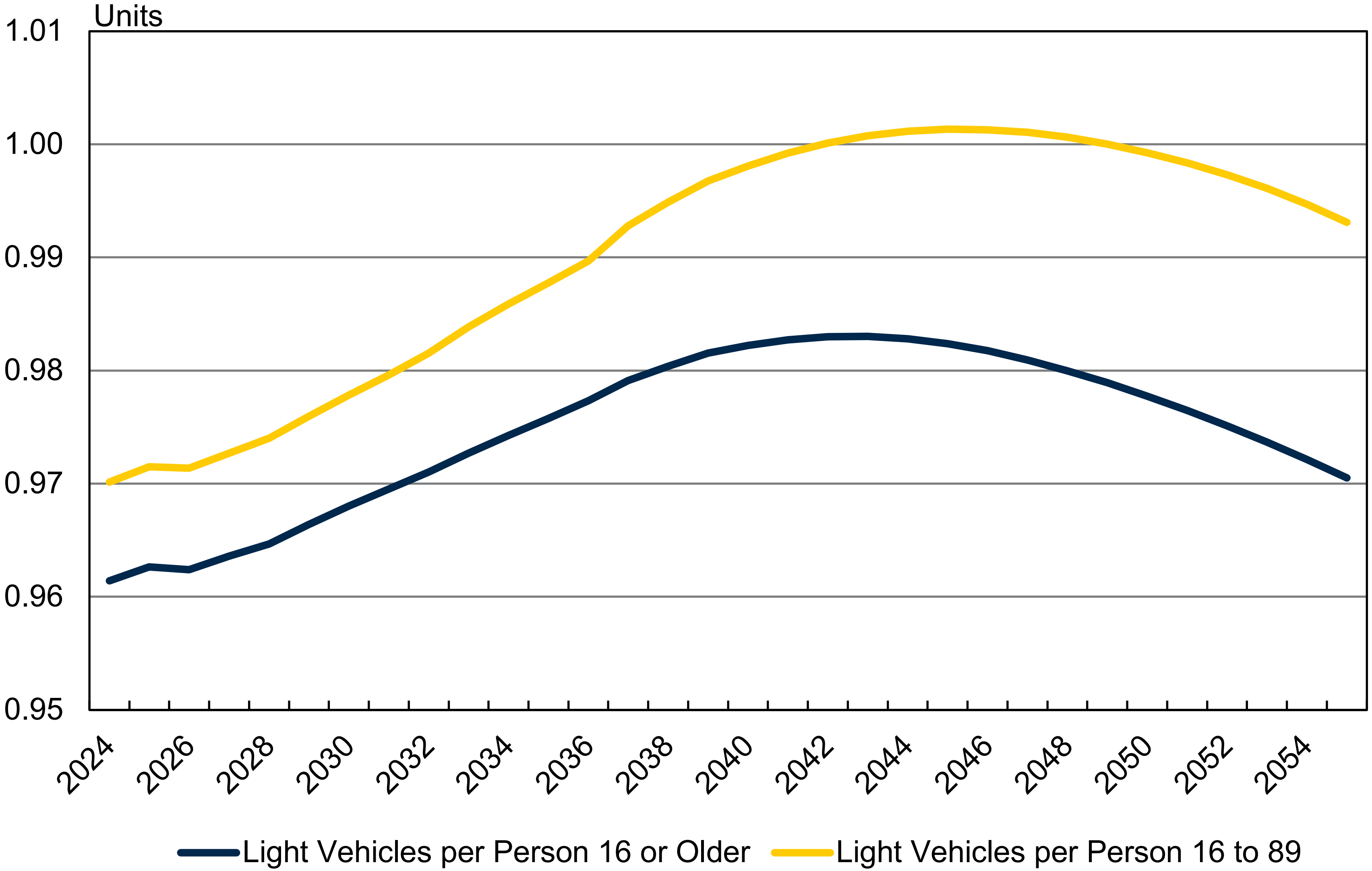
  - The transition to electric vehicles: we believe that the transition will be slower than previous predictions

  - As part of our forecast for MDOT, we will develop an alternative scenario projection with a faster transition to electric vehicles

We believe annual new light vehicle sales in the US have peaked and will slowly decline



The stock of light vehicles peaks at about one per person aged 16 or older, which means the total stock of vehicles is limited by population growth



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Adjustments to the Regional Control Forecast in REMI (MI Counties and the City of Detroit)

Regional Population Adjustments for 2024

- We target the 2024 Census population estimates by race/ethnicity for each county in Michigan and the city of Detroit
  - We use the Economic Migration policy variable in REMI to make the change

Total Population in Michigan by Race and Ethnicity, 2024
Census vs REMI Baseline

	Hispanic	Non-Hispanic Black	Non-Hispanic Other	Non-Hispanic White	Total
Census	623,879	1,387,002	723,627	7,405,951	10,140,459
REMI Baseline	621,239	1,385,242	708,823	7,341,284	10,056,588
Adjustment	2,640	1,760	14,804	64,667	83,871

Regional Employment Adjustments

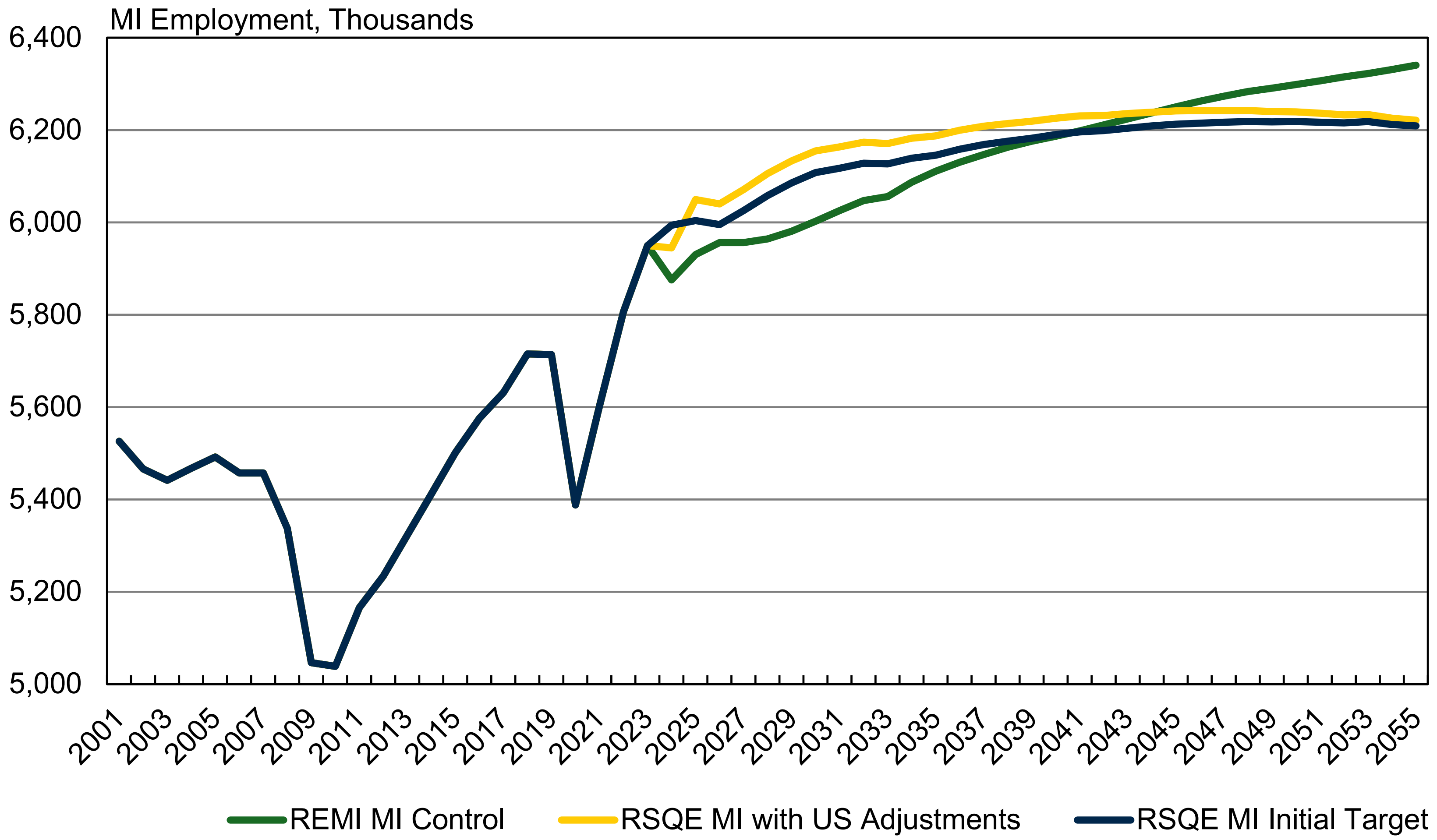
- We target the QCEW county employment growth rates from 2023 to 2024 and from 2024Q1 to 2025Q1 by major industry group
- Note that total employment as measured by the REMI model includes proprietors
  - Historically, total employment has grown about 0.3% faster per year than wage and salary employment
  - We incorporate this additional growth when appropriate in our adjustments
- REMI policy variables:
  - Employment levels are adjusted with "Industry Employment (International Exports)"
  - We nullify intermediate inputs <u>and</u> investment induced by industry employment
  - We also adjust the wage bill by county and sector to nullify the effects of our employment modifications on total income and consumer spending

Average Annual Employment Growth With and Without Adjustments

	United States		Michigan		
	REMI Control	With Adjustments	REMI Control	With US Adjustments	RSQE's Initial Target
2001–2023	1.22%	1.22%	0.34%	0.34%	0.34%
2023–2030	0.44%	0.73%	0.13%	0.48%	0.38%
2030–2055	0.33%	0.28%	0.22%	0.04%	0.07%

- Our national adjustments result in stronger job growth for the United States from 2023–2030 and slightly slower growth from 2030–2055 compared to the REMI baseline
- The US adjustments also raise state growth from 2023–2030 but result in much weaker growth from 2030–2055
- Our initial county adjustments reduce the growth rate in the early years of the forecast while raising it in the mid-to-late forecast years

The initial adjustments raise Michigan's employment in the near term but lower it by the end of the forecast



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