

# **Workforce in Flux: Long-term demographics, automation, and AI**

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**NABE Annual Meeting**

**October 14, 2025**

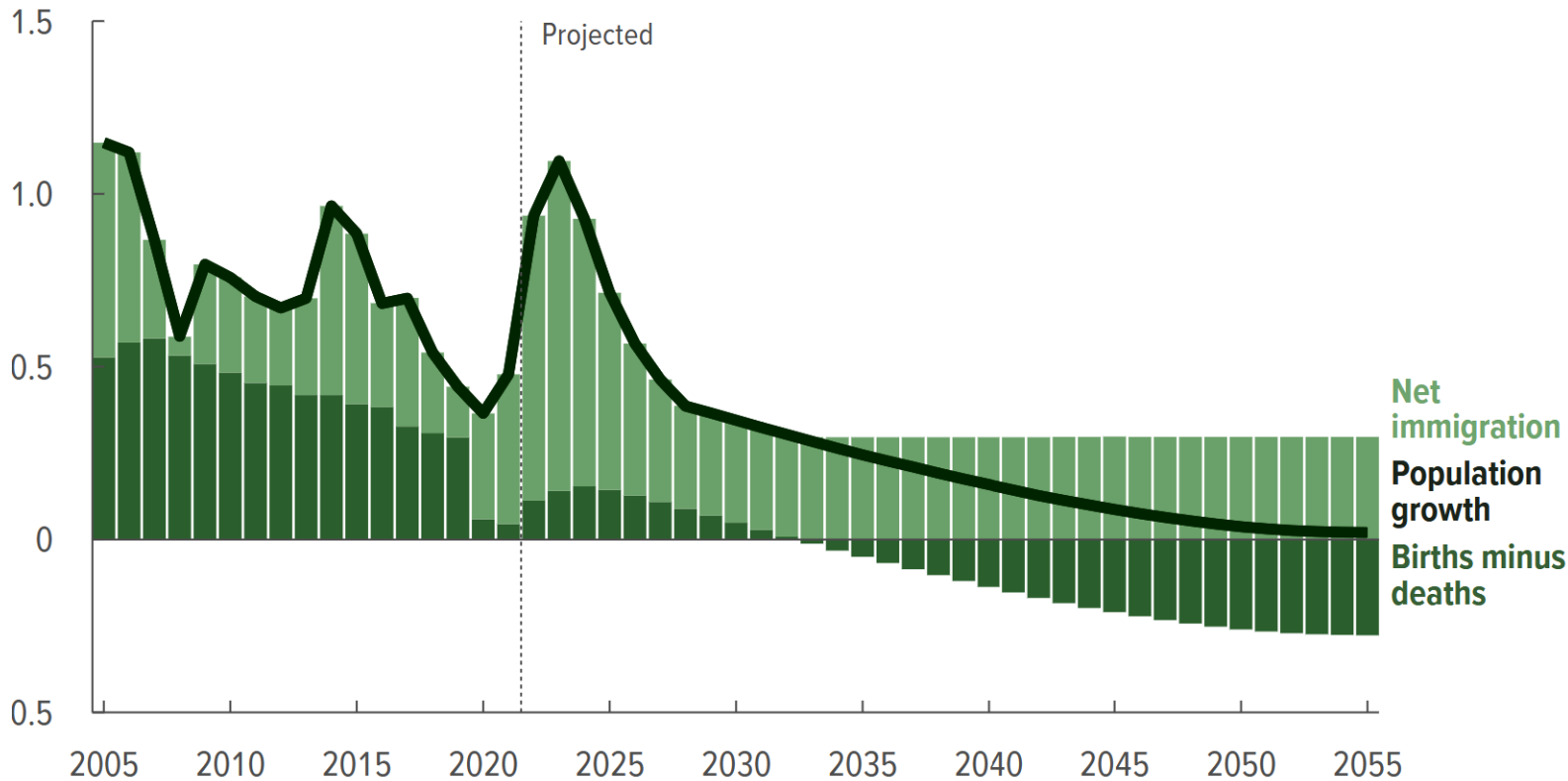
**10:35-11:30 AM – Session A**

**Michael Horrigan, President**

# Congressional Budget Office: Demographic Outlook 2025 to 2055

## Population Growth and Contributing Factors

Percent



By 2033, annual deaths exceed annual births in CBO's projections. After that, net immigration more than accounts for the projected population growth; without immigration, the U.S. population would shrink after 2033.

# Average monthly changes in employment will slow down significantly over the next ten years

*Congressional Budget Office U.S. Employment Projections*

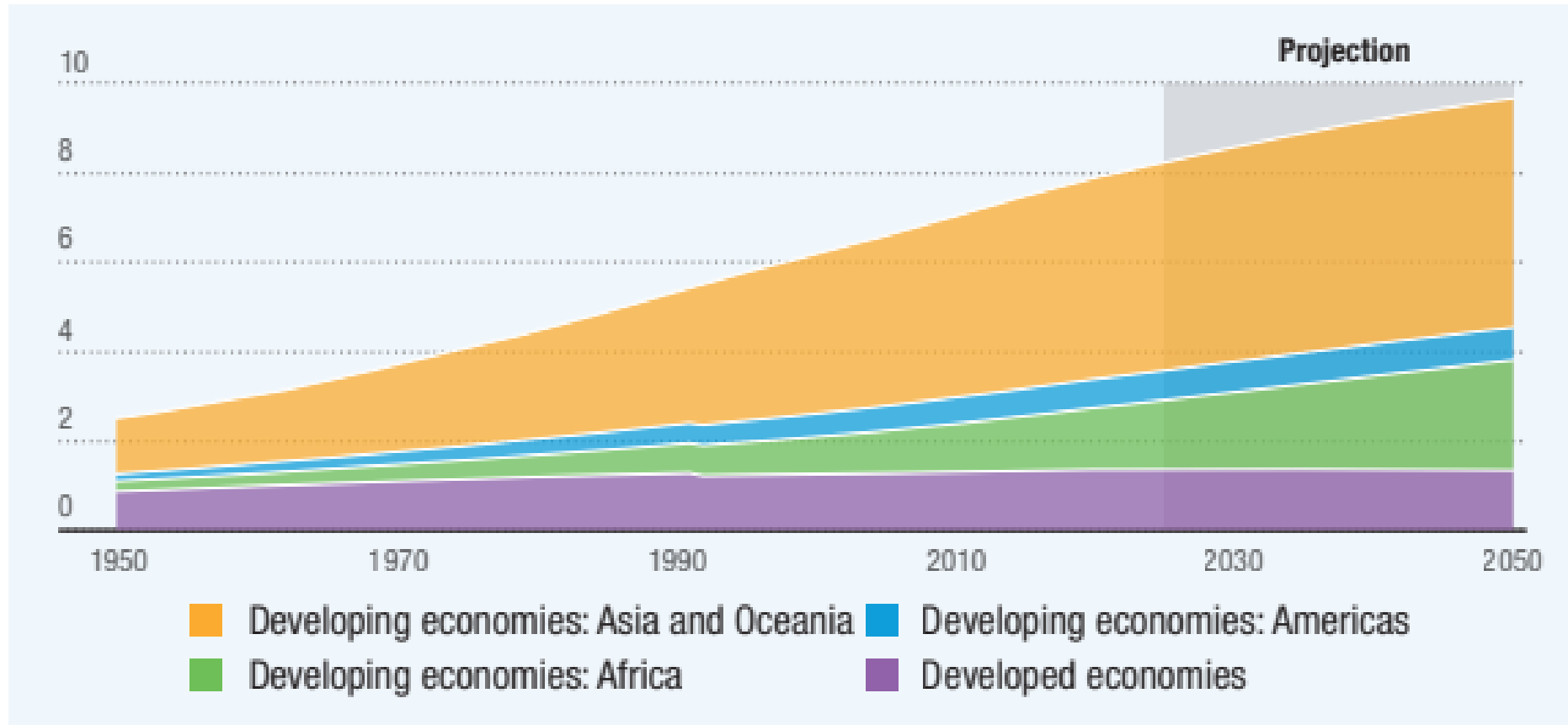
Year	CBO Baseline Projections Civilian Employment Current Population Survey concept	Average Monthly Employment Change
2014	146,319,000	--
2024	161,469,000	126,249
2034	171,045,000	68,958

*Published January 2025*



## Developing economies experience fastest population growth

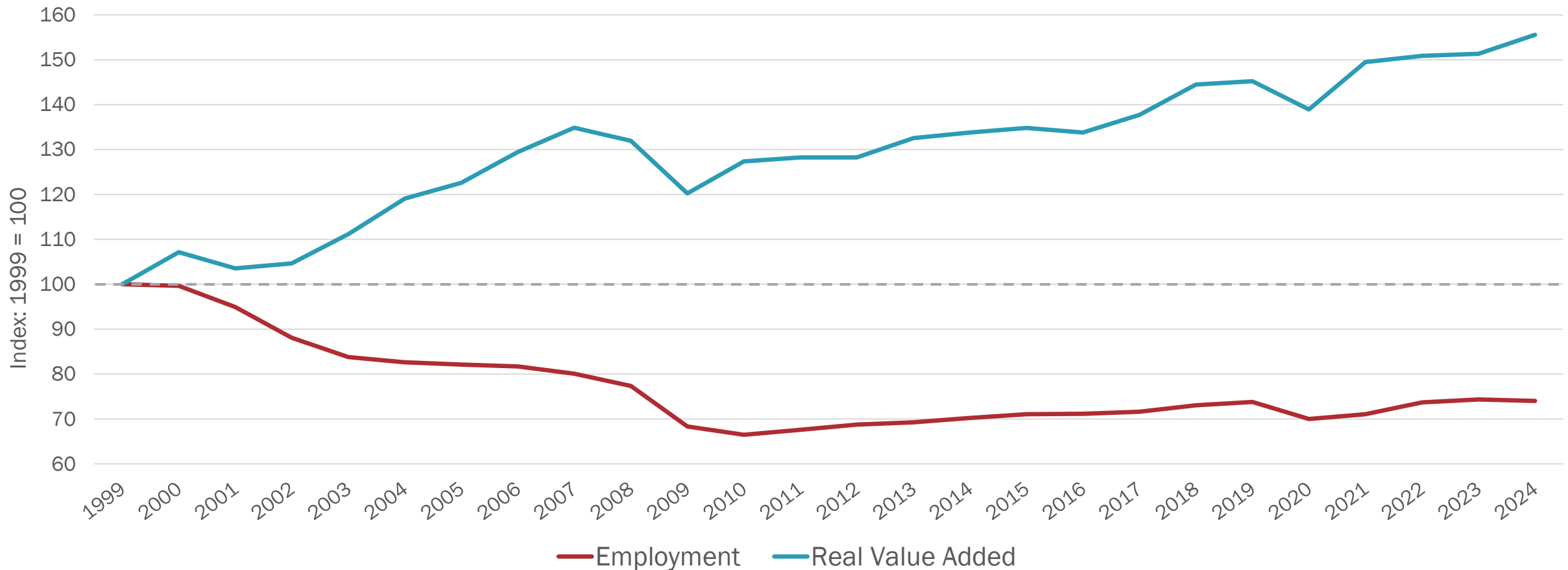
World population by group of economies, billions



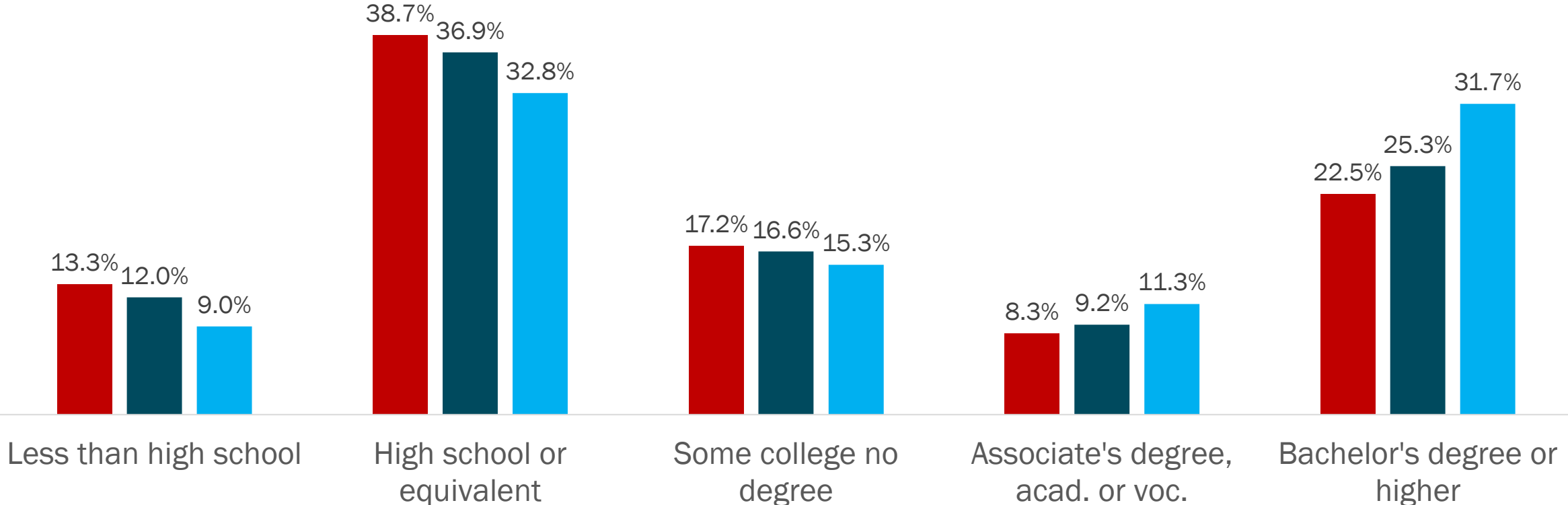
Source: UNCTAD, UNCTADstat.

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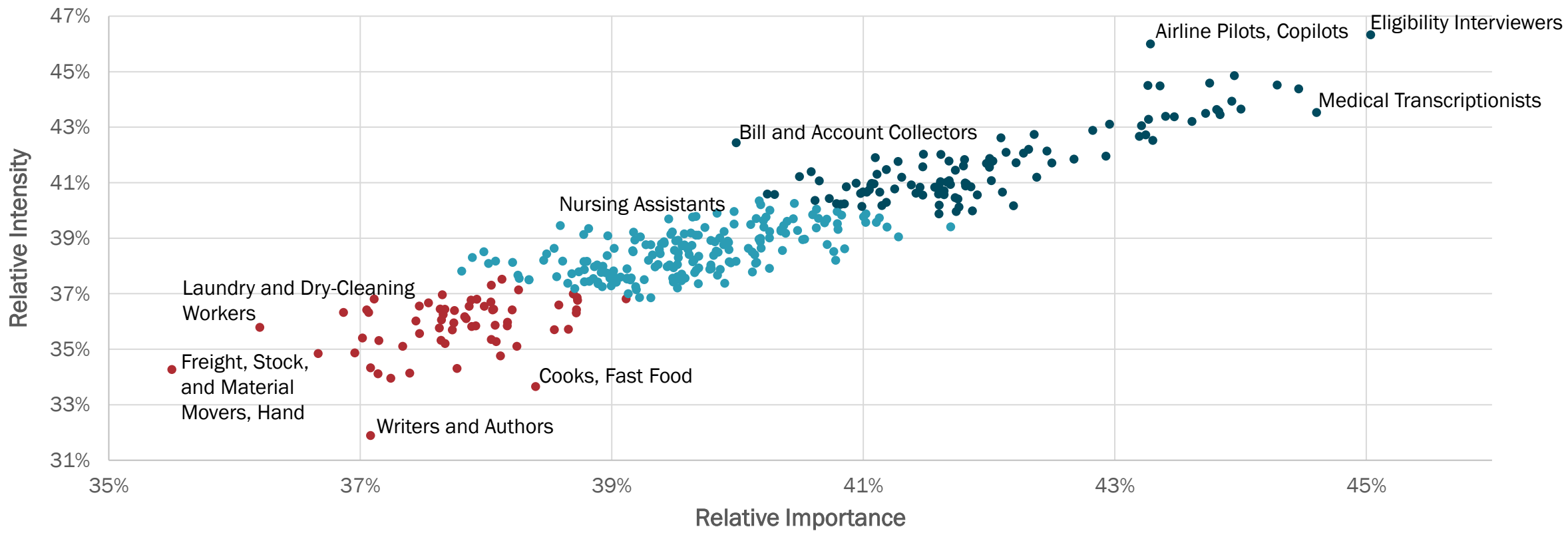
# United States manufacturing industry employment and real value added, 1999-2024



# Changes in the educational attainment distribution of employees in Manufacturing: 1999, 2007, and 2019



# Cluster Assignments, Occupations sorted by relative importance and intensity of high AI-exposure work activities



Occupations with relatively: ● Low Importance and Intensity ● Medium Importance and Intensity ● High Importance and Intensity

## Occupations with Greatest Relative Intensity and Importance of High AI Exposure Work Activities, Typically Requiring a Bachelor's or Professional Degree

SOC Code	Title	Typical Education	Typical OJT	Median Annual Wage, 2023
53-2011	Airline Pilots, Copilots, and Flight Engineers	Bachelor's degree	Moderate-term	\$ 219,140
17-2061	Computer Hardware Engineers	Bachelor's degree	None	\$ 138,080
17-2011	Aerospace Engineers	Bachelor's degree	None	\$ 130,720
15-1241	Computer Network Architects	Bachelor's degree	None	\$ 129,840
15-1212	Information Security Analysts	Bachelor's degree	None	\$ 120,360
17-2072	Electronics Engineers, Except Computer	Bachelor's degree	None	\$ 119,200
17-2071	Electrical Engineers	Bachelor's degree	None	\$ 106,950
15-1211	Computer Systems Analysts	Bachelor's degree	None	\$ 103,800
15-1242	Database Administrators	Bachelor's degree	None	\$ 101,510
15-1251	Computer Programmers	Bachelor's degree	None	\$ 99,700
17-2141	Mechanical Engineers	Bachelor's degree	None	\$ 99,510
17-2112	Industrial Engineers	Bachelor's degree	None	\$ 99,380
15-1244	Network and Computer Systems Administrators	Bachelor's degree	None	\$ 95,360
15-1254	Web Developers	Bachelor's degree	None	\$ 84,960
13-2031	Budget Analysts	Bachelor's degree	None	\$ 84,940
27-3042	Technical Writers	Bachelor's degree	Short-term	\$ 80,050
13-2041	Credit Analysts	Bachelor's degree	None	\$ 79,420
13-1041	Compliance Officers	Bachelor's degree	Moderate-term	\$ 75,670
13-2072	Loan Officers	Bachelor's degree	Moderate-term	\$ 69,990

## Occupations with Greatest Relative Intensity and Importance of High AI Exposure Work Activities, Typically Requiring an Associate's, Some college, or Postsecondary nondegree award

SOC Code	Title	Typical Education	Typical OJT	Median Annual Wage, 2023
17-3023	Electrical and Electronic Engineering Technologists and Technicians	Associate's degree	None	\$ 72,800
29-2031	Cardiovascular Technologists and Technicians	Associate's degree	None	\$ 66,170
17-3013	Mechanical Drafters	Associate's degree	None	\$ 64,060
17-3026	Industrial Engineering Technologists and Technicians	Associate's degree	None	\$ 62,610
17-3011	Architectural and Civil Drafters	Associate's degree	None	\$ 61,820
51-4111	Tool and Die Makers	Postsecondary nondegree award	Long-term	\$ 61,490
23-2011	Paralegals and Legal Assistants	Associate's degree	None	\$ 60,970
17-3022	Civil Engineering Technologists and Technicians	Associate's degree	None	\$ 60,700
15-1232	Computer User Support Specialists	Some college, no degree	Moderate-term	\$ 59,240
19-4031	Chemical Technicians	Associate's degree	Moderate-term	\$ 56,750
53-3032	Heavy and Tractor-Trailer Truck Drivers	Postsecondary nondegree award	Short-term	\$ 54,320
27-4011	Audio and Video Technicians	Postsecondary nondegree award	Short-term	\$ 51,640
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	Associate's degree	None	\$ 47,710
43-3031	Bookkeeping, Accounting, and Auditing Clerks	Some college, no degree	Moderate-term	\$ 47,440
49-2011	Computer, Automated Teller, and Office Machine Repairers	Some college, no degree	Short-term	\$ 45,760
31-9092	Medical Assistants	Postsecondary nondegree award	None	\$ 42,000
43-4151	Order Clerks	Some college, no degree	Short-term	\$ 41,600
25-4031	Library Technicians	Postsecondary nondegree award	None	\$ 39,310
31-9094	Medical Transcriptionists	Postsecondary nondegree award	None	\$ 37,060

Sources: O\*NET Work Activities Database (2023), Bureau of Labor Statistics Employment Projections (2023-2033), Rakesh Kochhar, "Which U.S. Workers Are More Exposed to AI on Their Jobs?" (2023), Author's Calculations

## Occupations with Greatest Relative Intensity and Importance of High AI Exposure Work Activities, Typically Requiring a High school diploma or no formal education credential

SOC Code	Title	Typical Education	Typical OJT	Median Annual Wage, 2023
13-1031	Claims Adjusters, Examiners, and Investigators	High school diploma or equivalent	Long-term	\$ 75,050
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	Moderate-term	\$ 65,630
41-3021	Insurance Sales Agents	High school diploma or equivalent	Moderate-term	\$ 59,080
43-5061	Production, Planning, and Expediting Clerks	High school diploma or equivalent	Moderate-term	\$ 53,900
23-2093	Title Examiners, Abstractors, and Searchers	High school diploma or equivalent	Moderate-term	\$ 53,550
43-3051	Payroll and Timekeeping Clerks	High school diploma or equivalent	Moderate-term	\$ 52,240
43-6012	Legal Secretaries and Administrative Assistants	High school diploma or equivalent	Moderate-term	\$ 50,680
43-4061	Eligibility Interviewers, Government Programs	High school diploma or equivalent	Moderate-term	\$ 50,270
13-2082	Tax Preparers	High school diploma or equivalent	Moderate-term	\$ 49,010
17-3031	Surveying and Mapping Technicians	High school diploma or equivalent	Moderate-term	\$ 48,940
43-4131	Loan Interviewers and Clerks	High school diploma or equivalent	Short-term	\$ 47,380
43-9041	Insurance Claims and Policy Processing Clerks	High school diploma or equivalent	Moderate-term	\$ 46,900
43-4031	Court, Municipal, and License Clerks	High school diploma or equivalent	Long-term	\$ 46,110
43-3021	Billing and Posting Clerks	High school diploma or equivalent	Moderate-term	\$ 45,590
43-6013	Medical Secretaries and Administrative Assistants	High school diploma or equivalent	Moderate-term	\$ 40,640
43-9061	Office Clerks, General	High school diploma or equivalent	Short-term	\$ 40,480
43-9021	Data Entry Keyers	High school diploma or equivalent	Short-term	\$ 37,790
43-5021	Couriers and Messengers	High school diploma or equivalent	Short-term	\$ 36,710
53-3031	Driver/Sales Workers	High school diploma or equivalent	Short-term	\$ 35,420

Sources: O\*NET Work Activities Database (2023), Bureau of Labor Statistics Employment Projections (2023-2033), Rakesh Kochhar, "Which U.S. Workers Are More Exposed to AI on Their Jobs?" (2023), Author's Calculations

In the next ten years, among occupations with the **greatest** exposure to AI

Those requiring a BA or higher will grow by over 640,000 or 14%

Those requiring high school or less will decline by over 284,000 or 14%

In the next ten years, among occupations with the **lowest** exposure to AI

Those requiring a BA or higher will grow by over 183,000 or 4%

Those requiring high school or less will grow by over 898,000 or 20%

Source: O\*NET Work Activities Database (2023), Bureau of Labor Statistics Employment Projections (2023-2033), Rakesh Kochhar, "Which U.S. Workers Are More Exposed to AI on Their Jobs?" (2023), Author's Calculations

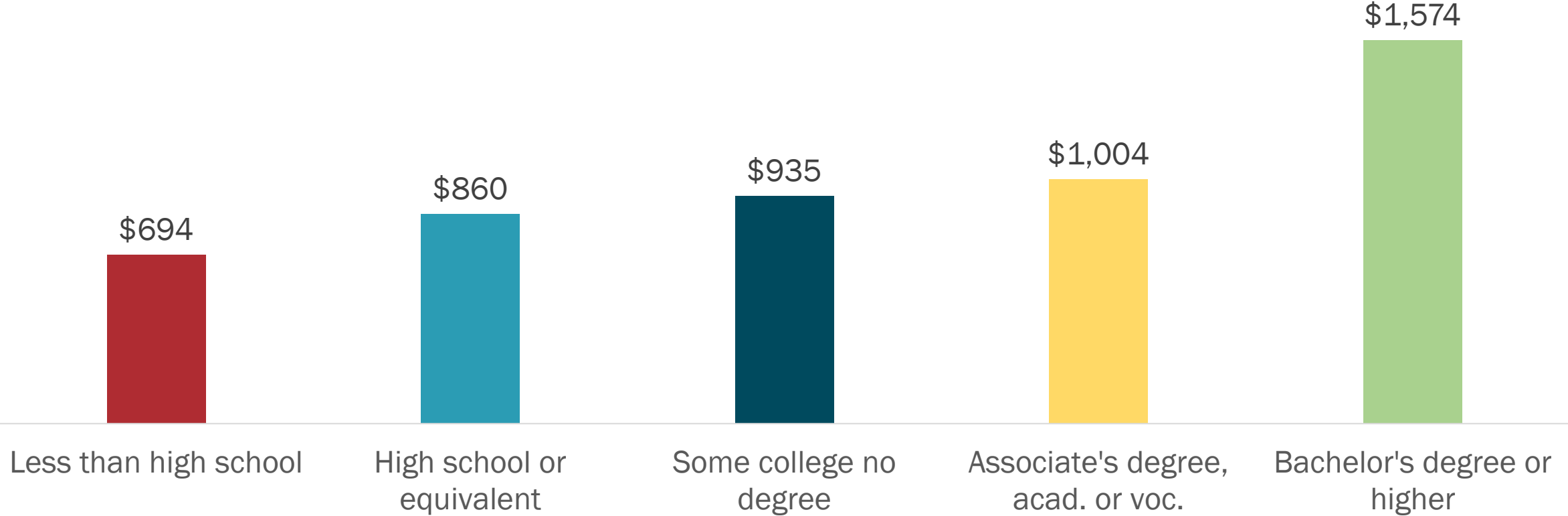
# Within groups of occupations that are relatively more-exposed to AI, an outsized share of employment growth is centered on occupations requiring higher levels of education

U.S. Employment Projections by Occupational Cluster and Typical Education					
Relative Intensity and Importance of High AI-Exposure Work Activities	Typical Educational Attainment Required to Enter Occupation	Total Employment, 2023	Projected Employment Change, 2023-33	Percent Share of Employment, 2023	Percent Share of Employment Change, 2023-33
Greatest	BA+	8,685,200	642,100	6.3%	14.0%
	Some college or Associate's	7,046,500	165,800	5.1%	3.6%
	High school or less	19,123,800	(284,700)	13.9%	-6.2%
Middle	BA+	23,598,800	1,851,600	17.2%	40.4%
	Some college or Associate's	5,964,900	353,600	4.3%	7.7%
	High school or less	39,611,400	618,600	28.8%	13.5%
Lowest	BA+	4,434,000	183,200	3.2%	4.0%
	Some college or Associate's	1,833,200	152,600	1.3%	3.3%
	High school or less	27,080,300	898,200	19.7%	19.6%
<b>All Occupations</b>	<b>All Educational Requirements</b>	<b>137,378,100</b>	<b>4,581,000</b>	<b>100%</b>	<b>100%</b>

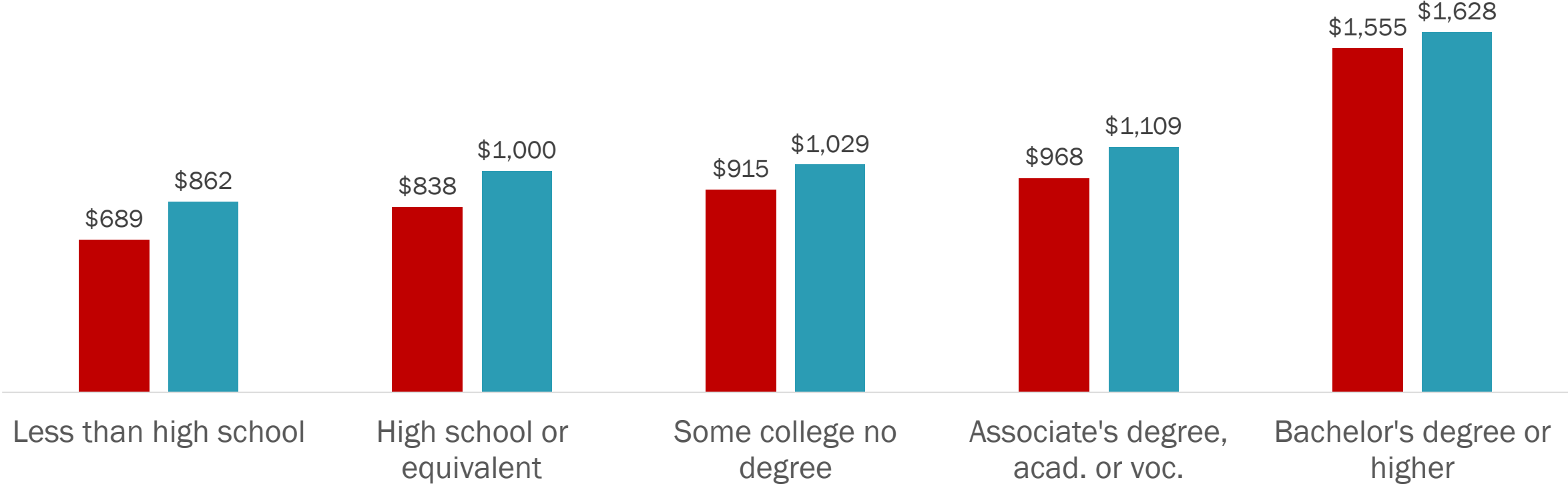
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# Education Pays: Median weekly earnings in 2024 by education for all wage and salary workers 25 and older



# Median weekly earnings in 2024 by education for all wage and salary workers ages 25 and older – comparing groups with and without a license or certification



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