WISCONSIN

DWD
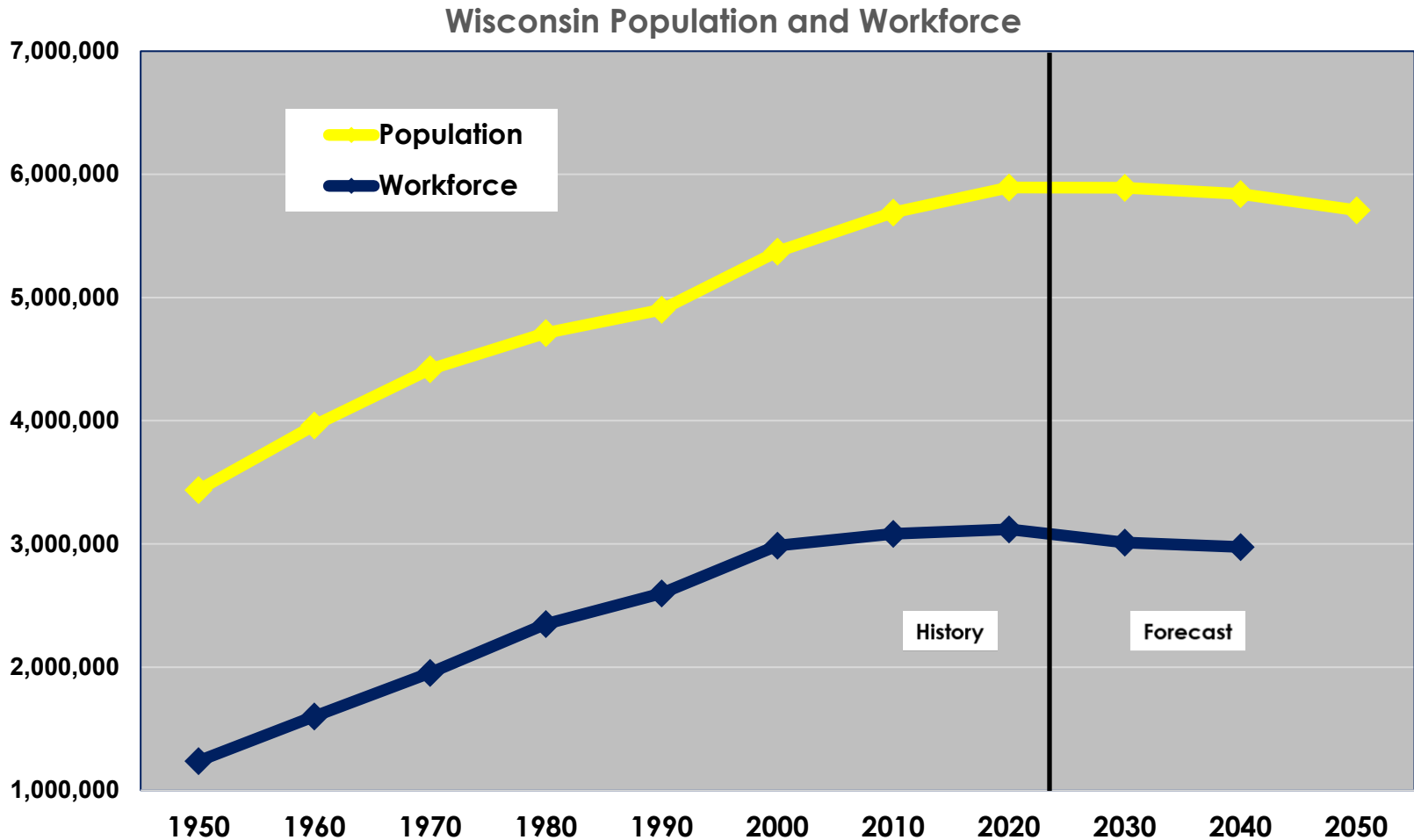
Milwaukee

DENNIS K. WINTERS
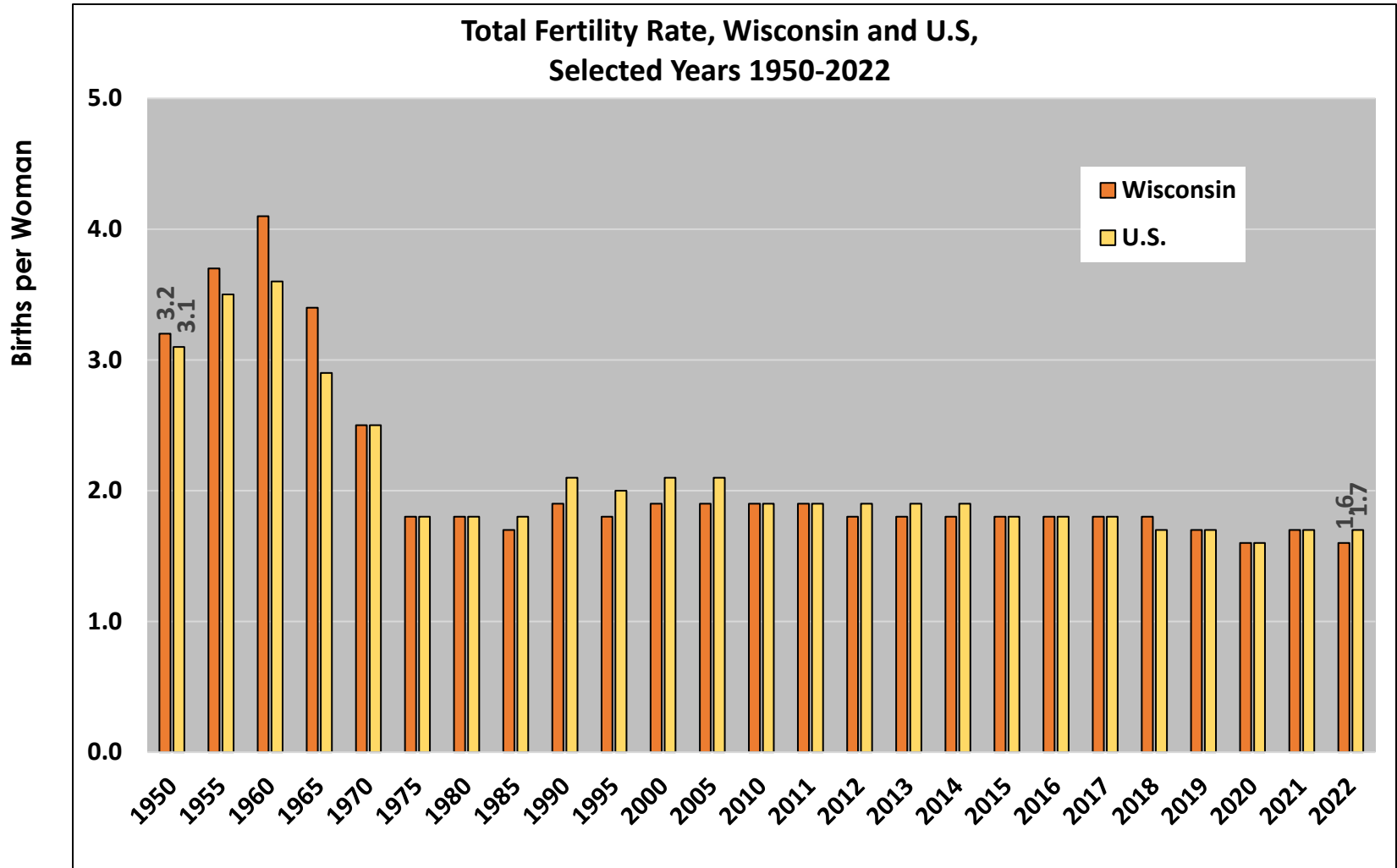
Chief Economist

Wisconsin Department of Workforce Development

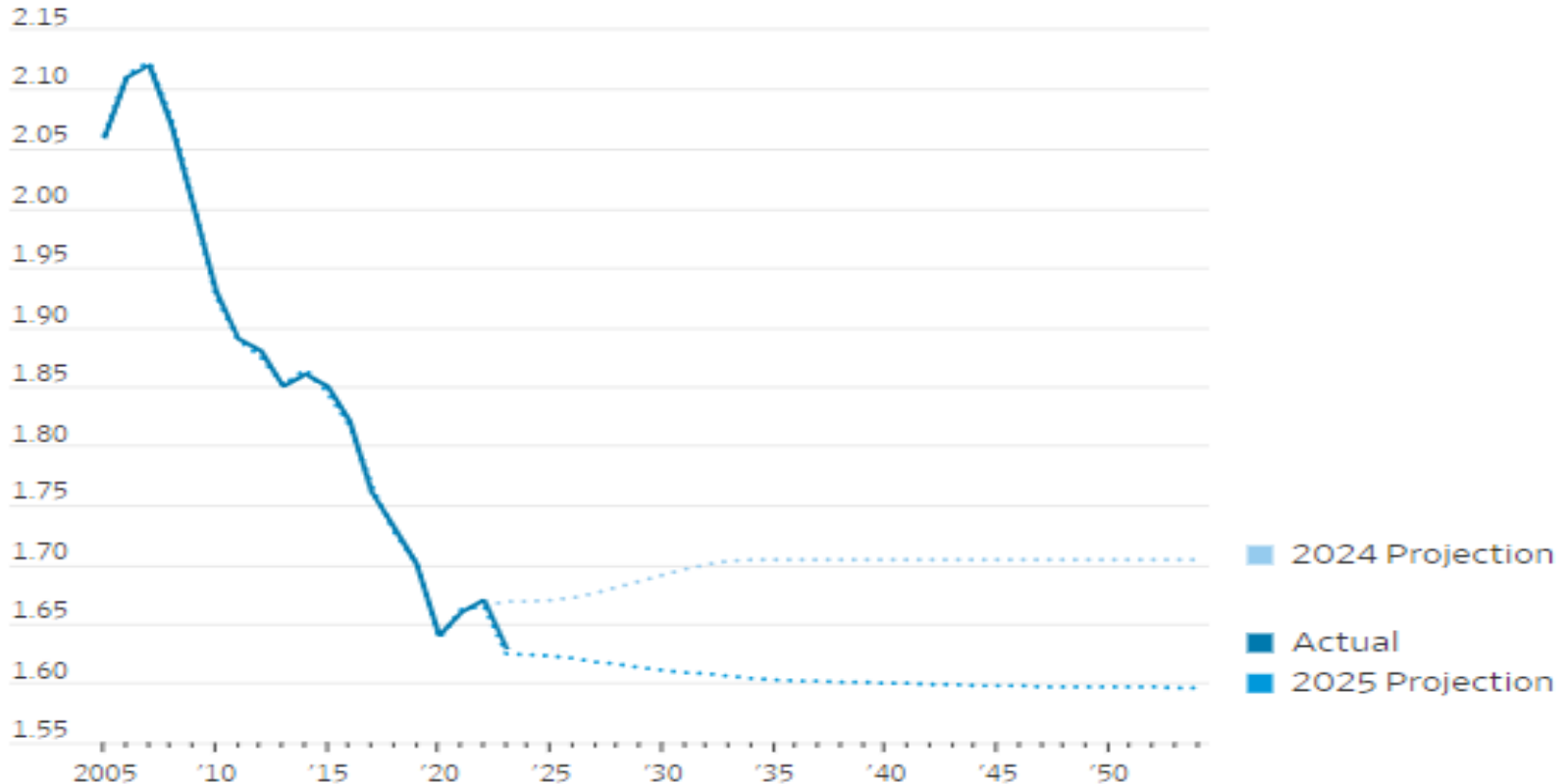# Wisconsin's Workforce Growth

Wisconsin Population and Workforce

Fertility Rates

Total Fertility Rate, Wisconsin and U.S,
Selected Years 1950-2022

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Fertility Rates

Declining Fertility Rate
Births per U.S. woman

2024 Projection
Actual
2025 Projection
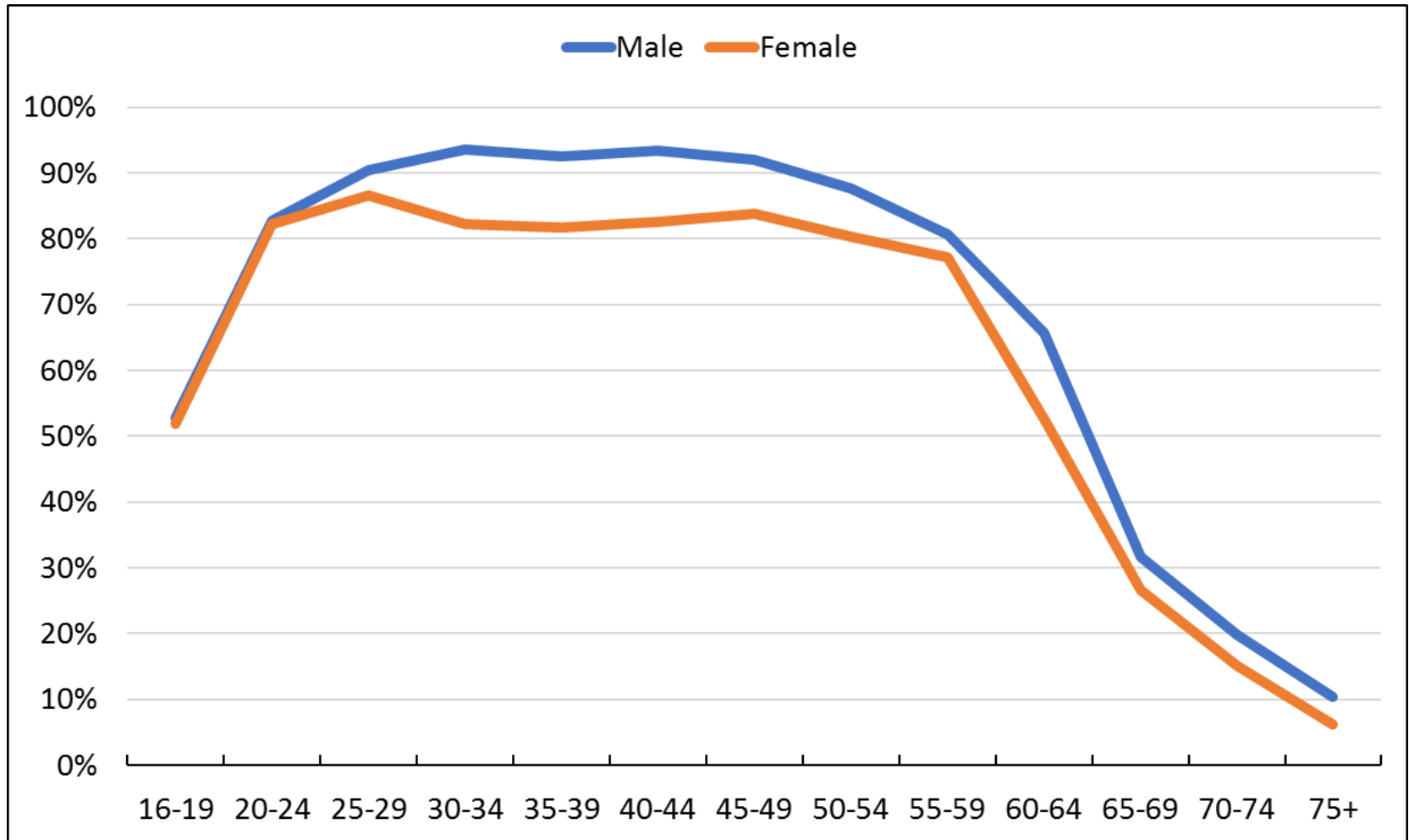
Source: Congressional Budget Office

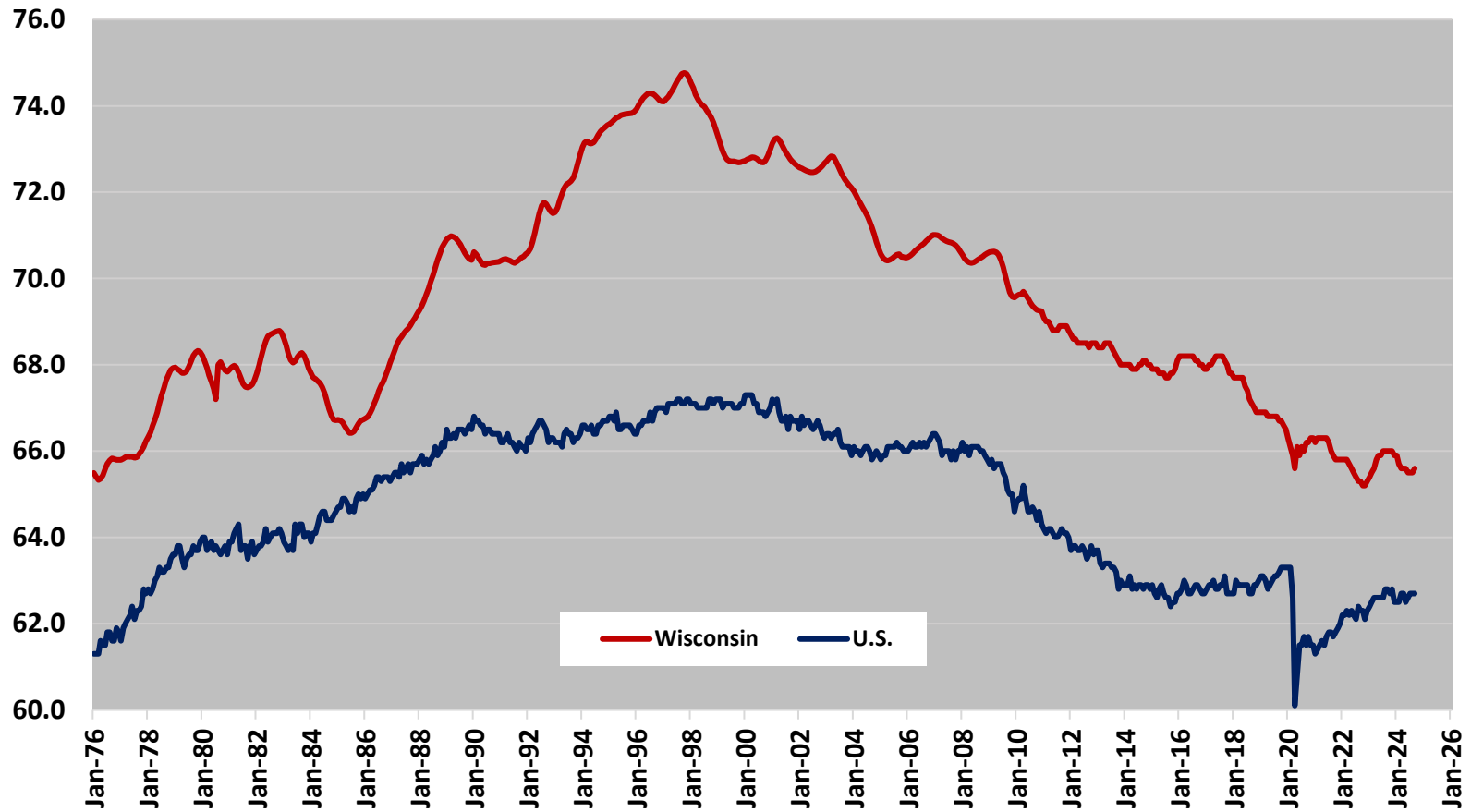# Labor Force Participation Rate by Age

Source: 2016 American Community Survey (ACS), US Census; sourced from IPUMS.org

Labor Force Participation Rate

Labor Force Participation Rate (%)

Source: 2016 American Community Survey (ACS), US Census; sourced from IPUMS.org

Labor Force Participation Rate by Age
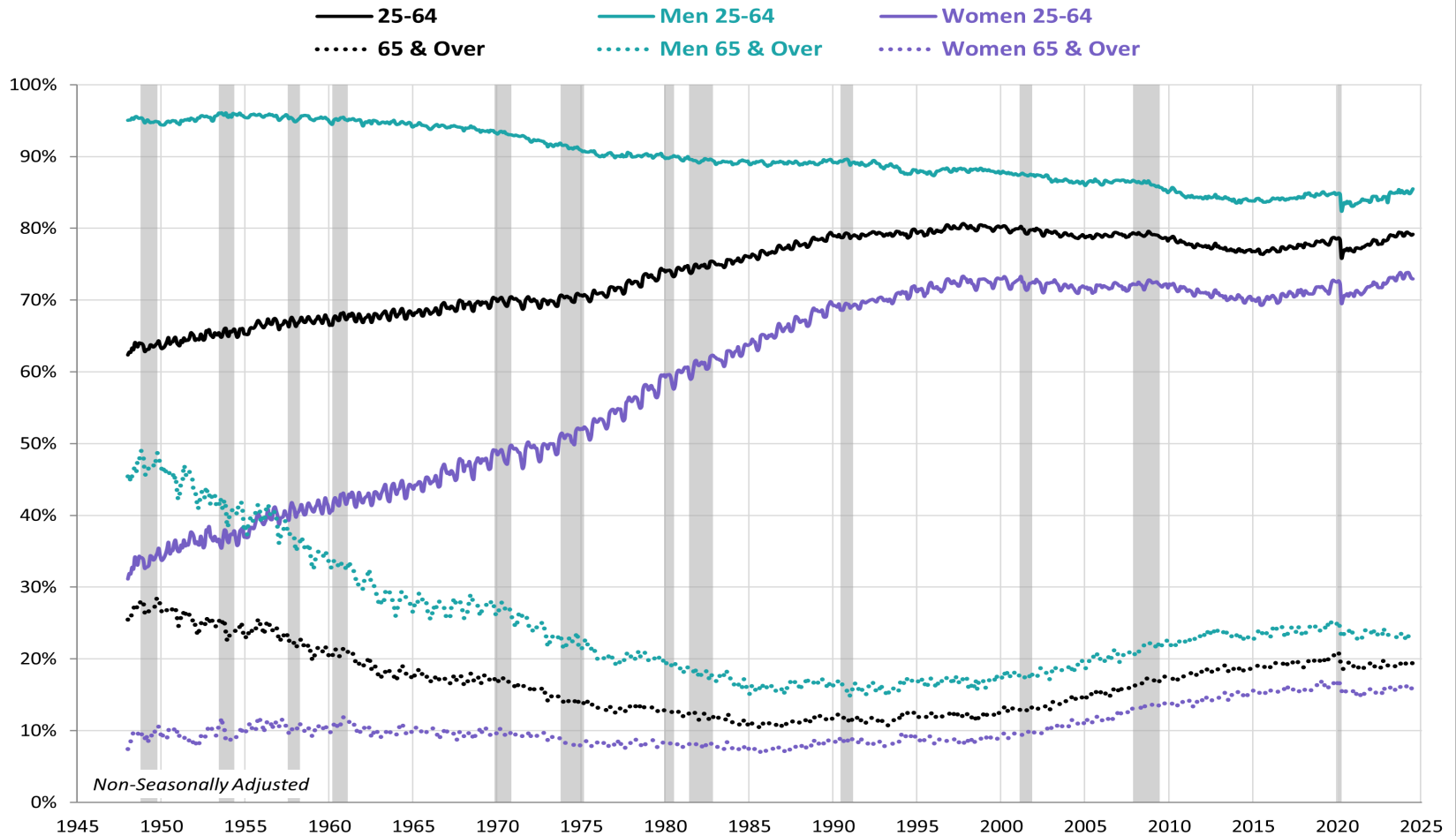
Workforce/Jobs Balance
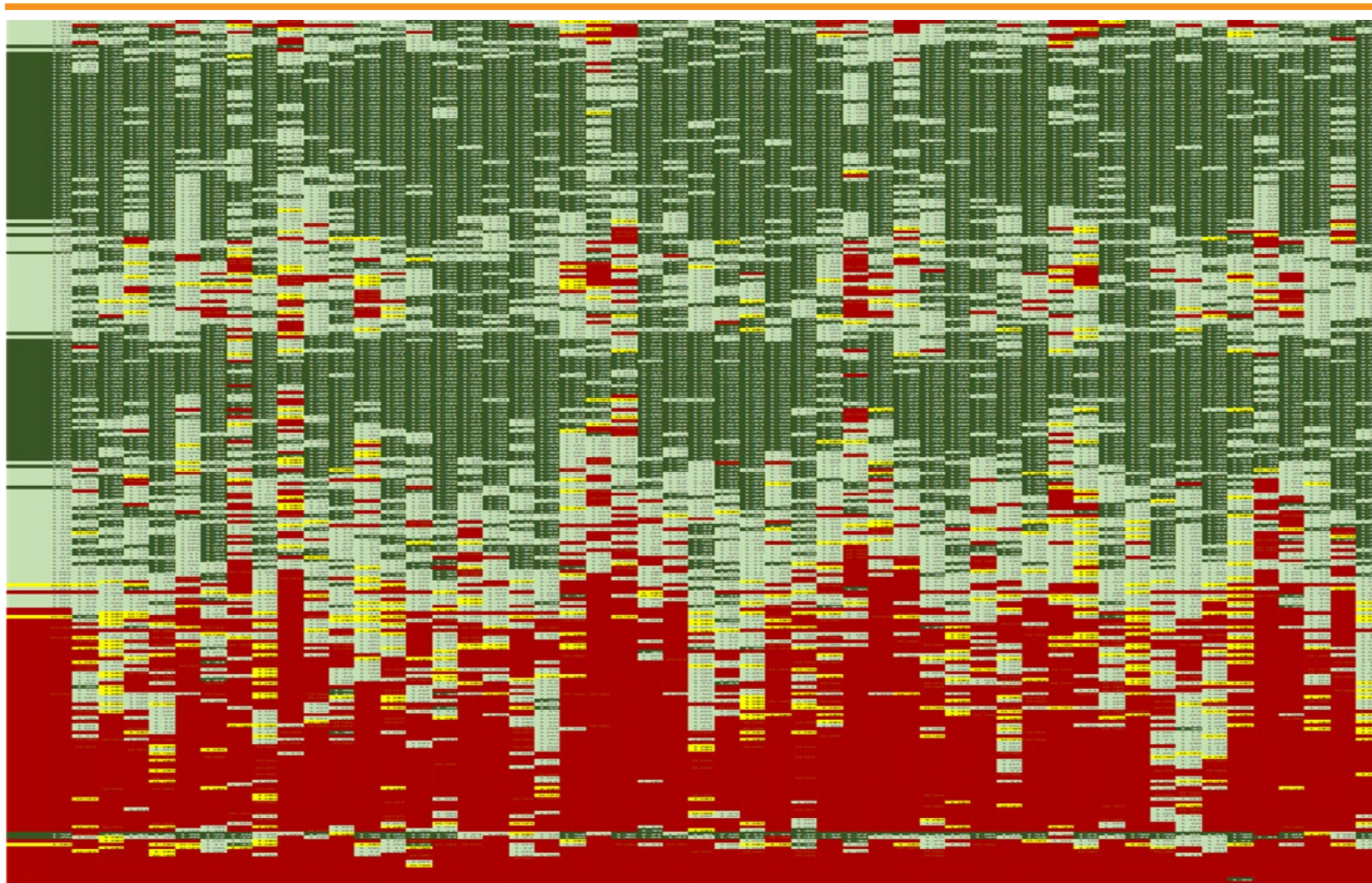
Im- & Migration

Total fertility rate

4 children per woman

Replacement rate: 2.1

- U.S.
- Hungary
- Norway
- Europe

3

2

1

0

1970   '80   '90   2000   '10   '20
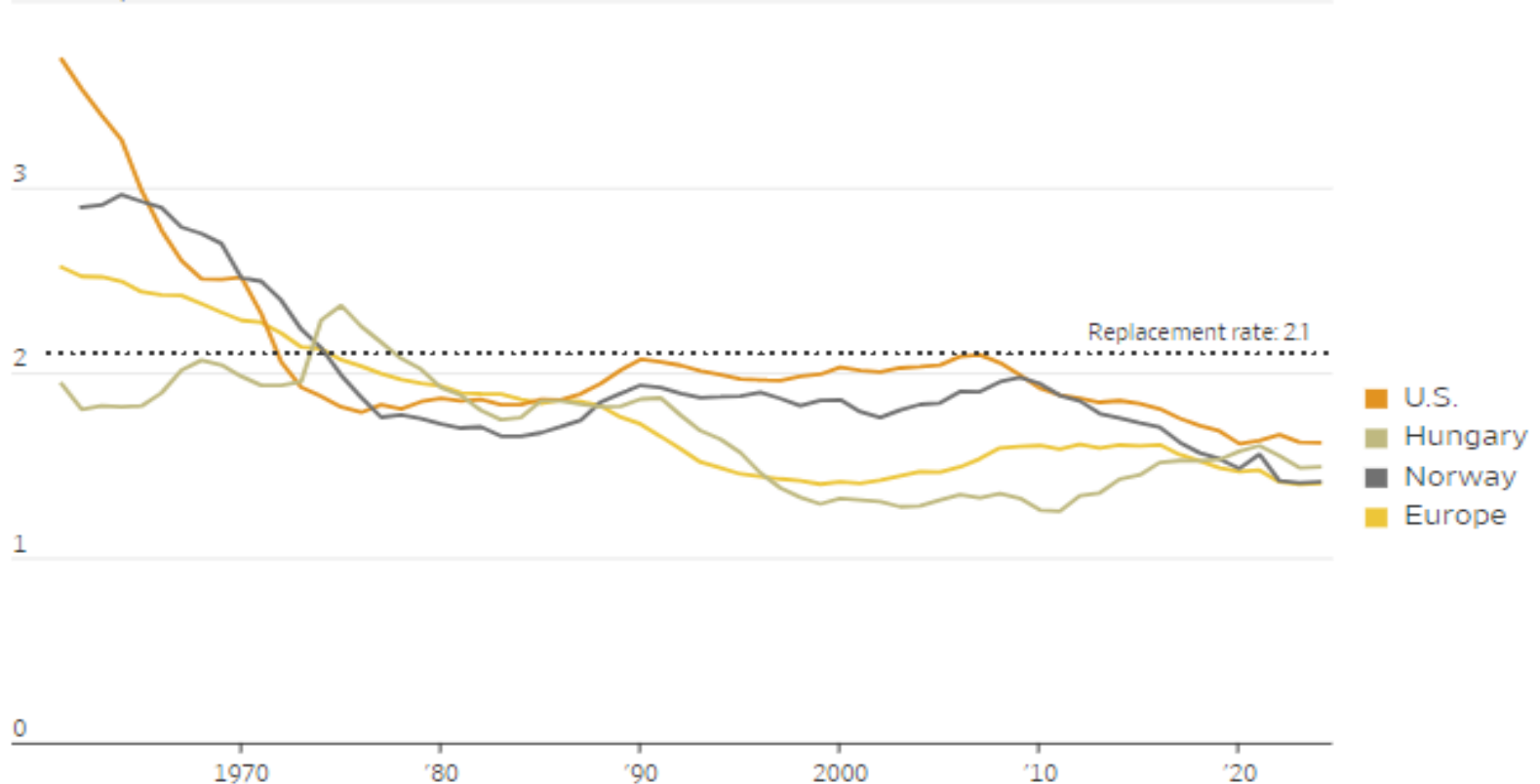
Note: Rate is estimated number of babies for each woman of reproductive age in her lifetime.
Source: UN Population Division

Im- & Migration

- Hungary and Norway spend more on promoting families than the amount they spend on defense.

- Hungary is especially generous to families who have several children. Families who pledge to have three or more children can get:
    - a minivan,
    - more than $150,000 in subsidized loans,
    - a lifetime exemption from personal taxes for mothers > 4 kids
    - up to seven extra annual vacation days for both parents.

Worldwide Efforts to Reverse the Baby Shortage Are Falling Flat - WSJ

Costs

Employment Cost Index: Private Industry
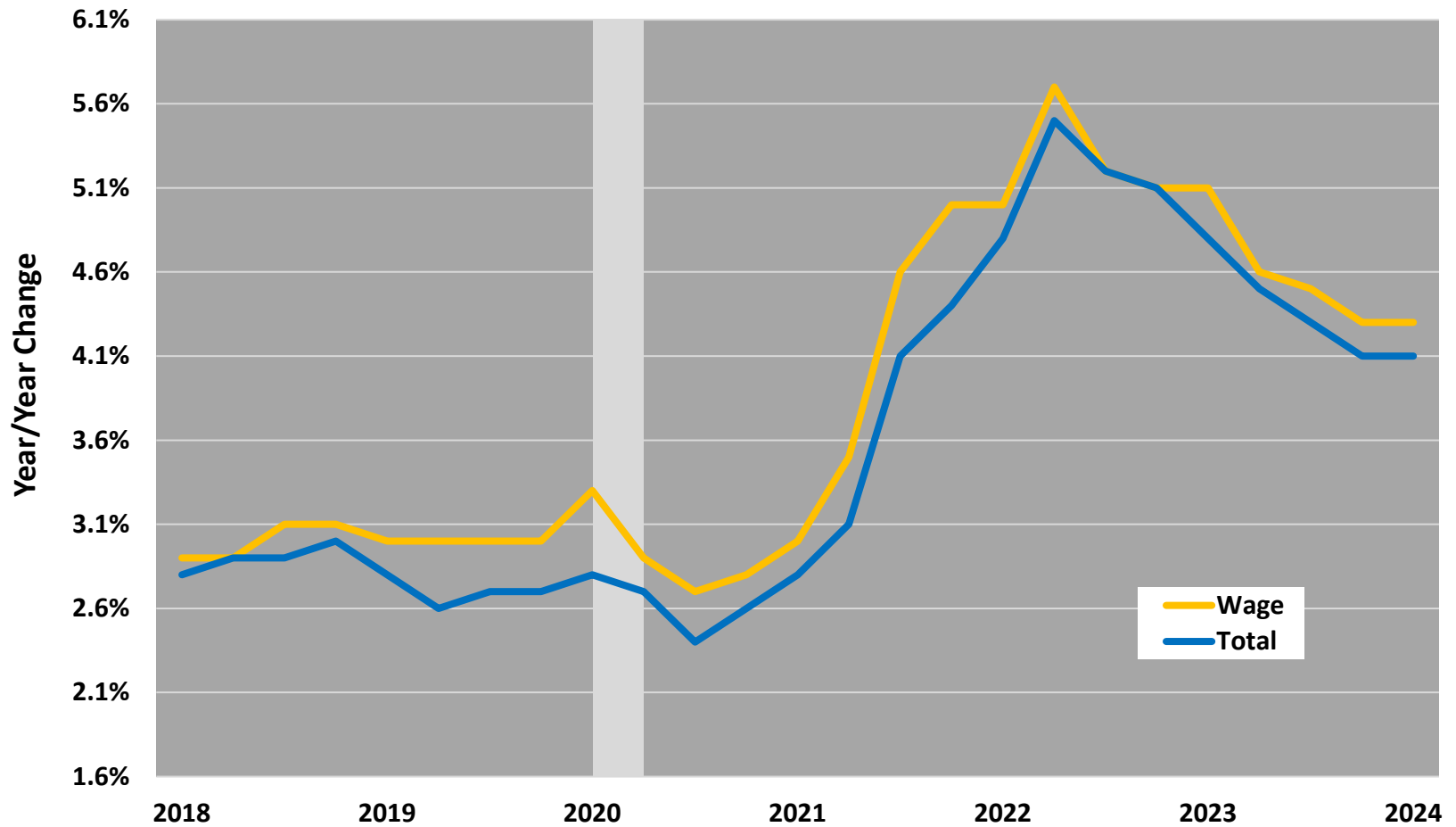
Wages

Average hourly earnings for non-managerial employees

Legend:
- Gasoline Stations
- Sporting, Hobby, Book, and Music Stores
- General Merchandise Retailers
- Food Services & Drinking Places
- Food and Beverage Retailers

*Note: This graph uses the names and labels originally used in the Washington Post's graph.

Note: Seasonally Adjusted
Source: Bureau of Labor Statistics (BLS)

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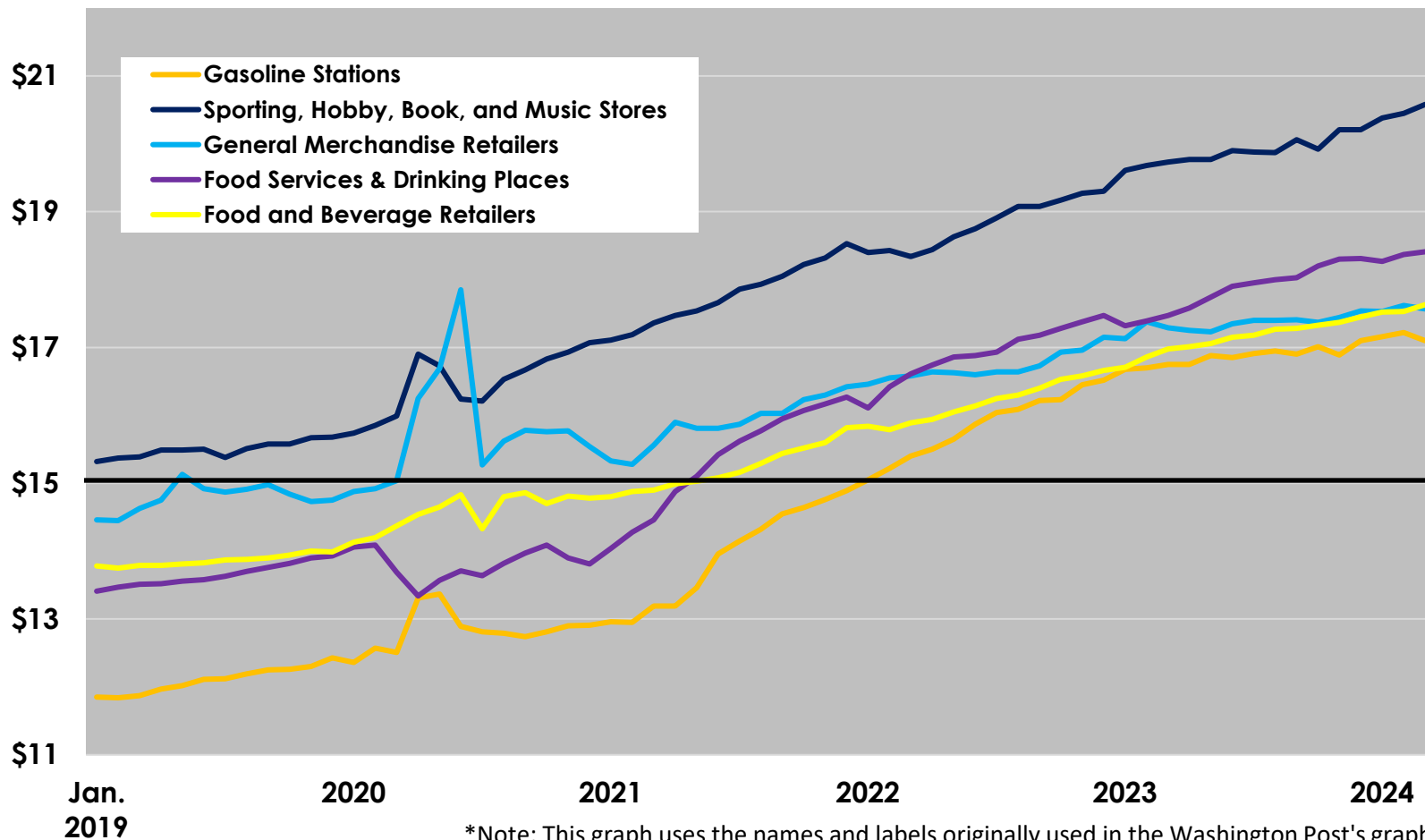
Supply Model

$$JobsSupply_t = \sum_{ag} \left(P_{agt} \times (1 - \gamma_{agt}) \times \xi_{agt} \times v_{agt} \times \kappa_{gt} \right) + \sum_{ag} \left(C_{at}^{in} - C_{at}^{out} \right)$$

$$\gamma_{agt} = \frac{P_{agt} \in (Institution \cup Military)}{P_{agt}}$$

$$\xi_{agt} = \frac{P_{agt} \in (Employed \cup Unemployed)}{P_{agt} - P_{agt} \in (Institutionalized \cup Military)}$$

$$v_{agt} = \sum_{e} \left(\frac{P_{agte} \in (Employed \cup Unemployed)}{P_{agt} \in (Employed \cup Unemployed)} \times \frac{P_{ag2016e} \in (Unemployed)}{P_{ag2016e} \in (Employed \cup Unemployed}\right)$$
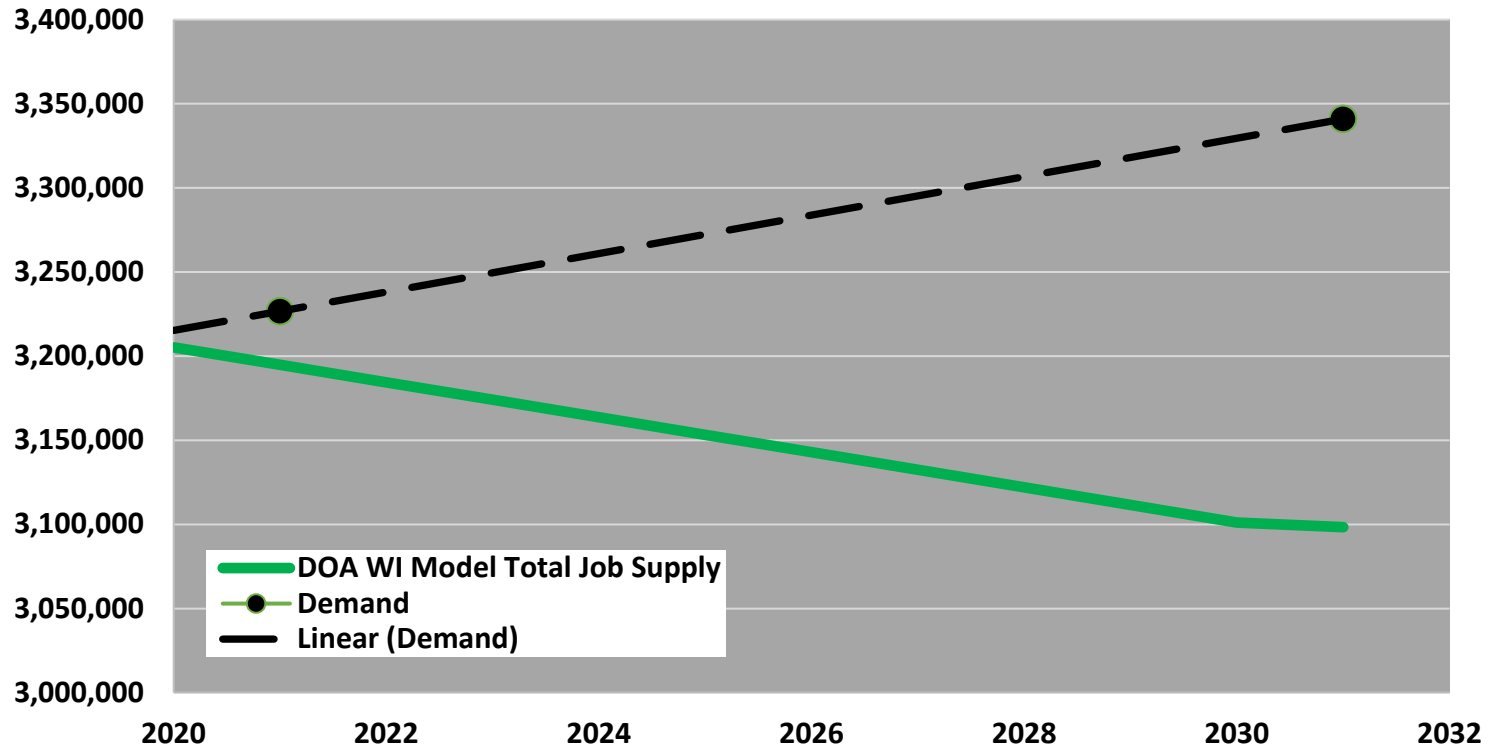
$$\kappa_{gt} = \frac{\sum_{gt} jobs}{P_{gt} \in Employed}$$

Job Supply Scenarios

Gap Analysis 2031

Population Models	Supply	Jobs Filled*	Gap
DOA Model	3,098,314	3,340,884	**-242,570**

*Jobs Filled numbers are calculated using 2018-2028 percent change from
DWD Occupation Projections and then applying to 2021 base employment

Four Solutions

- Off-shoring

- Immigration

- Eliminate barriers of chronically unemployed

- Technology
  - Worker skills set must match

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- *Buy American*
  - *Willingness to pay higher prices*

Macro v. Micro Solutions

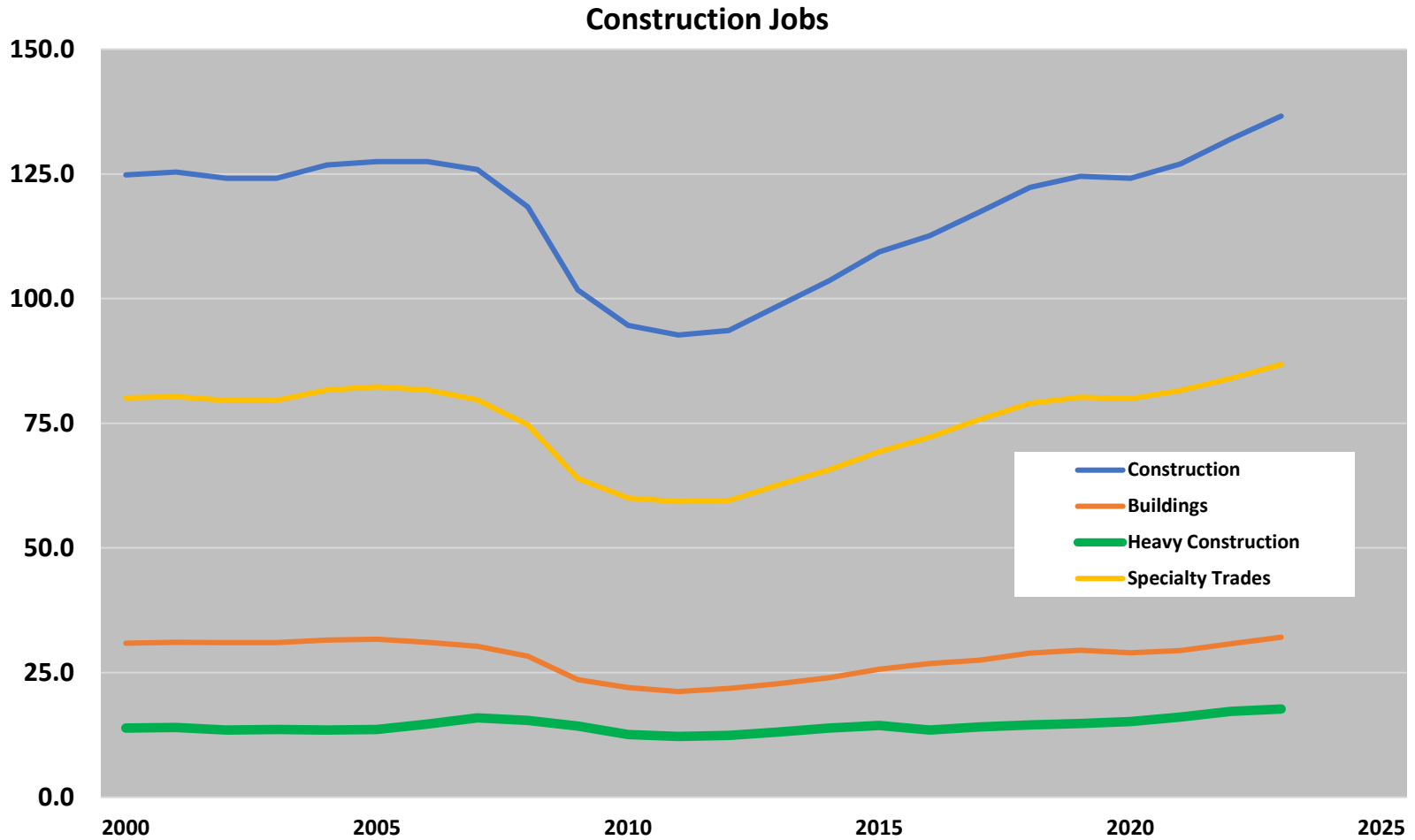**There are two challenges:**

1. Finding enough workers – Macro

2. Getting the available to your firm – Micro

WI Construction Jobs

Construction Jobs

Wisconsin CES data Sourced from WisConomy.com

WI Construction Job Growth

Construction Jobs, 2020=100

Legend:
- Construction
- Buildings
- Heavy Construction
- Specialty Trades

Wisconsin CES data Sourced from WisConomy.com

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WI Construction Job Growth

Industry	2013 Employment	2023 Employment	Numeric Change	CAGR
Total Nonfarm	2,809,600	3,012,600	203,000	0.7%
Construction	98,600	136,600	38,000	3.3%
Construction of Buildings	22,800	32,100	9,300	3.5%
Heavy and Civil Engineering Construction	13,100	17,700	4,600	3.1%
Specialty Trade Contractors	62,700	86,800	24,100	3.3%

Wisconsin CES data Sourced from WisConomy.com

Construction Projections

NAICS Code	Industry	2022 Employment	2032 Projected Employment	Employment Change (2022-2032)	Percent Change (2022-2032)
	Total All Industries	**3,162,331**	**3,387,402**	**225,071**	**7.1**
	Construction	**130,865**	**145,415**	**14,550**	**11.1**
236000	Construction of Buildings	30,527	35,421	4,894	16.0
237000	Heavy and Civil Engineering Construction	17,016	18,852	1,836	10.8
238000	Specialty Trade Contractors	83,322	91,142	7,820	9.4

2022-2032 Wisconsin Industry Projections sourced from WisConomy.com
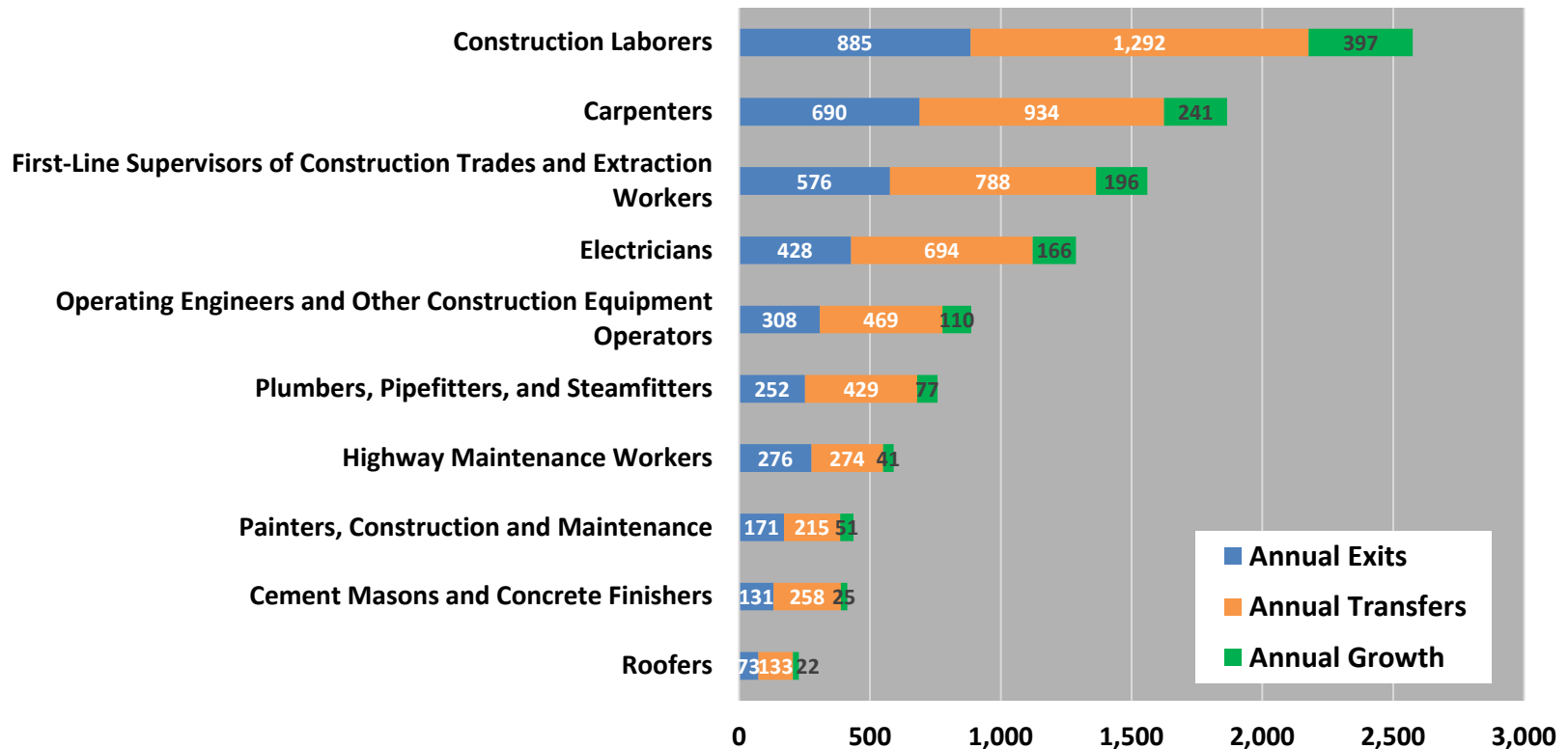
Construction Projections

SOC Code	Occupation Title	Employment 2022	Projected Employment 2032	Numeric Change (2022-2032)	Percent Change (2022-2032)	2023 Annual Median Wage
00-0000	Total, All Occupations	3,162,331	3,387,402	225,071	7.1	$47,590
47-0000	Construction and Extraction Occupations	125,451	140,230	14,779	11.8	$60,670
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	16,355	18,313	1,958	12.0	$78,870
47-2031	Carpenters	18,625	21,036	2,411	12.9	$59,070
47-2051	Cement Masons and Concrete Finishers	5,088	5,337	249	4.9	$60,150
47-2061	Construction Laborers	23,618	27,587	3,969	16.8	$49,330
47-2073	Operating Engineers and Other Construction Equipment Operators	8,753	9,849	1,096	12.5	$66,310
47-2111	Electricians	12,042	13,706	1,664	13.8	$74,660
47-2141	Painters, Construction and Maintenance	4,784	5,297	513	10.7	$48,360
47-2152	Plumbers, Pipefitters, and Steamfitters	7,610	8,377	767	10.1	$76,660
47-2181	Roofers	2,586	2,808	222	8.6	$48,500
47-4051	Highway Maintenance Workers	5,971	6,384	413	6.9	$50,890

Construction Projections

WI Annual Projected Job Openings 2022-2032

| Occupation	Annual Exits	Annual Transfers	Annual Growth
Construction Laborers	885	1,292	397
Carpenters	690	934	241
First-Line Supervisors of Construction Trades and Extraction Workers	576	788	196
Electricians	428	694	166
Operating Engineers and Other Construction Equipment Operators	308	469	110
Plumbers, Pipefitters, and Steamfitters	252	429	77
Highway Maintenance Workers	276	274	41
Painters, Construction and Maintenance	171	215	51
Cement Masons and Concrete Finishers	131	258	25
Roofers	73	133	22

2022-2032 Wisconsin Occupation Projections sourced from WisConomy.com

Labor Force Preparedness

Age of WI Construction Workers
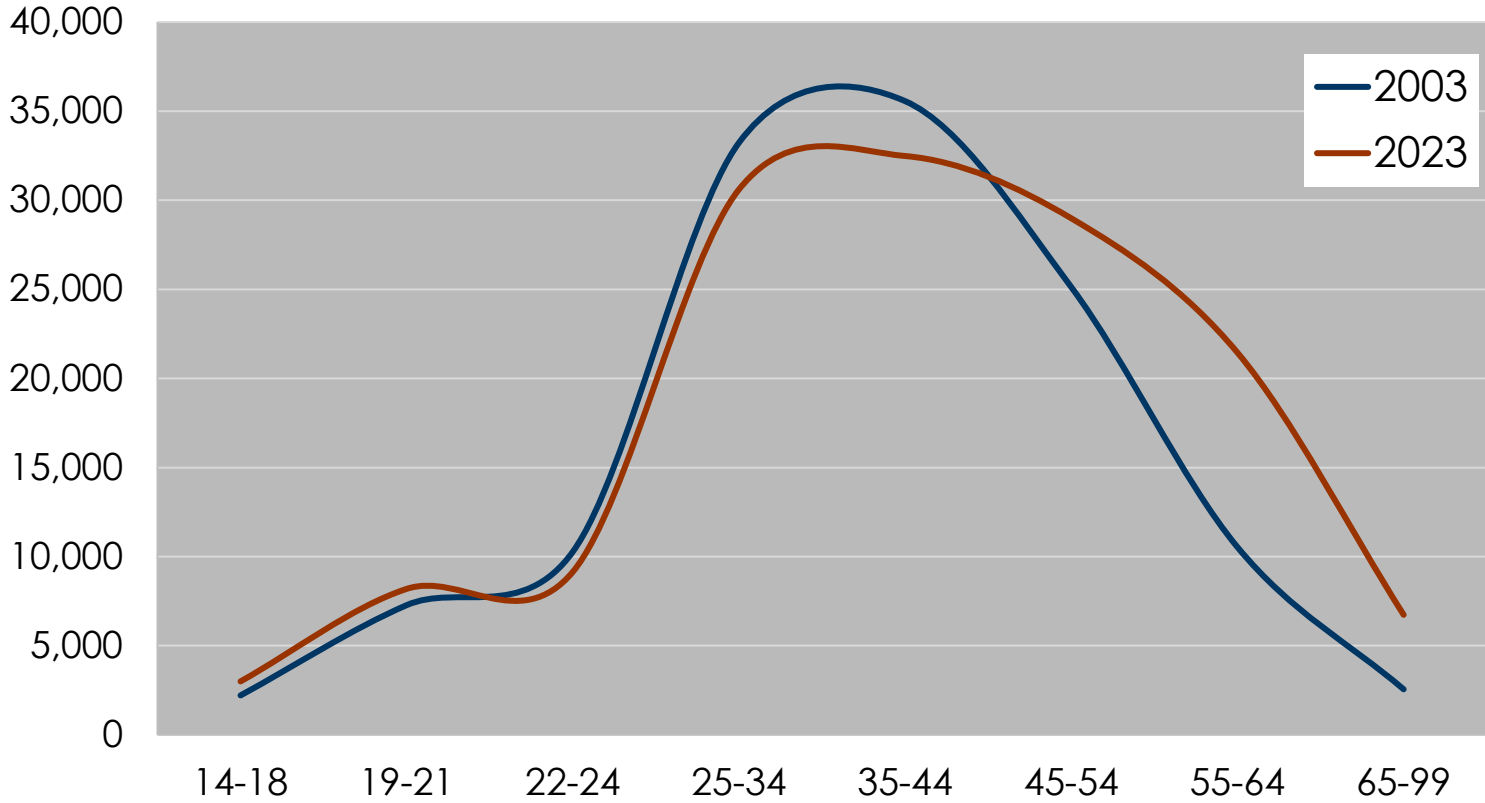
Quarterly Workforce Indicators (QWI), US Census Bureau

Worker Supply Considerations

Gender (%)		
	Male	Female
All Industries	50.4%	49.6%
Construction Industry	**84.0%**	**16.0%**

Race/Ethnicity (%)		
	White	Hispanic or Latino	Black or African American
All Industries	80.7%	7.5%	6.3%
Construction Industry	**89.2%**	**6.3%**	**2.0%**

2023 Quarterly Workforce Indicators (QWI), US Census Bureau
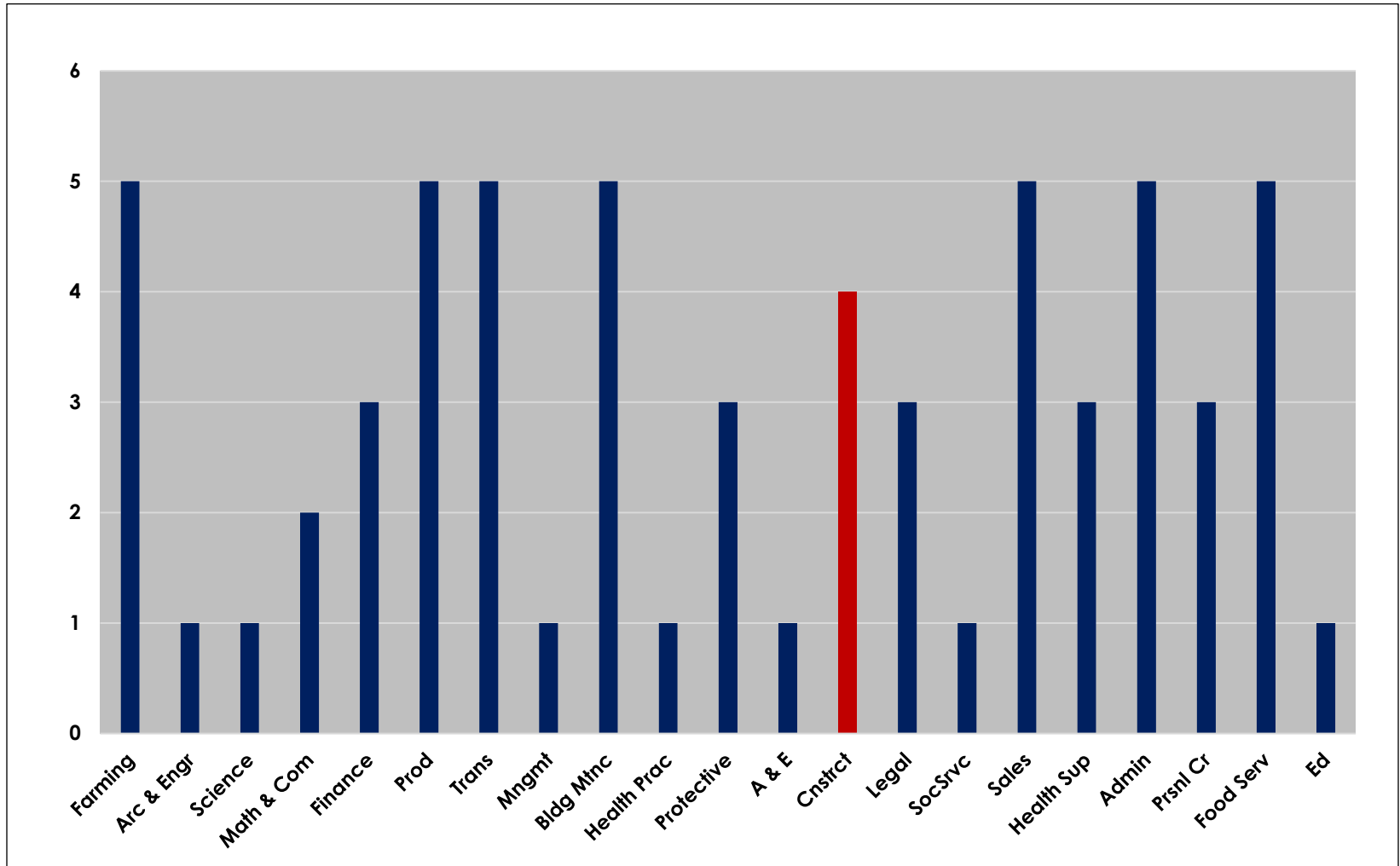
Automation

There are two classes of jobs in the new age:

1. Those that are augmented by automation

2. Those that are replaced by automation
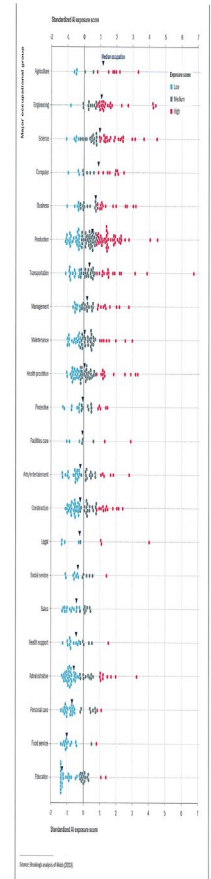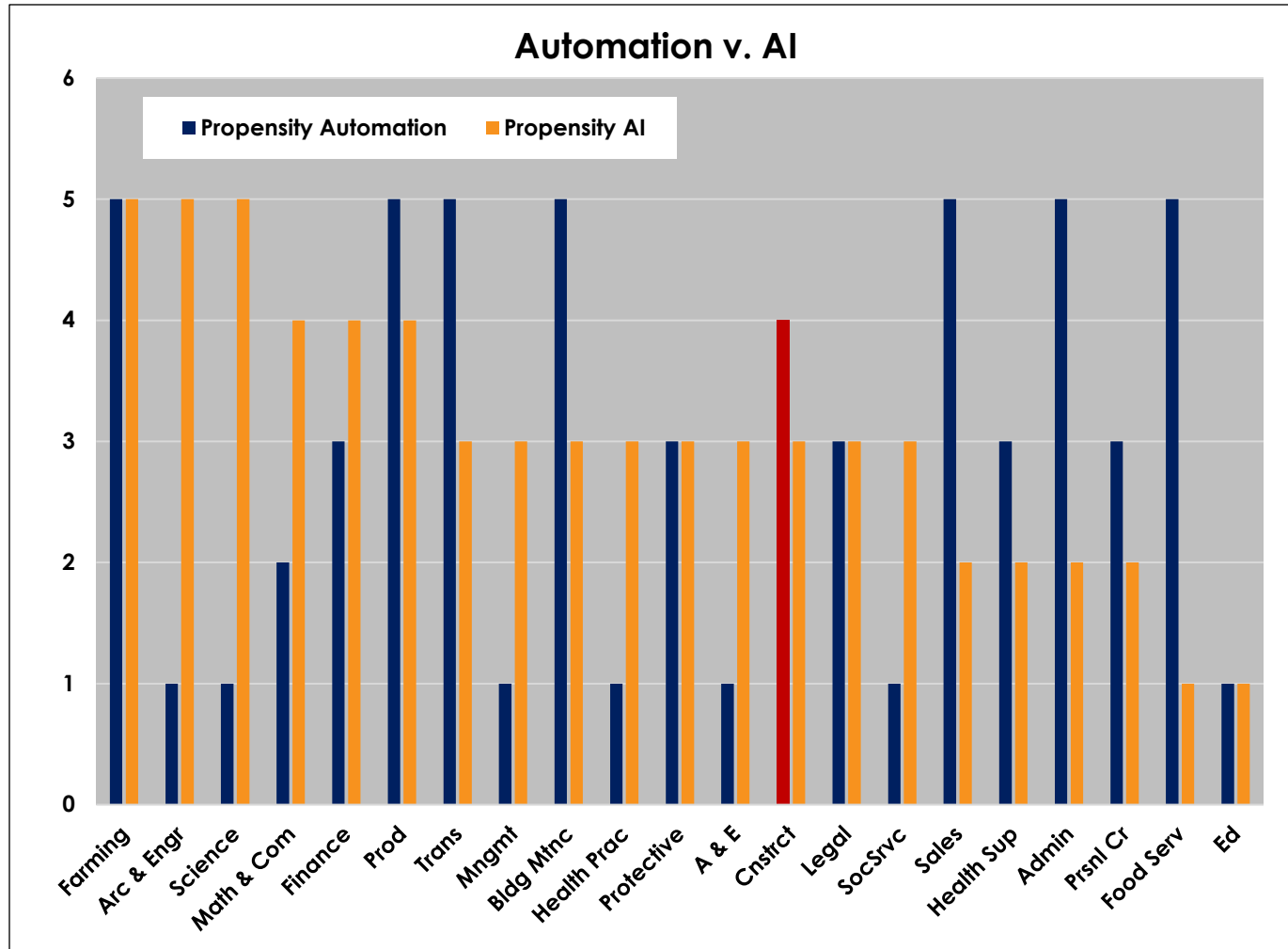
Propensity for Automation by Occupational Group

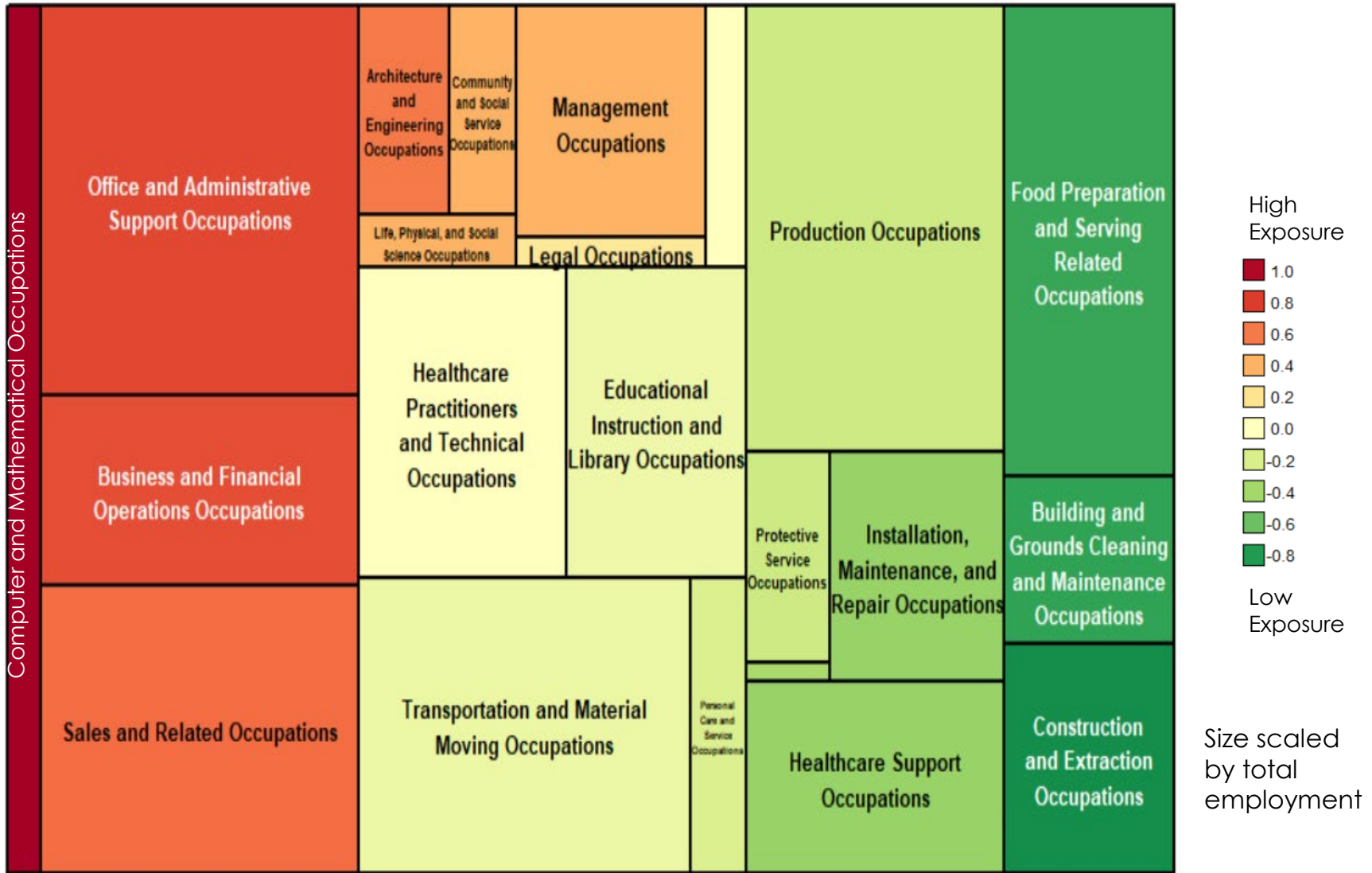DWD.WISCONSIN.GOV
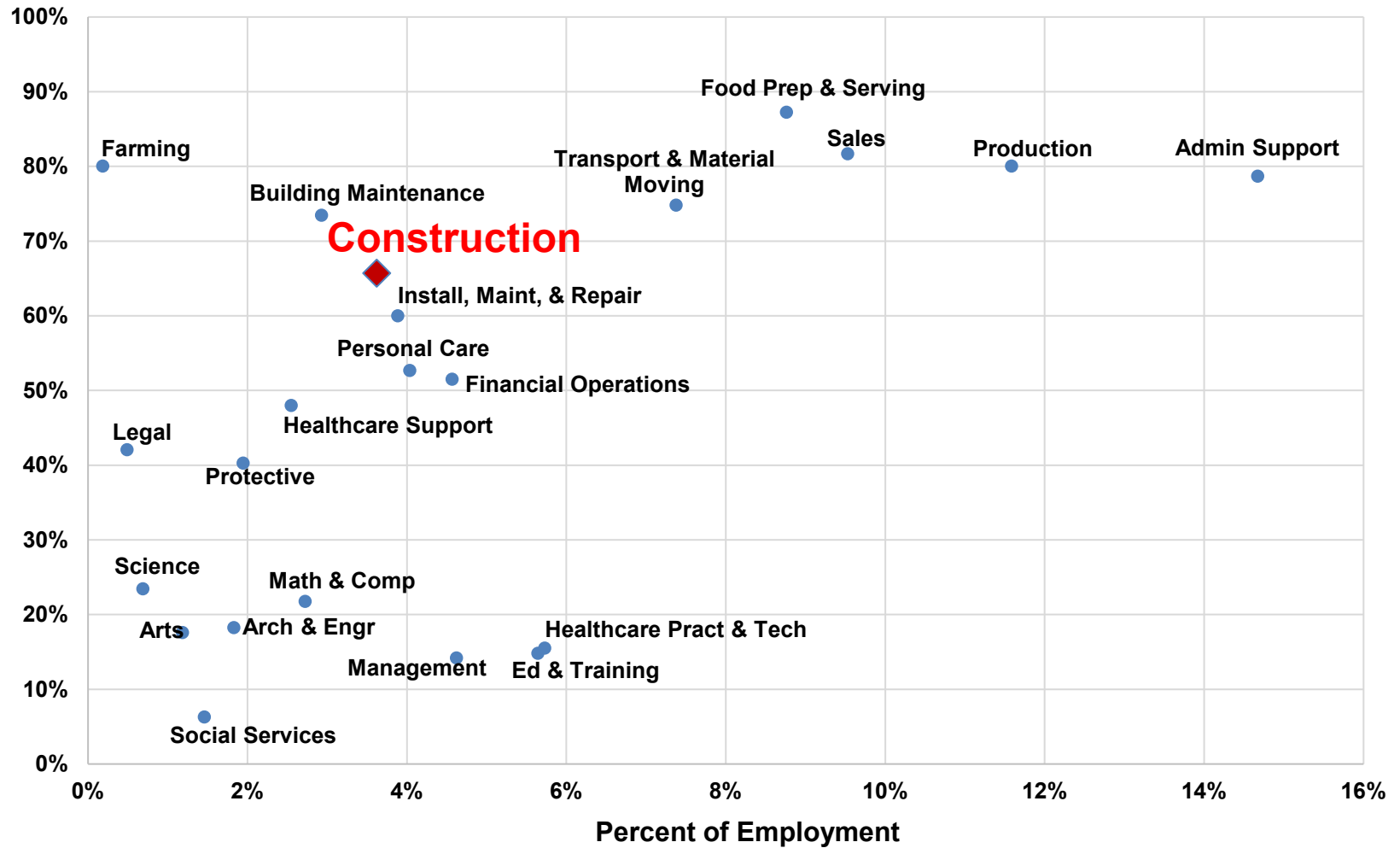
Automation Exposure

AI Exposure

Wisconsin Occupations by AI Exposure

Takeaways

- We are facing a labor **Quantity** challenge

- Macro v. micro dichotomy

- Flat, aging workforce affects fiscal resources

- AI effects will be significant, yet untold

Questions?

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Chief Economist

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