The Housing Crisis: Modeling Solutions with REMI-AI

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Agenda

Topic Overview

Methodology

REMI AI live model simulation & results

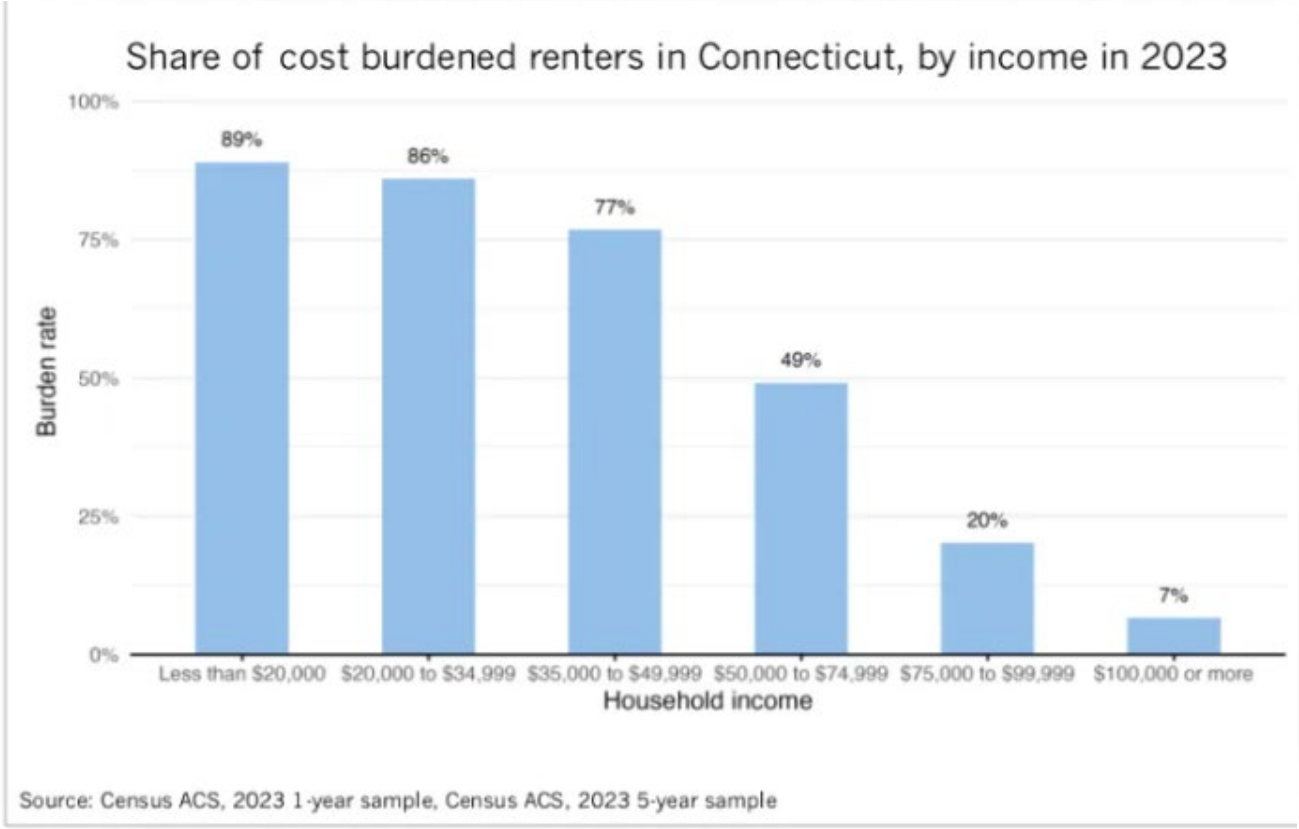
Tight Inventory, High Demand: CT's Housing Market Pressures

- Connecticut's housing market is experiencing historically low inventory levels, with supply down more than 15% compared to the previous year.
- At the same time, demand remains strong, especially in popular counties like Fairfield and New Haven, where access to jobs, schools, and amenities continues to attract buyers.

Home listings have collapsed across Connecticut:

- From 20,000 typical listings in spring/summer
  - **Less than 5,000** today statewide.
- Greater Hartford (pop. 600k)
  - **Just 416 homes** for sale.
- Fairfield County (pop. 960k)
  - **Just 483 homes** for sales under $600,000.

A recent analysis for the state found a total housing shortage of as many as 379,000 homes



Cost burdened households spend more than 30% of their gross income on rent

That's **20% below** what a naturally functioning market would provide

what does REMI say?[sm]

City-by-City Breakdown Highlights Urban Crisis

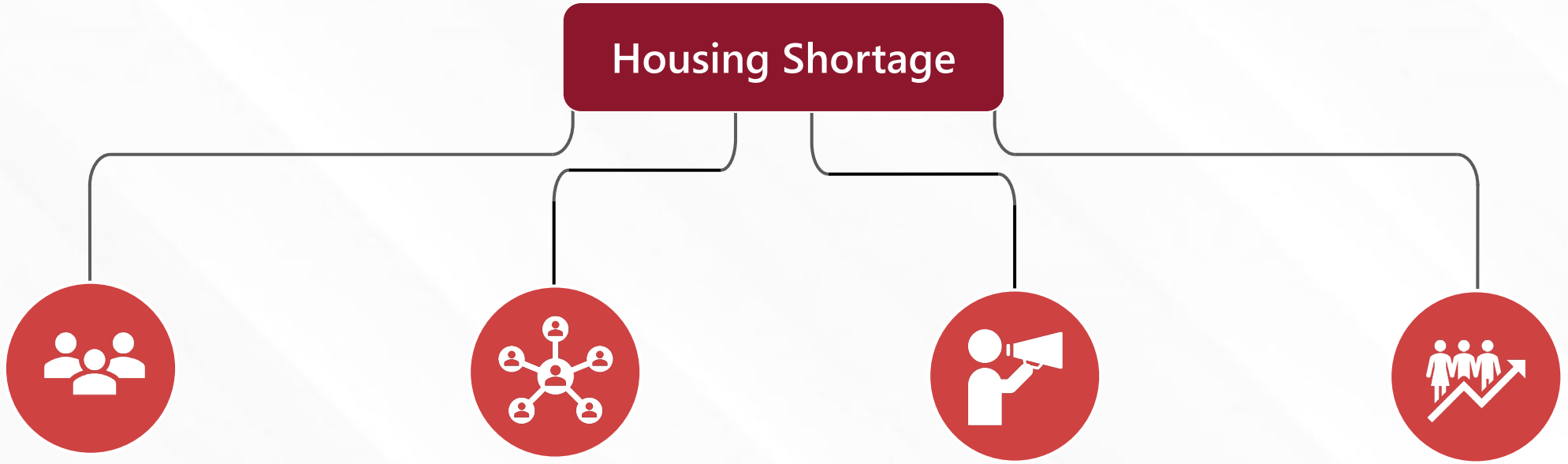
Renter Cost Burdening Rates

Hartford – 60%
Bridgeport – 59%
New Haven – 56%
Stamford – 52%
Norwalk – 49%

Housing Permits Denied

- 40% of proposed homes are denied
- Over 8,000 housing units denied in just the last two years
- Permit rate: only 5,000–6,000 homes/year
- 8,000+ lost units = 1.5x the entire annual supply

It’s Not Just Housing — It’s Workforce, Growth, and Equity



Workforce & Labor Supply

Persistent housing constraints limit workforce access, prompting businesses to relocate and weakening the economic base.

Infrastructure ROI

Transit and road investments underperform without housing density

Talent stratification

Housing constraints create segmented labor markets limiting knowledge spillovers

Tax Base & Fiscal Health

Fewer residents = weaker local revenue = less public investment.

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Simulation Overview

In our simulation, we will model the construction of 2,000 housing units in each of the counties of Fairfield, Hartford, Litchfield, New Haven, and New London (60% market rate and 40% affordable)

With estimated construction costs, migration into the areas, and quantified rent savings, we will model the impacts of affordable and market rate housing development

Looking at the economy as a whole, we will analyze:

- Final Demand Components
- Consumption
- Personal Income
- Population & Labor Force
- Employment

Why Economic Modeling?

- You need a *software solution* that can clarify, calculate and communicate a *quantitative narrative* to policy makers and the general public about policies for your economy.
- Economic policy modeling can help agencies forecast the effects of policies before they are implemented
- Guide Policy-making Process
  - *Formalize your decision-making process*
  - *Get policy right*
  - *Pass/Block legislation*
  - *Modernize and advance your agency*
- Bidders for grants, contracts from Connecticut housing will want to demonstrate that their proposals will have a positive economic impact in host communities and remain competitive
- Policy organizations and regional planners can use models to add quantitative rigor to their proposals, making the benefits clearer to stakeholders and decision-makers

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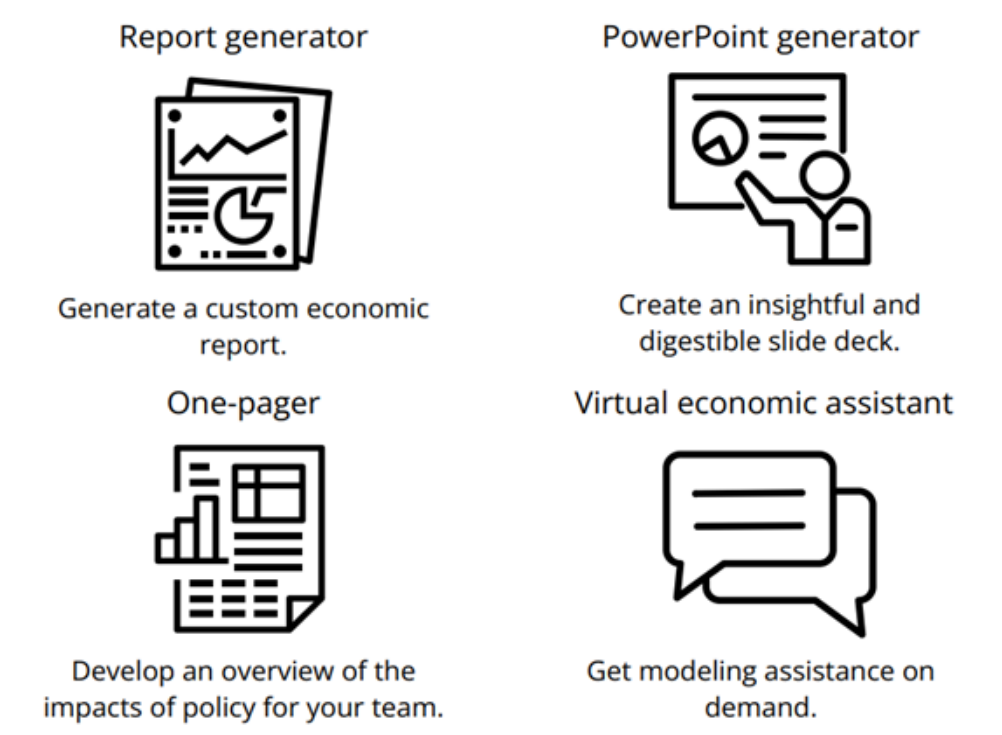
Model Simulation: REMI AI

REMI-AI

REMI-AI is the next evolution in policy analysis. This tool streamlines your workflow by generating high-quality deliverables—a one-pager, a PowerPoint presentation, and a comprehensive report—directly from your model results.

Built with the newest and most secure artificial intelligence technology, REMI-AI relies exclusively on REMI model documentation and equations, ensuring accuracy and reliability without pulling information from external sources.



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Thank you for attending!

For more information, please contact
info@remi.com

Connecticut Housing Webinar

Executive Summary

Economic Growth: Construction of 10,000 housing units leads to steady increases in consumption, GDP, and personal income, enhancing overall economic stability in Connecticut counties.

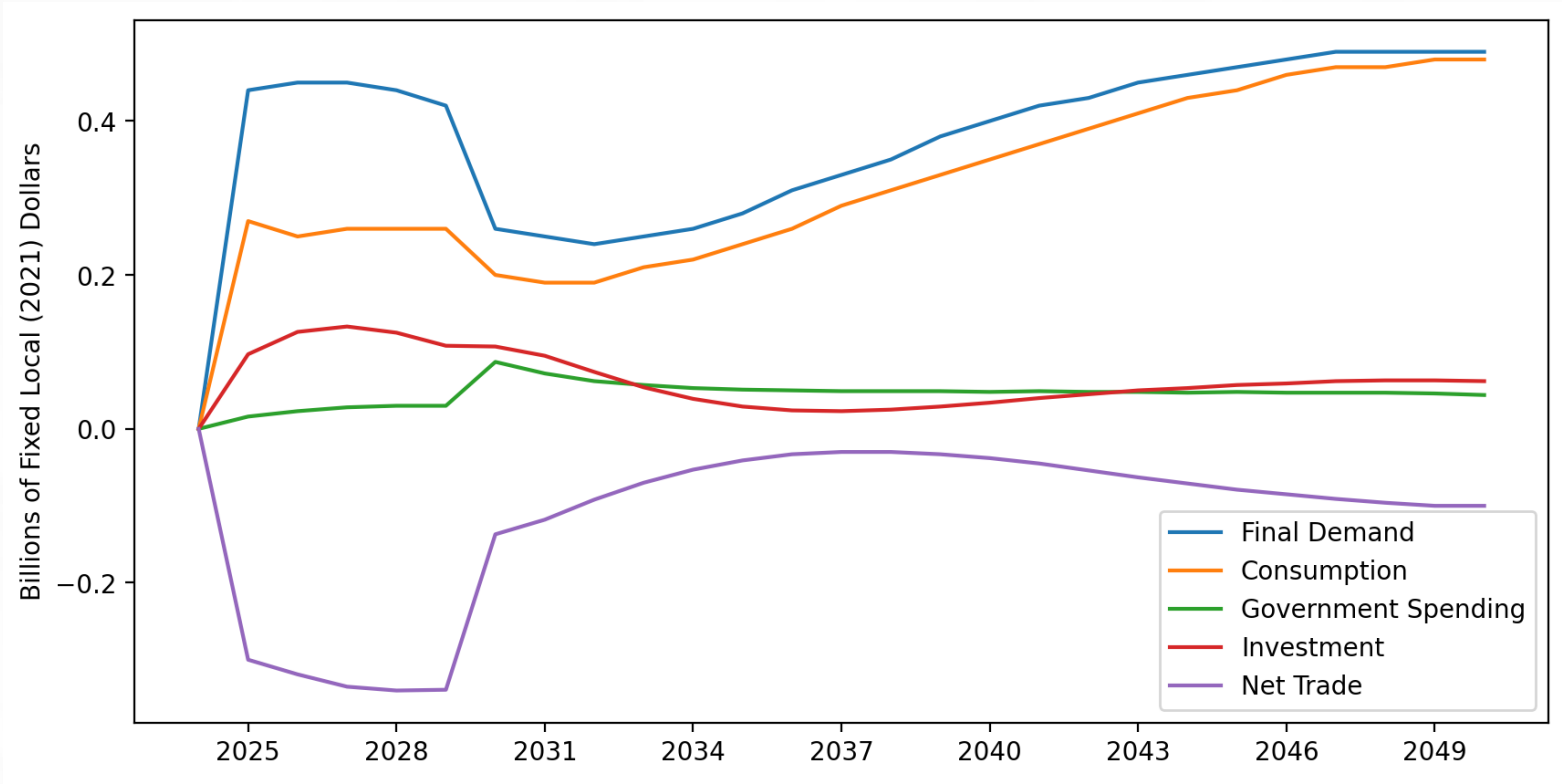
Job Creation: The initiative supports an average increase of 3,500 jobs, contributing to a growing labor force and population retention.

Affordable Housing Impact: Reduced rent costs from affordable units improve financial well-being for residents, boosting disposable income and supporting the local economy.

Category	Unit	Average Change
Employment	Thousands (Jobs)	3.492
Population	Thousands	17.531
Gross Domestic Product (GDP)	Billions of Fixed Local (2021) Dollars	0.392
Output	Billions of Fixed Local (2021) Dollars	0.669
Personal Income	Billions of Fixed Local (2021) Dollars	0.550

Final Demand Components

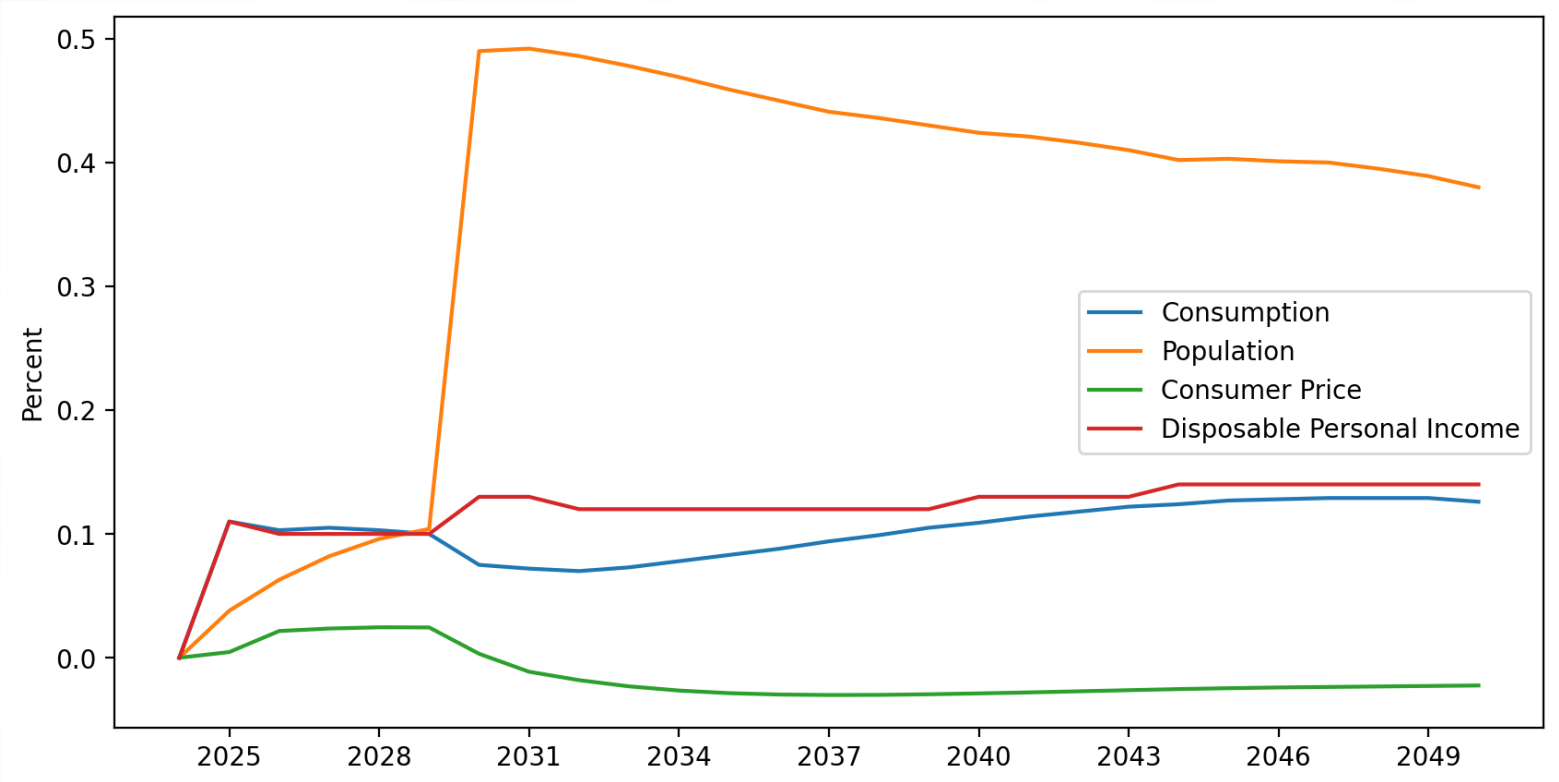
- Key Components of Final Demand: Consumption, Government Spending, Investment, and Net Trade significantly influence the total market value of goods and services in the U.S.
- Dominant Influence of Consumption: From 2025 to 2050, Consumption consistently drove Final Demand growth, peaking at $0.48 billion annually.
- Economic Impact: Fluctuations in these components, especially a negative Net Trade balance, can lead to broader economic growth or decline.



Category	Units	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Final Demand	Billions of Fixed Local (2021) Dollars	0.44	0.45	0.45	0.44	0.42	0.26	0.25	0.24	0.25	0.26	0.28	0.31	0.33	0.35	0.38	0.4	0.42	0.43	0.45	0.46	0.47	0.48	0.49	0.49	0.49	0.49
Consumption	Billions of Fixed Local (2021) Dollars	0.27	0.25	0.26	0.26	0.26	0.2	0.19	0.19	0.21	0.22	0.24	0.26	0.29	0.31	0.33	0.35	0.37	0.39	0.41	0.43	0.44	0.46	0.47	0.47	0.48	0.48
Government Spending	Billions of Fixed Local (2021) Dollars	0.016	0.023	0.028	0.03	0.03	0.087	0.072	0.062	0.057	0.053	0.051	0.05	0.049	0.049	0.049	0.048	0.049	0.048	0.048	0.047	0.048	0.047	0.047	0.047	0.046	0.044
Investment	Billions of Fixed Local (2021) Dollars	0.097	0.126	0.133	0.125	0.108	0.107	0.095	0.074	0.054	0.039	0.029	0.024	0.023	0.025	0.029	0.034	0.04	0.045	0.05	0.053	0.057	0.059	0.062	0.063	0.063	0.062
Net Trade	Billions of Fixed Local (2021) Dollars	-0.3	-0.319	-0.335	-0.34	-0.339	-0.137	-0.118	-0.092	-0.07	-0.053	-0.041	-0.033	-0.03	-0.03	-0.033	-0.038	-0.045	-0.054	-0.063	-0.071	-0.079	-0.085	-0.091	-0.096	-0.1	-0.1
Direct Demand	Billions of Fixed Local (2021) Dollars	0.36	0.36	0.36	0.36	0.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Consumption

- Key Drivers of Consumption: Population growth and Disposable Personal Income significantly influence purchasing power and demand for goods and services.
- Impact of Consumer Prices: Lower prices can enhance affordability, encouraging higher consumption, while rising prices may constrain spending.
- Economic Implications: Overall, increased Disposable Personal Income correlates with positive consumption trends, driving economic growth and stability.



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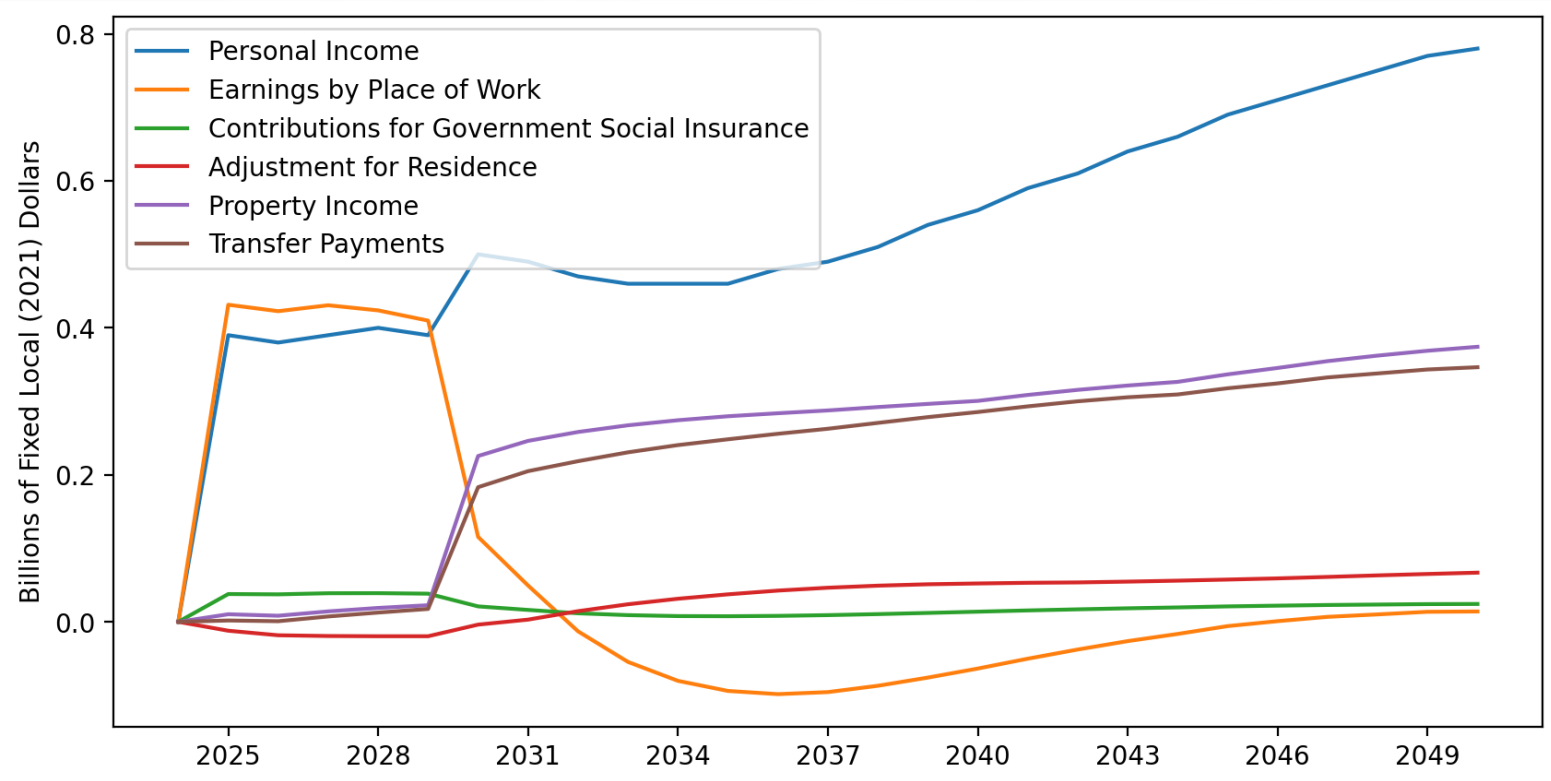
Consumption	Percent	0.11	0.103	0.105	0.103	0.1	0.075	0.072	0.07	0.073	0.078	0.083	0.088	0.094	0.099	0.105	0.109	0.114	0.118	0.122	0.124	0.127	0.128	0.129	0.129	0.129	0.126
Population	Percent	0.038	0.063	0.082	0.096	0.104	0.49	0.492	0.486	0.478	0.469	0.459	0.45	0.441	0.436	0.43	0.424	0.421	0.416	0.41	0.402	0.403	0.401	0.4	0.395	0.389	0.38
Consumer Price	Percent	0.0046	0.0216	0.0236	0.0246	0.0245	0.0032	-0.0113	-0.0181	-0.0231	-0.0265	-0.0286	-0.0297	-0.0301	-0.03	-0.0295	-0.0288	-0.028	-0.0271	-0.0262	-0.0253	-0.0246	-0.024	-0.0236	-0.0232	-0.0228	-0.0224
Disposable Personal Income	Percent	0.11	0.1	0.1	0.1	0.1	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14

Personal Income

- Key Influencers on Personal Income: Property Income and Transfer Payments significantly boost Personal Income, while Earnings by Place of Work have a negative impact during certain periods.
- Economic Implications: The growth in Property Income and Transfer Payments supports overall economic stability, especially during downturns, while declining earnings may hinder recovery.



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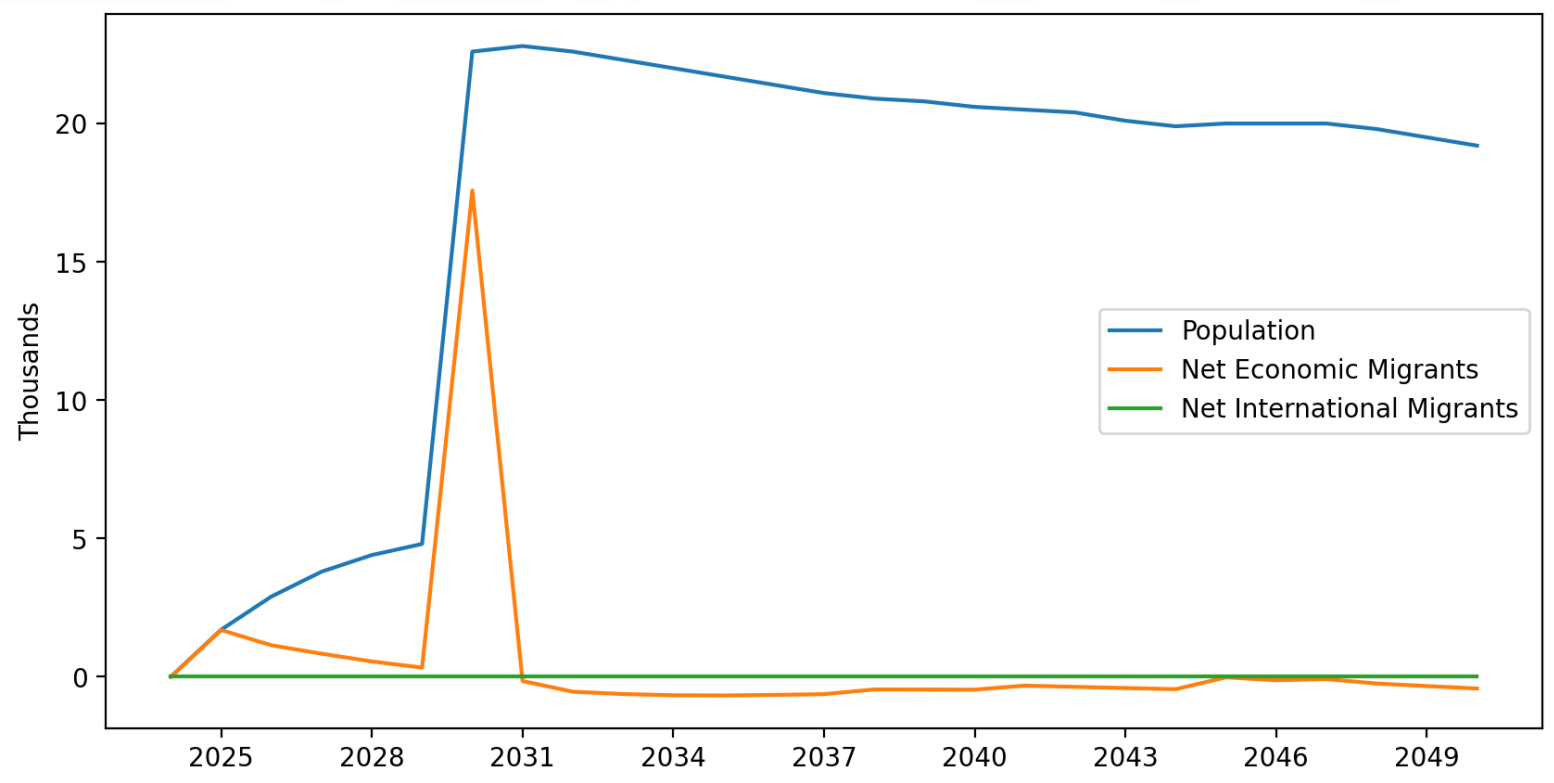
Personal Income	Billions of Fixed Local (2021) Dollars	0.39	0.38	0.39	0.4	0.39	0.5	0.49	0.47	0.46	0.46	0.46	0.48	0.49	0.51	0.54	0.56	0.59	0.61	0.64	0.66	0.69	0.71	0.73	0.75	0.77	0.78
Earnings by Place of Work	Billions of Fixed Local (2021) Dollars	0.4314	0.42266	0.43072	0.42372	0.40982	0.11556	0.04941	-0.01292	-0.05456	-0.08031	-0.09403	-0.09838	-0.09561	-0.08702	-0.07589	-0.06358	-0.05017	-0.03769	-0.02626	-0.0165	-0.00583	0.00091	0.00677	0.0101	0.01364	0.01408
Contributions for Government Social Insurance	Billions of Fixed Local (2021) Dollars	0.0378	0.0374	0.0389	0.039	0.0383	0.021	0.0162	0.0116	0.0091	0.0078	0.0076	0.0081	0.0091	0.0105	0.0121	0.0138	0.0155	0.017	0.0184	0.0196	0.021	0.022	0.0229	0.0235	0.0241	0.0243
Adjustment for Residence	Billions of Fixed Local (2021) Dollars	-0.0121	-0.0183	-0.0193	-0.0196	-0.0196	-0.0038	0.003	0.0145	0.0239	0.0314	0.0374	0.0425	0.0464	0.0492	0.0511	0.0522	0.0531	0.0536	0.0547	0.056	0.0575	0.0591	0.0611	0.0632	0.0651	0.0669
Property Income	Billions of Fixed Local (2021) Dollars	0.0103	0.0083	0.0142	0.0189	0.0226	0.2256	0.2462	0.2583	0.2674	0.2743	0.2797	0.2838	0.2876	0.2922	0.2965	0.3006	0.3087	0.3156	0.3215	0.3265	0.3367	0.3454	0.3547	0.3622	0.3688	0.3742
Transfer Payments	Billions of Fixed Local (2021) Dollars	0.00182	0.00084	0.00729	0.01261	0.01753	0.18319	0.20501	0.21857	0.23064	0.24047	0.24835	0.25586	0.26269	0.27066	0.27852	0.28545	0.29316	0.30004	0.30554	0.30937	0.31779	0.3244	0.33255	0.33795	0.34333	0.34643

Population

- Net Economic Migration Drives Population Growth: Significant increases in net economic migrants led to population surges from 2025 to 2030, while subsequent declines reflected economic adjustments.
- Cyclical Economic Impact: Economic attractiveness influences migration patterns, with population growth tied to job opportunities and amenities, ultimately affecting the overall economy.
- Non-Economic Factors Matter: Quality-of-life improvements can stabilize migration flows and mitigate population decline during economic downturns.



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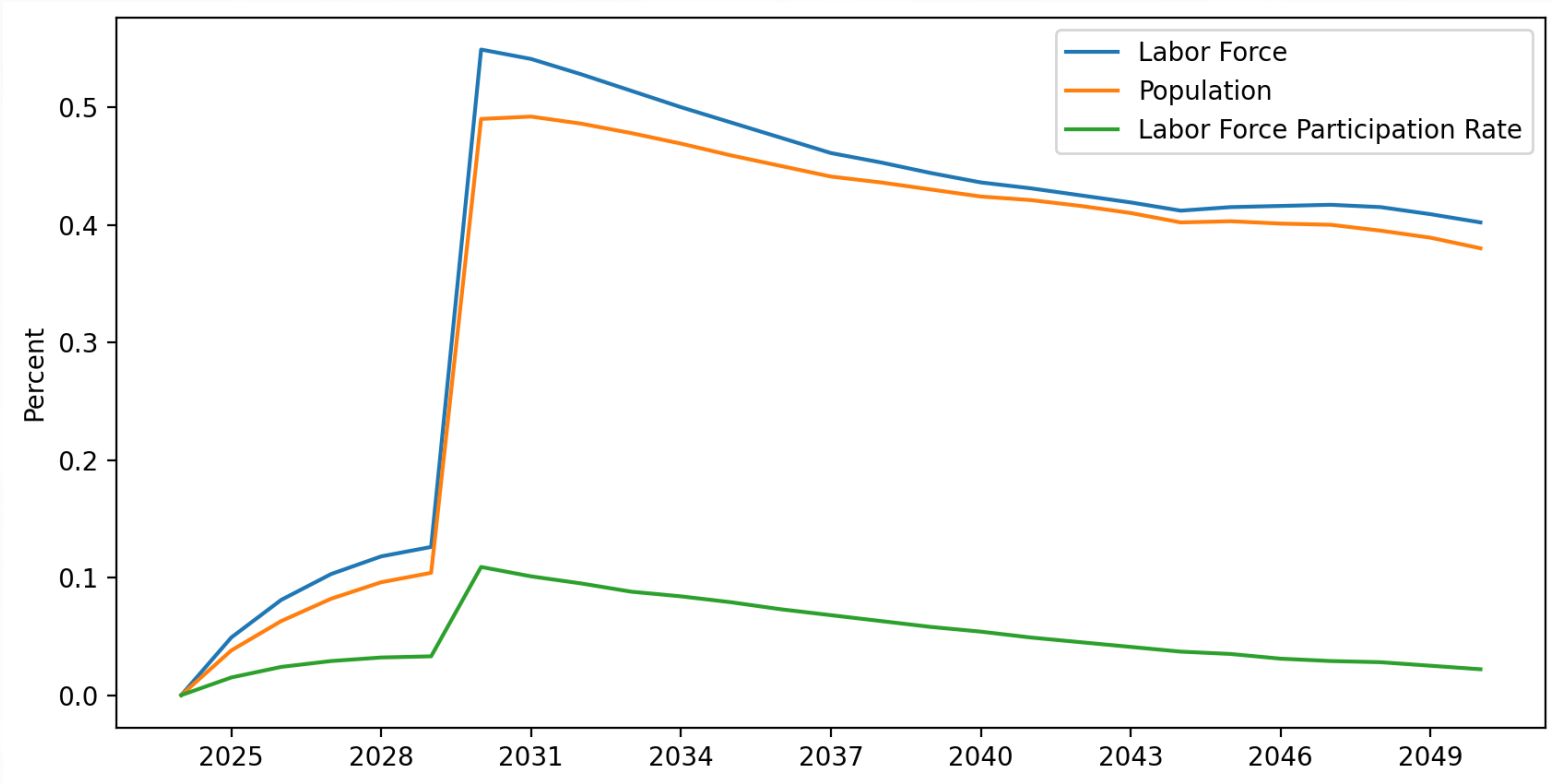
Population	Thousands	1.7	2.9	3.8	4.4	4.8	22.6	22.8	22.6	22.3	22.0	21.7	21.4	21.1	20.9	20.8	20.6	20.5	20.4	20.1	19.9	20.0	20.0	20.0	19.8	19.5	19.2
Net Economic Migrants	Thousands	1.689	1.138	0.834	0.553	0.331	17.579	-0.155	-0.54	-0.625	-0.669	-0.676	-0.657	-0.629	-0.459	-0.462	-0.466	-0.32	-0.366	-0.408	-0.449	-0.022	-0.127	-0.086	-0.245	-0.336	-0.425
Natural Growth	Thousands	0.013	0.035	0.05	0.062	0.071	0.216	0.357	0.363	0.362	0.359	0.353	0.344	0.332	0.319	0.303	0.282	0.259	0.232	0.203	0.172	0.146	0.124	0.106	0.09	0.077	0.065
Net International Migrants	Thousands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Labor Force

- Labor force growth is influenced by population trends and labor force participation rate (LFPR), with both showing a decline from 2025 to 2050.
- A decreasing LFPR contributes to slower labor force expansion, impacting overall economic productivity and growth.
- Population growth alone is insufficient for labor force increase; active participation rates are crucial for economic stability.



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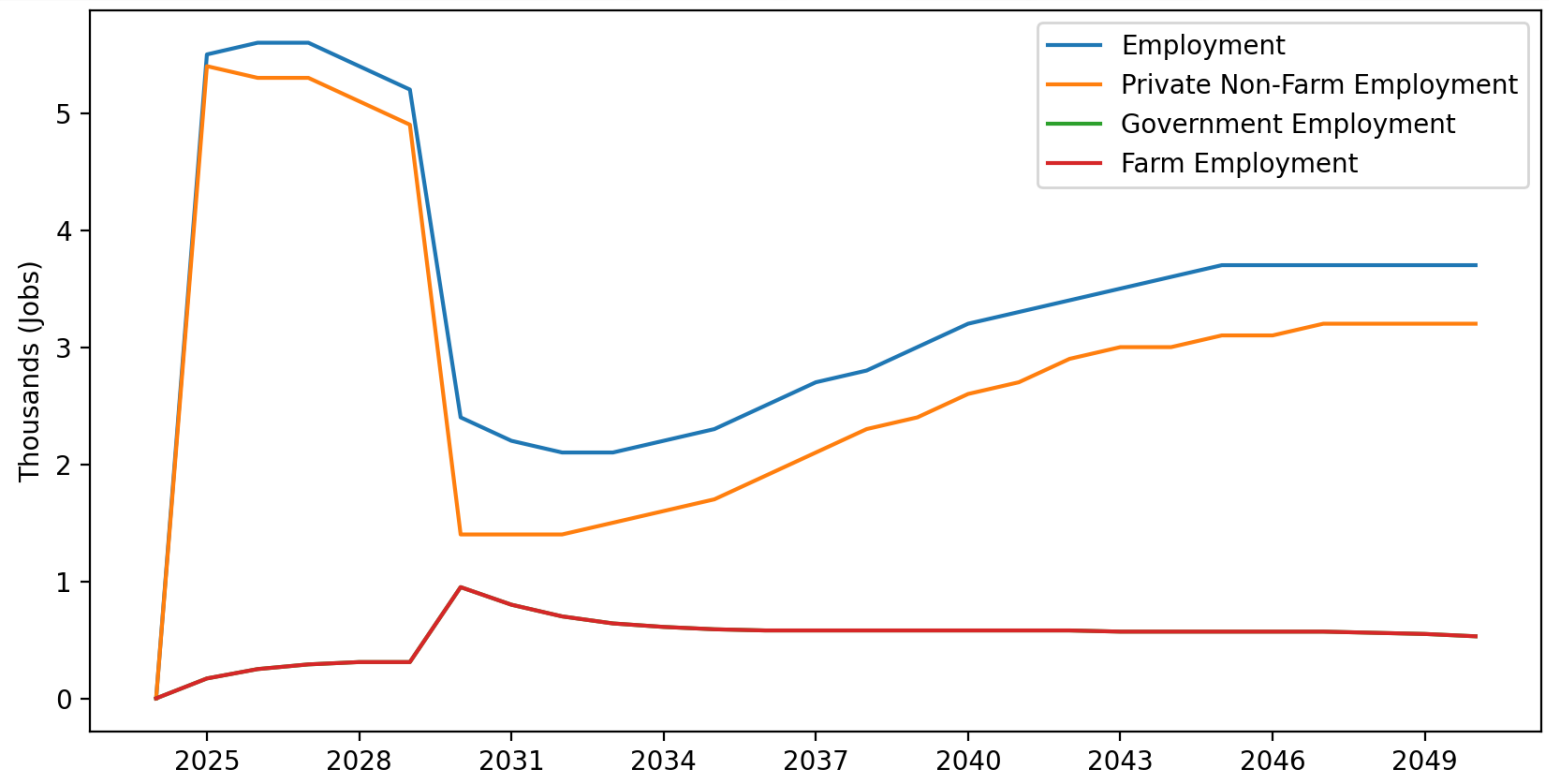
Labor Force	Percent	0.049	0.081	0.103	0.118	0.126	0.549	0.541	0.528	0.514	0.5	0.487	0.474	0.461	0.453	0.444	0.436	0.431	0.425	0.419	0.412	0.415	0.416	0.417	0.415	0.409	0.402
Population	Percent	0.038	0.063	0.082	0.096	0.104	0.49	0.492	0.486	0.478	0.469	0.459	0.45	0.441	0.436	0.43	0.424	0.421	0.416	0.41	0.402	0.403	0.401	0.4	0.395	0.389	0.38
Labor Force Participation Rate	Percent	0.015	0.024	0.029	0.032	0.033	0.109	0.101	0.095	0.088	0.084	0.079	0.073	0.068	0.063	0.058	0.054	0.049	0.045	0.041	0.037	0.035	0.031	0.029	0.028	0.025	0.022

Total Employment Components

- Key Employment Sectors: Private non-farm employment is the largest driver of job creation, followed by government and farm employment.
- Impact on Overall Economy: Fluctuations in private non-farm employment significantly influence overall employment trends and economic growth.
- Long-Term Trends: Private sector productivity and labor costs are primary factors affecting employment changes from 2025 to 2040.



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Employment	Thousands (Jobs)	5.5	5.6	5.6	5.4	5.2	2.4	2.2	2.1	2.1	2.2	2.3	2.5	2.7	2.8	3.0	3.2	3.3	3.4	3.5	3.6	3.7	3.7	3.7	3.7	3.7	3.7
Private Non-Farm Employment	Thousands (Jobs)	5.4	5.3	5.3	5.1	4.9	1.4	1.4	1.4	1.5	1.6	1.7	1.9	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.0	3.1	3.1	3.2	3.2	3.2	3.2
Government Employment	Thousands (Jobs)	0.17	0.25	0.29	0.31	0.31	0.95	0.8	0.7	0.64	0.61	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.57	0.57	0.56	0.55	0.53
Farm Employment	Thousands (Jobs)	0.17	0.25	0.29	0.31	0.31	0.95	0.8	0.7	0.64	0.61	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.57	0.57	0.56	0.55	0.53

Conclusion

Construction of 10,000 housing units boosted industry output and job creation.

Affordable housing reduced financial burdens, enhancing disposable income and stability.

Improved amenities supported population retention and labor force expansion.

Overall, the initiative contributed to regional prosperity through steady economic growth and stability.