

REMI RESEARCH & DEVELOPMENT

2026 Review and 2027 Preview

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Agenda



Data Notes

Model Changes

Looking into 2027

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



Disruptions



Massive layoffs at BEA in 2025



Government shutdown caused gaps in data collection



Delays & cuts



Gross Domestic Product and Personal Income by County released two months late



U.S. Travel and Tourism Satellite Accounts no longer produced regularly



What I've heard



BEA has discussed bringing back some employment data



BEA is working on adding more sectors to GDP data

Improving Estimates of Discontinued BEA Employment



LAST YEAR'S PLAN

Supplement QCEW with Nonemployer Establishment data to estimate employment by industry for each county



WHAT WE DID INSTEAD

Replicate BEA's sources and methods as closely as possible, consistent with BEA's compensation and earnings data

Some BEA sources are not public

What the replication covers



Proprietors' employment

National, state, and county estimates by industry, derived from IRS Statistics of Income tax return data



Wage & salary employment

Additional estimates for the farm, military, and private household sectors, which QCEW does not adequately cover

Replicating BEA Wage and Salary Employment



Farm

Source: USDA Census of Agriculture, Farm Labor Survey, and Farm Income and Wealth Statistics

AZ, CA, CT, DE, FL, HI, MA, NJ, RI, and WA still use QCEW, same as BEA



State military

Source: Defense Manpower Data Center (DMDC) personnel data

County data not publicly available



Insurance

Method: QCEW scaled up by the NIPA/QCEW national ratio

Adds statutory workers exempt from unemployment insurance coverage



Private households

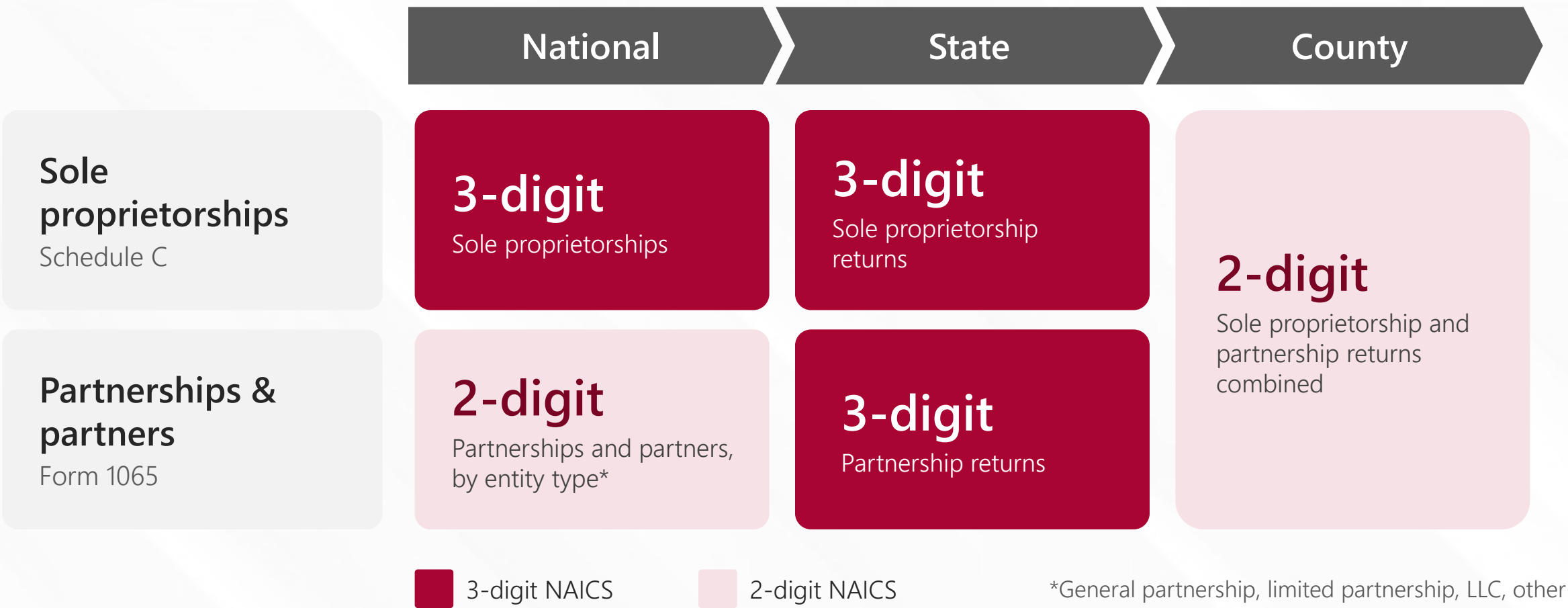
Method: National estimates allocated to states and counties using 2011–2013 ACS employment shares

Extrapolated forward based on ACS household population

IRS Statistics of Income (SOI) Data



Proprietors' employment is estimated from IRS SOI tax return data



General Strategy for Estimating Data

1



Set bounds

Calculate the bounds for each missing data point

2



Initial estimates

Make an initial estimate for each missing data point

3



Solve by state

Solve a constrained optimization for all the counties in each state that stays close to our estimates and BEA income data

4



Reconcile (RAS)

RAS solution to make sure constraints are met, since we solved multiple separate optimization problems

Solve for Compensation, Earnings, and Employment



Step 3 in detail: employment estimates must also agree with BEA's compensation, wage, and earnings data

MINIMIZE THE SUM OF

WHAT EACH TERM MEASURES

$$1 \quad \sum_{i=1}^n \sigma_i^1 |Comp_i - Comp0_i|$$

Close to initial compensation

Difference between compensation and the initial compensation estimate

$$2 \quad + \sum_{i=1}^n \sigma_i^1 |Comp_i - CompRate * Emp_i|$$

Employment consistent with compensation

Difference between compensation and employment $\times$ the compensation rate

$$3 \quad + \sum_{i=1}^n \sigma_i^2 |Earn_i - Earn0_i|$$

Close to initial earnings

Difference between earnings and the initial earnings estimate

$$4 \quad + \sum_{i=1}^n \sigma_i^2 \frac{1}{10} |Earn_i - Comp0_i|$$

Earnings consistent with compensation

Difference between earnings and initial compensation, at one-tenth the weight

what does **REMI** say?sm

Self Employment Dynamics (SED)



Expected

January 2027

New dataset from the Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program

What it measures

Self-employment work including contract, freelance, or gig work or from independent business ownership

Built from

1040 Schedule C

1099-NEC

1099-K

Also captures workforce and jobs composition, transitions between types of work, and counts and earnings for new, ending, and continuing self-employment jobs



Open question: we don't know how much detail will be provided

what does **REMI** say?sm

Bureau of Labor Statistics Employment Projections



BLS projections supply the historical and forecasted supply and use tables behind REMI's input-output tables



2023–2033 release

192 → 166

sectors in the BLS
projections

The impact



Not enough sectors to
support the REMI 160-sector
model



Federal Military and Federal
Civilian combined into one
category, affecting all
models

Waited before updating

We didn't update the tables used
in our models until we were sure
the sector detail would not be
restored

- 2024–2034: not restored
- 2025–2035: not restored

Ready to update our models



We still considered the final demand growth rates from the employment projections when we calibrated the national forecast

what does *REMI* say?sm

Sectors No Longer Supported By Employment Projections



Chemical manufacturing (2)

- Basic chemical manufacturing
- Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing
- Pesticide, fertilizer, and other agricultural chemical manufacturing
- Other chemical product and preparation manufacturing
- Paint, coating, and adhesive manufacturing
- Soap, cleaning compound, and toilet preparation manufacturing

Fabricated metal product manufacturing (2)

- Forging and stamping
- Cutlery and handtool manufacturing
- Hardware manufacturing
- Spring and wire product manufacturing
- Other fabricated metal product manufacturing
- Architectural and structural metals manufacturing
- Boiler, tank, and shipping container manufacturing

Machinery manufacturing

- Agriculture, construction, and mining machinery manufacturing
- Industrial machinery manufacturing
- Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing
- Other general purpose machinery manufacturing

Miscellaneous information services

- Newspaper, periodical, book, and directory publishers
- Radio and television broadcasting, media streaming distribution services, social networks, and other media networks and content providers
- Web search portals, libraries, archives, and other information services

Nonmetallic mineral product manufacturing

- Clay product and refractory manufacturing
- Glass and glass product manufacturing
- Cement and concrete product manufacturing
- Lime, gypsum and other nonmetallic mineral product manufacturing

Rental and leasing services

- Consumer goods rental and general rental centers
- Commercial and industrial machinery and equipment rental and leasing

Federal government

- Federal civilian
- Federal military

Furniture manufacturing mapping change

Office furniture manufacturing

- needs to be separated from Other furniture related product manufacturing
- and merged with Household and institutional furniture and kitchen cabinet manufacturing



The change

The latest BEA and Census releases replaced Connecticut county data with planning region data



The gap

The old county history generally was not converted, leaving us without data



The need

A historical dataset was essential so we could build models that contain Connecticut

HOW WE BUILT A PLANNING REGION HISTORY



Aggregate where possible

Some Census data could be aggregated from towns to planning regions



Create an artificial history

For most data concepts, often by estimating what share of each county belongs to each planning region



HARD CASE

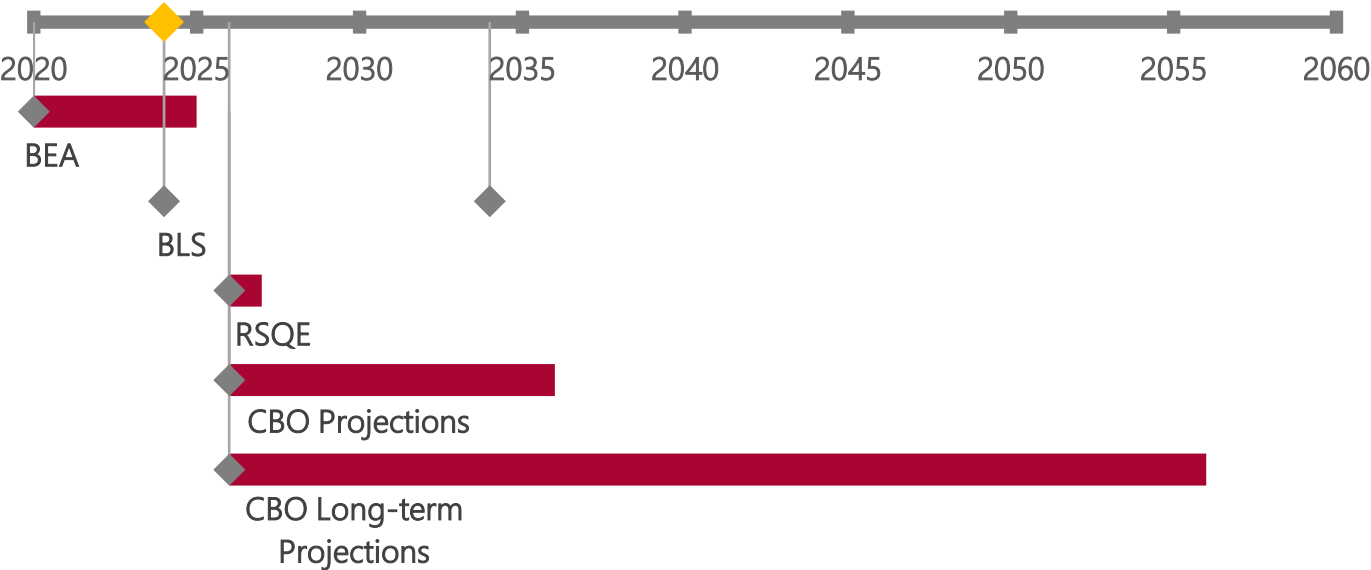
Air Transportation

Airports aren't evenly distributed within a county, so county shares don't fit

National Final Demand Forecast



Major Sources for National Final Demand Forecast
(Last History Year 2024)



Sources

- **BEA Gross Domestic Product**
Released March 2026
- **BLS Employment Projections**
2024–34 · Released Aug. 2025
- **RSQE U.S. Economic Outlook**
2026–2027 · Released March 2026
- **CBO Budget & Economic Outlook**
2026–2036 · Released Feb. 2026
- **CBO Long-Term Budget Outlook**
2026–2056 · Released Feb. 2026

RSQE Considerations (March 2026)



Middle East wildcard: The forecast was completed just before the U.S.-Israeli attack on Iran, the forecast effectively assumes a prompt de-escalation. The oil spike proves largely transitory, with prices back toward \$60 per barrel by mid-2026. A prolonged conflict that disrupts oil flows could weigh on the global economy

REAL GDP GROWTH

2.6% | 2.1%

Calendar years 2026 | 2027

UNEMPLOYMENT RATE

4.4%

Up from 4.3% by mid-2026,
then flat

CPI INFLATION

2.7%

By end of 2027; PCE eases to
2.3%

FED FUNDS RATE

2 cuts

25 bp each in 2026, under new
Fed Chair

Key assumptions

Tariffs: 10% global tariff (Section 122) after the Supreme Court IEEPA ruling; no drastic decline through 2027

Consumers: Tariff costs and slower wage growth weigh through mid-2026; tax relief and rate cuts help later

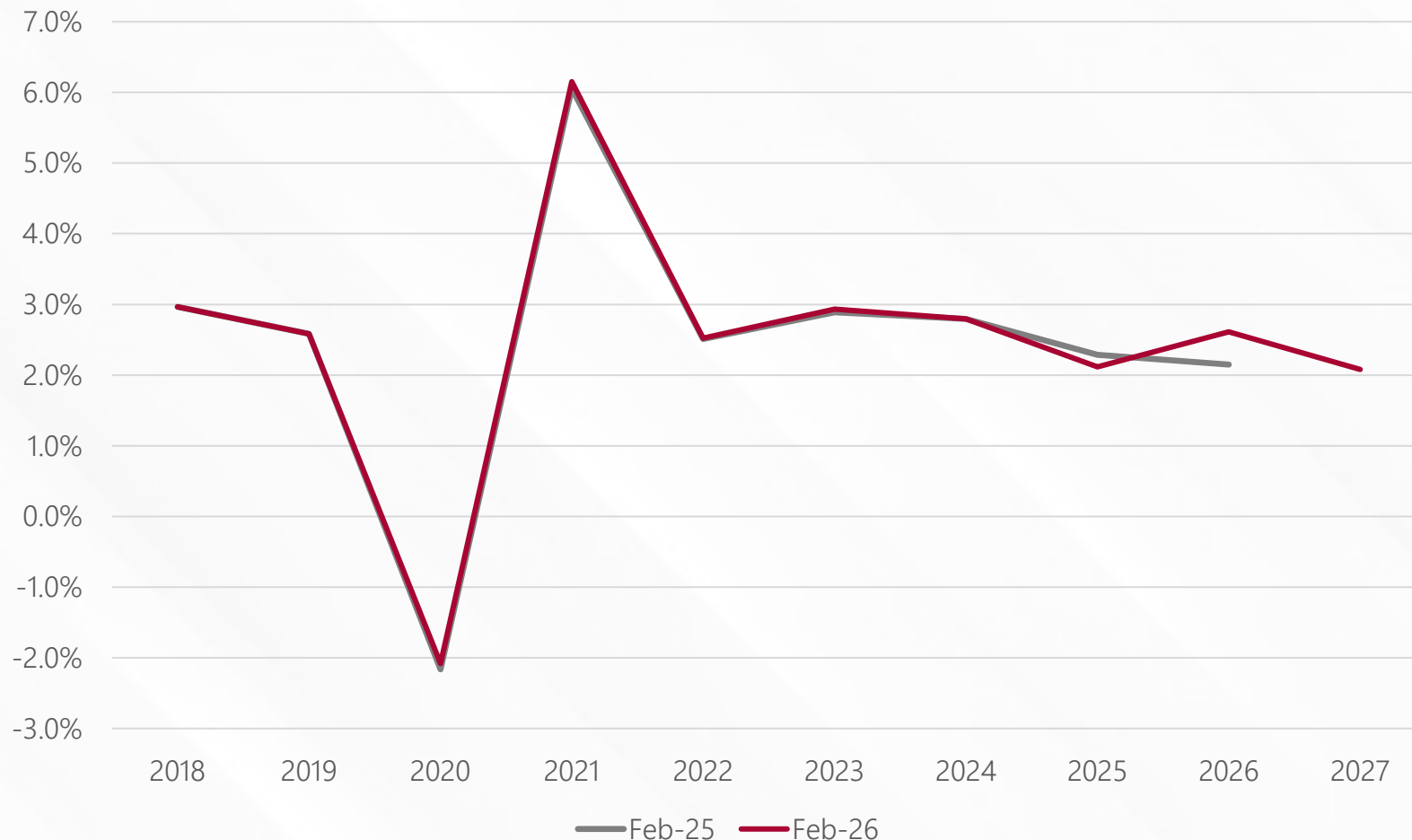
Fiscal policy: Essentially on autopilot before the midterms; federal spending roughly flat vs. the prior fiscal year

Housing: Gradual, uneven recovery; single-family starts reach about 967,000 by 2027Q4 as mortgage rates decline

Source: RSQE, The U.S. Economic Outlook for 2026–2027 (University of Michigan, March 5, 2026)

Comparison of RSQE's GDP Growth

Real GDP growth, calendar year



2026 GDP GROWTH

2.1% → 2.6%

February 2026 forecast vs. February 2025

2027 GDP GROWTH

2.1%

what does **REMI** say?sm

Changes in CBO's Economic Projections

CBO projections for 2026: February 2026 outlook vs. January 2025 outlook

2026 projection	Jan 2025	Feb 2026	Change
Real GDP growth calendar year	1.8%	2.4%	↑
Inflation PCE price index	2.1%	2.7%	↑
Unemployment rate annual average	4.4%	4.6%	↑
Federal funds rate annual average	3.5%	3.5%	—
10-year Treasury rate annual average	3.9%	4.1%	↑

What changed



2025 reconciliation act

Tax cuts and full expensing lift 2026 spending



Shutdown rebound

Recovery from the Oct.–Nov. 2025 shutdown



Tariffs

Higher import costs; inflation up through 2029



Immigration enforcement

Lower net immigration slows labor force growth



Generative AI

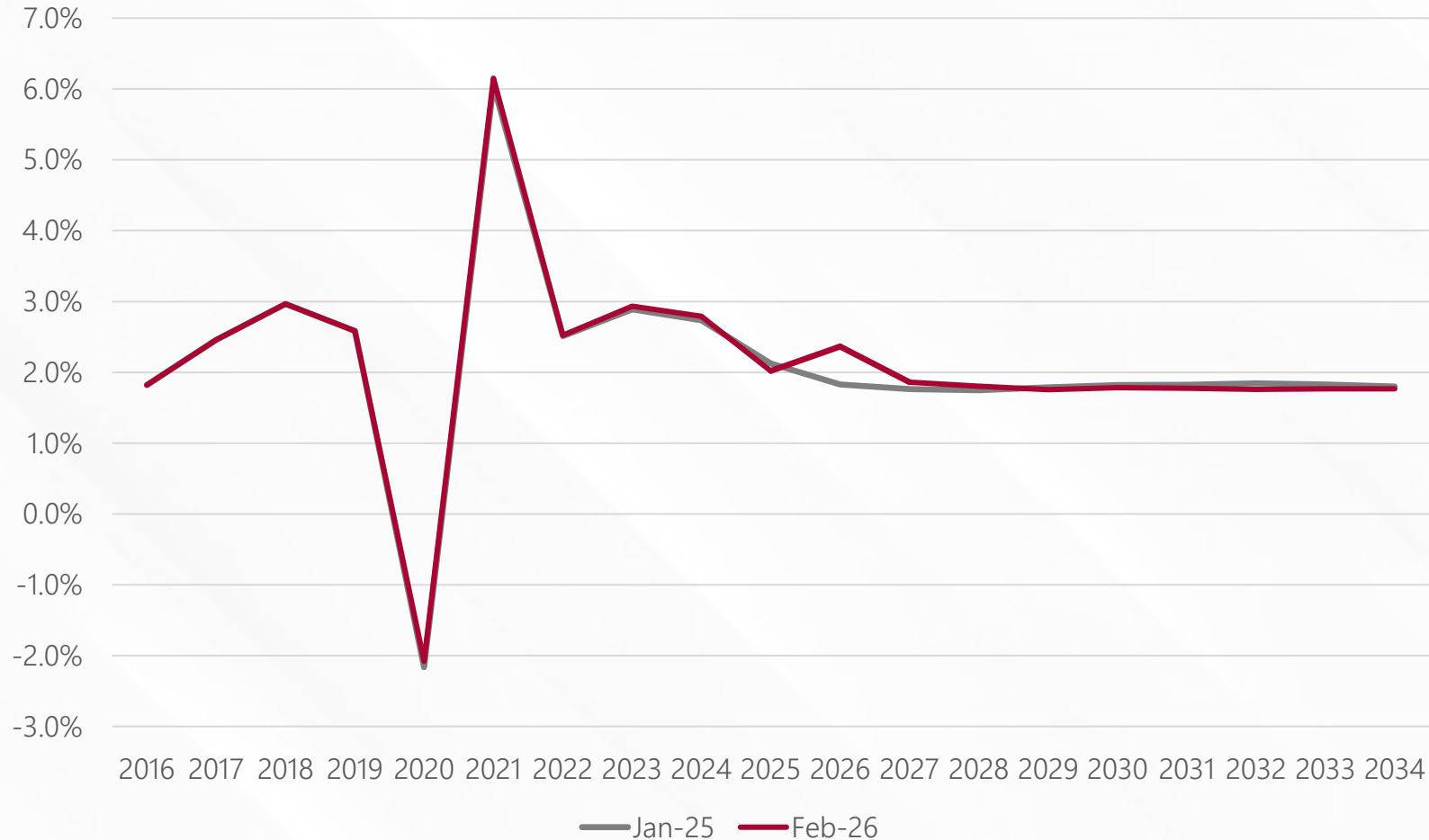
Faster productivity growth in later years

Longer run: GDP growth averages 1.8% a year (2027–2036); unemployment 4.2% by 2032; PCE inflation 2% by 2030

Source: CBO, The Budget and Economic Outlook: 2026 to 2036 (Feb. 2026) and 2025 to 2035 (Jan. 2025)

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Comparison of CBO's Forecasts of Real GDP Growth



2026 REAL GDP GROWTH

1.8% → 2.4%

February 2026 projection vs.
January 2025

2027 REAL GDP GROWTH

1.8% → 1.9%

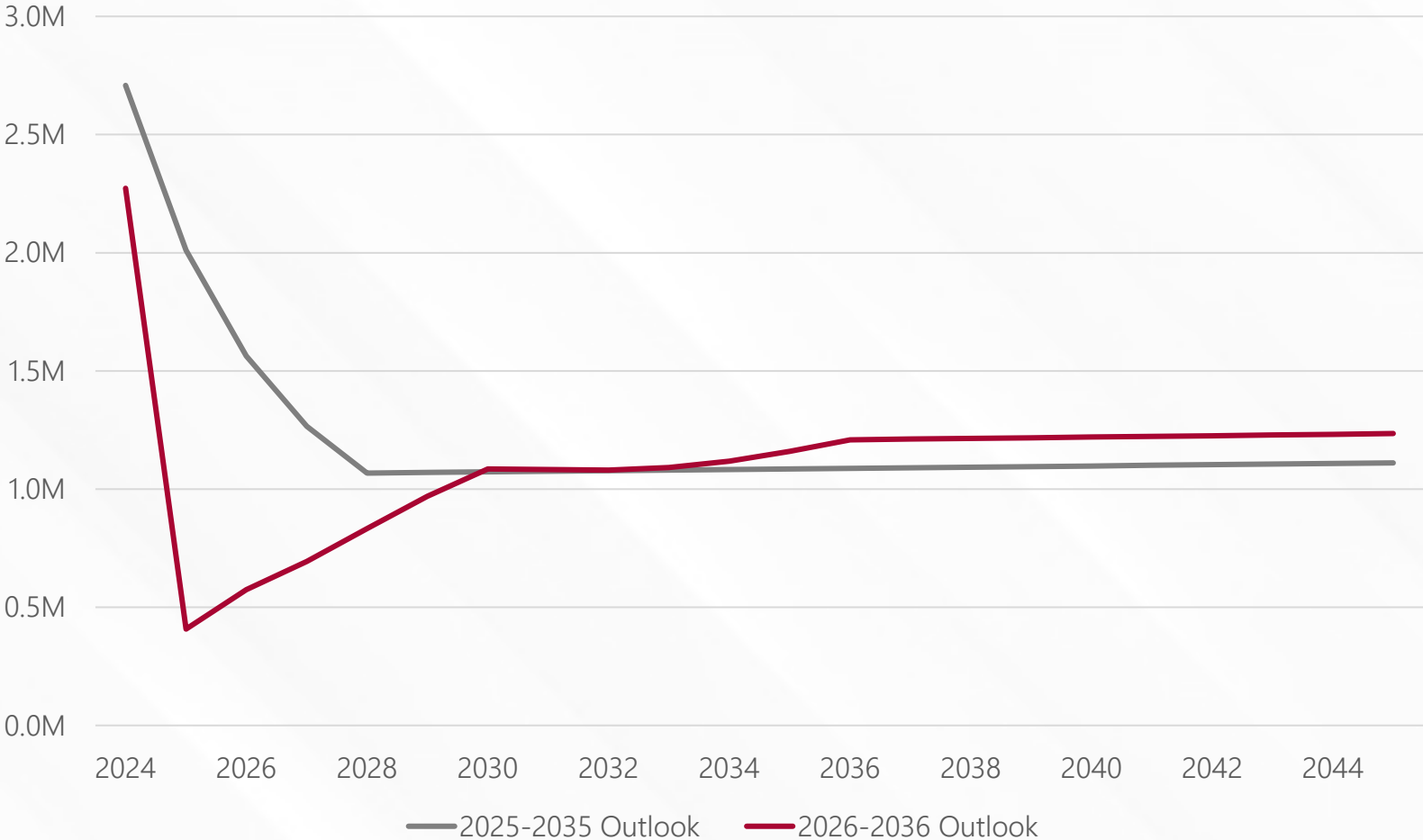
Slightly stronger in the new
projection

2030–2034

≈1.8%

Long-run growth about the same
in both

Net International Migration Comparison



2025 NET MIGRATION

2.0M → 0.4M

Newer 2026–2036 outlook vs. the 2025–2035 outlook

BY 2030

≈1.1M in both

The newer outlook then runs higher, reaching 1.2M by 2036 vs. 1.1M

Agenda



Data Notes

Model Changes

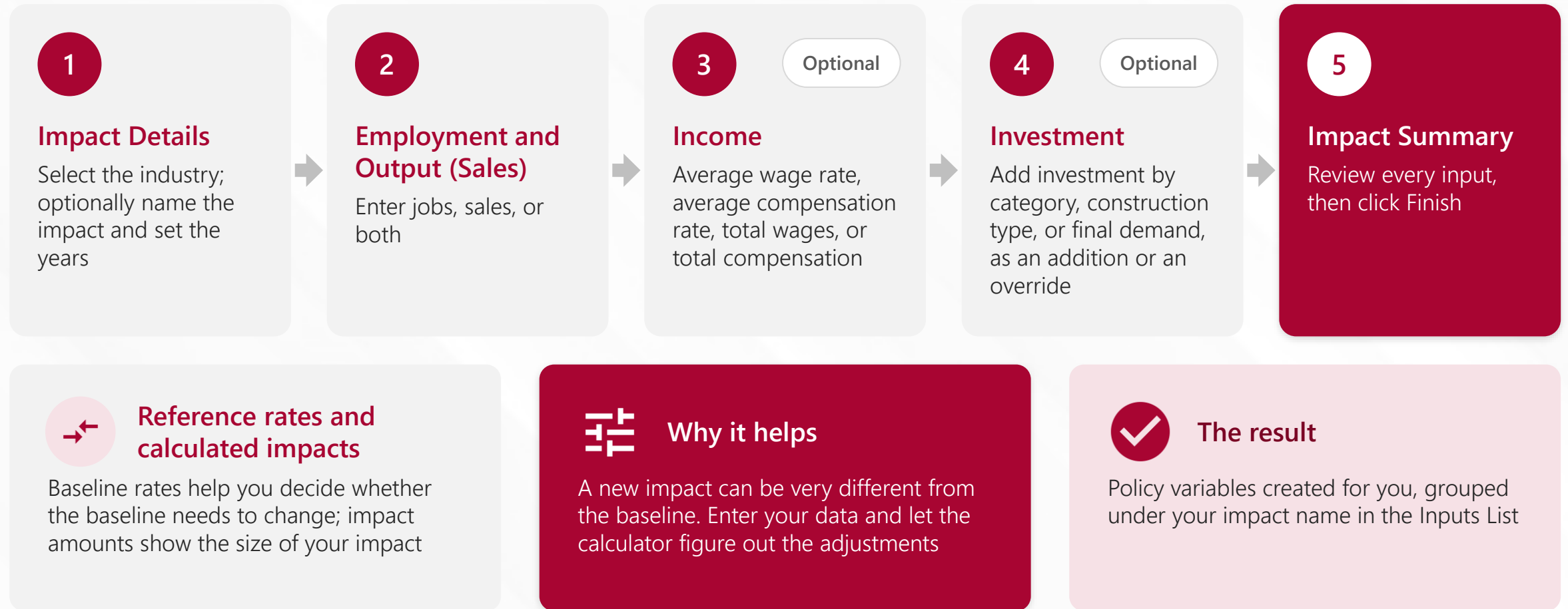
Looking into 2027

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

Economic Impact Calculator

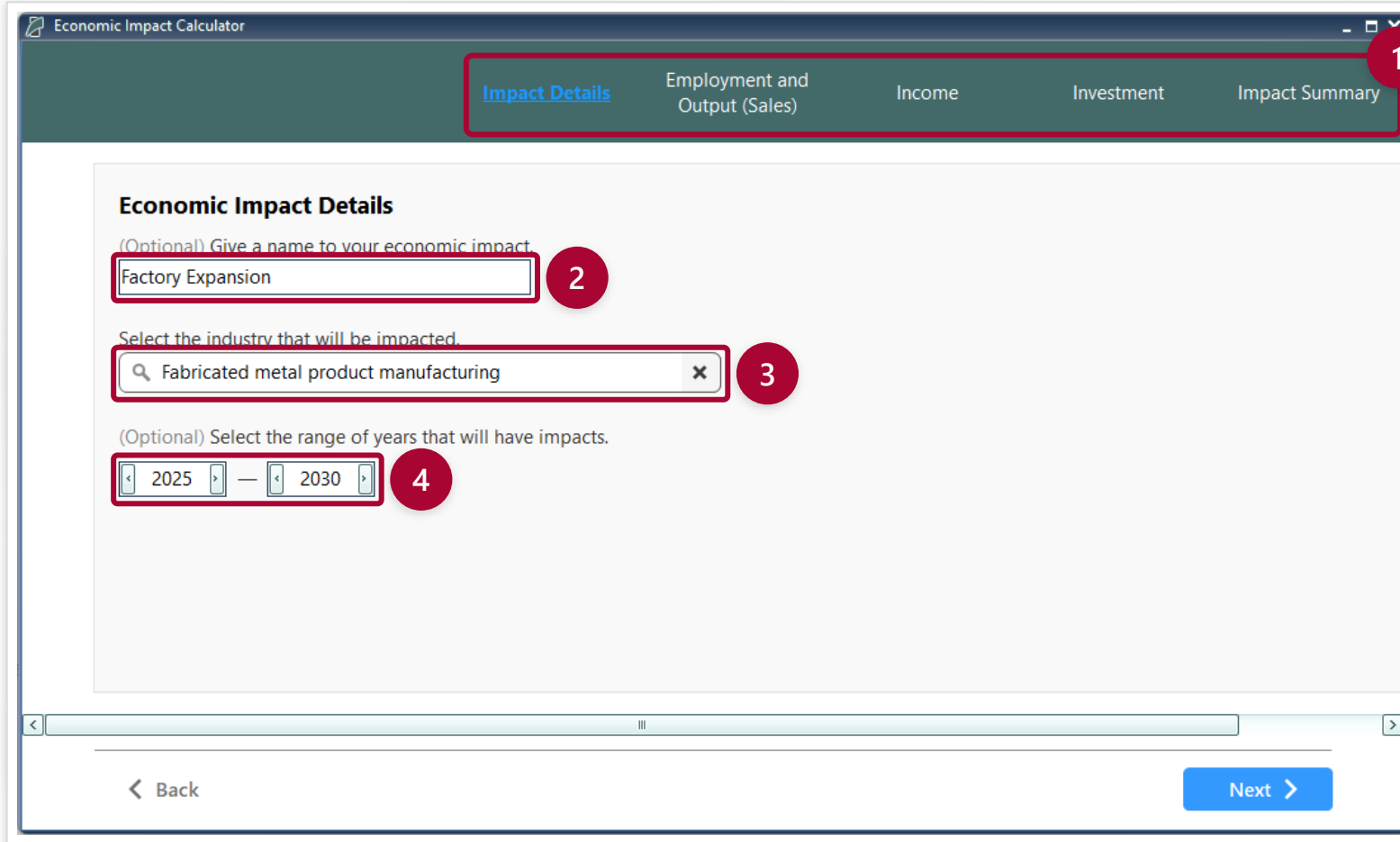


A guided, five-step tool that turns project data into model inputs



what does **REMI** say?sm

Economic Impact Calculator: Impact Details



STEP BY STEP

- 1 Five tabs walk you through the impact
- 2 (Optional) Name your impact
- 3 Select the industry that will be impacted
- 4 (Optional) Select the range of years with impacts

Economic Impact Calculator: Employment and Output

Economic Impact Calculator

Impact Details **Employment and Output (Sales)** Income Investment Impact Summary

Employment and Output (Sales)

Do you have data for Employment, Output (Sales), or both? 1

How many jobs will be directly created as part of this project? 2

Category	Units	2025	2026	2027	2028	2029	2030
Employment	Units	100	100	100	100	100	100

3 [Open](#)

Reference Rates and Calculated Impacts

Shows baseline labor productivity (output per worker) for the selected region and industry and impacts calculated from your employment and output

Category	Units	2025	2026	2027	2028	2029	2030
Baseline Rates							
Labor Productivity	Nominal \$ (000s)	391.293	404.619	417.471	428.122	439.752	452.273
Impact Amounts							
Output	Nominal \$ (M)	39.129	40.462	41.747	42.812	43.975	45.227

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STEP BY STEP

- 1 Choose whether you have employment, output (sales), or both
- 2 Enter the jobs directly created each year
- 3 See baseline labor productivity and the output it implies

Economic Impact Calculator: Income

Economic Impact Calculator

Impact Details Employment and Output (Sales) **Income** Investment Impact Summary

Income

(Optional) What kind of income data do you have? 1

Does your data correspond to Wage and Salary Employment or Total Employment (includes Proprietors)? 2

☒ Wage and Salary Employment ☐ Total Employment

Enter the average annual wage rate associated with the impact. 3

Category	Units	2025	2026	2027	2028	2029	2030
Wage Rate	Nominal \$ (000s)	65	65	65	65	65	65

4 [Open](#)

Reference Rates and Calculated Impacts

Shows baseline income rates for the selected region and industry and impacts calculated from your inputs.

Category	Units	2025	2026	2027	2028	2029	2030
Baseline Rates							
Wage Rate	Nominal \$ (000s)	69.021	70.648	72.685	74.768	76.832	78.902

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STEP BY STEP

- 1 (Optional) Choose average wage rate, average compensation rate, total wages, or total compensation
- 2 Decide whether the employment is wage and salary or total employment (including proprietors)
- 3 Enter the wage rate
- 4 Compare with the baseline wage rate for the region and industry

Economic Impact Calculator: Investment



Economic Impact Calculator

Impact DetailsEmployment and Output (Sales)IncomeInvestmentImpact Summary

Investment

(Optional) If you have investment data, enter it in an appropriate investment category or as final demand in an appropriate industry. ?

1 Would this investment data override the default investment response of the impact or is it an additional amount? ?

Additional Amount Override Default (Nullify)

General Investment

Detailed Investment

Detailed Construction

Final Demand

2 Enter investment data by detailed construction category. Use below check list to filter the grid.

No filter items selected, type to search

Detailed Construction Category	Units	2025	2026	2027	2028	2029
Other residential structures	Nominal \$ (M)					
Manufacturing structures	Nominal \$ (M)	15				
Other nonresidential structures	Nominal \$ (M)					
Power and communication structures	Nominal \$ (M)					

Nominal \$ (M)

3

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Next >

STEP BY STEP

- 1 Add to, or override, the default investment response
- 2 Choose general, detailed, construction, or final demand
- 3 Enter amounts by year

Economic Impact Calculator: Impact Summary



Economic Impact Calculator

Impact Details

Employment and Output (Sales)

Income

Investment

Impact Summary

Economic Impact Summary

Review the inputs that will model your economic impact.

Category	Units	2025	2026	2027	2028	2029	2030
Employment and Output (Sales)							
Employment (Impact)	Units	100	100	100	100	100	100
Income							
Wage Rate (Impact)	Nominal \$ (000s)	65	65	65	65	65	65
Construction							
Manufacturing structures	Nominal \$ (M)	15	0	0	0	0	0

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Finish >

STEP BY STEP

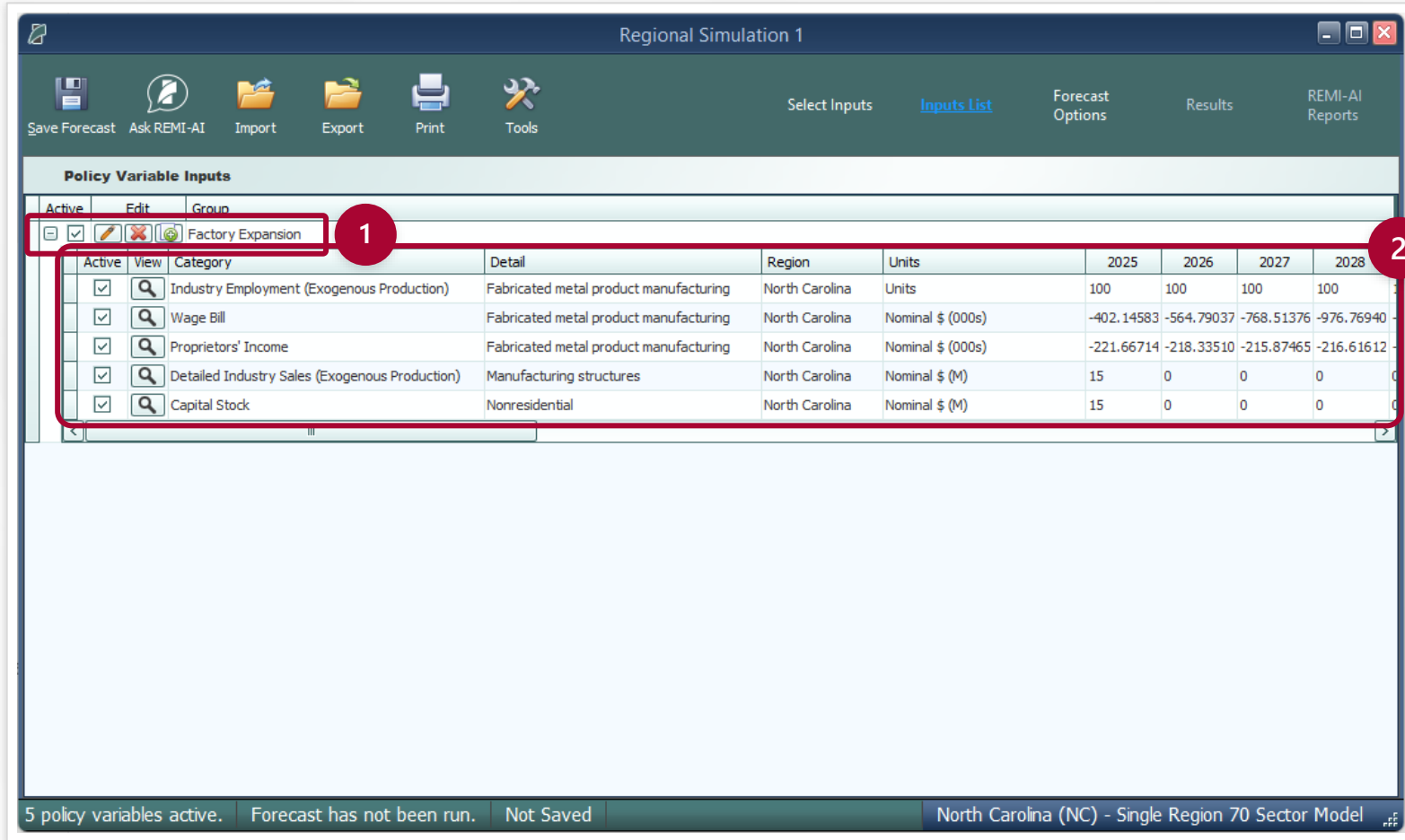
- 1

Review every input in one table
- 2

Click Finish to create the inputs

what does REMI say?sm

Economic Impact Calculator: The Result



Regional Simulation 1

Save Forecast Ask REMI-AI Import Export Print Tools Select Inputs [Inputs List](#) Forecast Options Results REMI-AI Reports

Policy Variable Inputs

Active	Edit	Group
☒		Factory Expansion

1

Active	View	Category	Detail	Region	Units	2025	2026	2027	2028
☒		Industry Employment (Exogenous Production)	Fabricated metal product manufacturing	North Carolina	Units	100	100	100	100
☒		Wage Bill	Fabricated metal product manufacturing	North Carolina	Nominal \$ (000s)	-402.14583	-564.79037	-768.51376	-976.76940
☒		Proprietors' Income	Fabricated metal product manufacturing	North Carolina	Nominal \$ (000s)	-221.66714	-218.33510	-215.87465	-216.61612
☒		Detailed Industry Sales (Exogenous Production)	Manufacturing structures	North Carolina	Nominal \$ (M)	15	0	0	0
☒		Capital Stock	Nonresidential	North Carolina	Nominal \$ (M)	15	0	0	0

2

5 policy variables active. Forecast has not been run. Not Saved North Carolina (NC) - Single Region 70 Sector Model

STEP BY STEP

- 1 The calculator creates a policy variable group on the Inputs List, named for your impact
- 2 Expand the group to see which policy variables were created

Model Results



New results added to the model

		Direct	Indirect	Induced
Value-Added	NEW	✓	✓	✓
Personal Income	NEW	✓	✓	✓



These demand policy variables will now affect the Direct and Indirect results:

Investment	Consumption	Government	Other
- Investment Spending - Investment Demand	- Consumer Spending - Consumption Demand	- Federal Civilian Government Spending - Federal Military Government Spending - State and Local Government Spending - Government Demand	Exogenous Final Demand

what does **REMI** say?sm

Agenda

Data Notes

Model Changes

Looking into 2027



Annual updates

- Historical period 2001–2025
- BLS 2025–2035 employment projections, etc.



Data improvements

- Further improvements to employment and earnings estimates methodology (70 sector level and spreading to detailed sectors)
- Single age population estimates



Software updates

- Optimizations and speed improvements
- Accessibility Improvements

Input-Output Tables



SOURCE

Make and Use Tables from the
BLS Employment Projections
2025–2035



METHOD

Spread the tables to the
detailed sectors BLS used to
produce



REQUIREMENT

Keep Federal Military and
Federal Civilian as separate
sectors

Decision ahead

Keep 160 sectors

Continue to make detailed models using spread
tables

or

Reduce the number of sectors

Build detailed models on fewer sectors

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

Improving Employment Estimates



01

Match BEA methodology

Additional adjustments to employment estimates to better match BEA methodology



02

Proprietors & unsuppression

Potential improvements to proprietor estimation and data unsuppression methodology



03

Detailed-sector sources

Change the data sources used to spread 70-sector data to detailed sectors

Potential Adjustments to Employment Estimates

Sector	Employment type	Possible data source
 Support activities for agriculture	Employees	QCEW for Arizona and California; USDA Census of Agriculture expenditures to spread to other states and counties
 Private elementary and secondary schools	Employees	QCEW for some states and CBP for others
 Rail transportation	Employees	Railroad Retirement Board
 Farm	Proprietors	Various USDA sources

Detailed Model Estimates

TODAY

County Business Patterns (CBP) data spreads 70-sector employment to detailed sectors



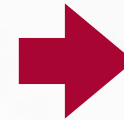
Since 2017, Census drops CBP cells with fewer than three establishments entirely, instead of using employment size flags or suppressed payroll values



CBP is not the primary data source for BEA's employment estimates



CBP does not include proprietors



PLAN

Change the methodology for spreading 70-sector employment data to detailed sectors

Detailed Model Estimates of Employment and Income



Goal: be more consistent with BEA estimates, which is primarily based on QCEW data and includes employees and proprietors.



EMPLOYEES

QCEW

BLS Quarterly Census of Employment and Wages is the base for most of BEA's employee estimates



PROPRIETORS

Nonemployer Statistics

Census establishment counts for detailed sectors by county; need to convert these to an estimate of proprietors



BACKUP

CBP

County Business Patterns could be used when no other data is available

Population Estimates by Single Year of Age



UNTIL NOW

Discontinued

Ages 0 to 85+

National Center for Health Statistics bridged-race estimates, which REMI used to spread Census five-year age cohort data



GOING FORWARD

Ages 0 to 90+

National Cancer Institute's SEER Program estimates, created with Census for calculating mortality rates and available for download



REMI plans to switch to the SEER dataset

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Speed Increases

Compiler changes

Optimization

Multithreading

**Faster
simulations**



Accessibility



Full interface audit

Verified with screen-reader software, not self-assessment



Section 508 VPAT

States what conforms today, with remediation dates for any gaps



Keyboard-shortcut documentation

Published alongside the VPAT

Thank you for attending!

Bring your questions to Friday's Users' Roundtable Discussion

Users' Roundtable Discussion



Help shape Friday's Users' Roundtable Discussion



Scan the QR code



Submit your questions, comments, or suggestions



Discuss them with us on Friday



Scan to submit

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