

Workforce, Technology, and the New Economy in Public Procurement

Jake Smithwick, PhD, MPA

Jake.Smithwick@charlotte.edu





center4procurement.org

OUR MISSION

The Center for Procurement Excellence (CPE) mission is to improve the effectiveness of public and private procurement worldwide, through:

- Education and training of professionals in the procurement and delivery of goods and services
- Promoting excellence in the solicitation aspects of the procurement profession
- Standardizing procurement practices and solicitation practices
- Advocating for global improvements for advancement to procurement policy



Simplar

- Consultancy, Research, OCM, and Trainers
- Expertise with **all parties** (owners & vendors)
- Provide **consulting, tools, training** for:
 - Procurement & Sourcing
 - Project Delivery
 - Organizational Readiness & Transformation
 - Risk-based Partnering & Planning
 - Project & Risk Management, Project Controls
 - Performance Measurements



Simplar

- Becoming a **Client of Choice**
- Becoming a **Performance-Based Vendor**
- Other things:
 - Industry Benchmarking
 - Human Dimensions/Team Optimization
 - Talent Development
 - Workforce Studies
 - Exploratory research
 - Policy & Regulations
 - Standards & Templates



20+ Years | 170+ Owners

3,500+ Projects | \$20+ Billion Procured

Information Technology

Networking
Data centers
Hardware
COTS software
ERP systems

Help desk services
eProcurement

Facility Management

maintenance
landscaping
security service
building systems
industrial moving
waste management
energy management

custodial
conveyance
pest control

Health Insurance/ Medical Services

Manufacturing

Business / Municipal / University Services

dining
multi-media rights
fitness equipment
online education
document management
property management
audiovisual
communications systems
emergency response systems
laundry

retirement fund
material recycling
bookstores
furniture

Construction / Design / Engineering

Infrastructure
Municipal
Laboratory
Education
Hospital
Corrections
Financial

Renovation
Repair
Maintenance
Roofing
Specialty
Demolition
Development

DBB
CMAR
DB
IDIQ
JOC
Low Bid
IPD

Google



TREMCO



Georgia-Pacific



NATIONAL ACADEMY OF SCIENCES



NOTICE:

**ALL DATA IS AS OF SEPT/OCT 2024
AND THE MARKET IS CHANGING FAST
THE DATA SHOULD BE UPDATED
REGULARLY**

Many Headwinds in Today's Supply Chain

- **Cost Escalation & Volatility**
- **Materials Shortages & Supply Chain Challenges**
- **Quick Macro**
- **Workforce**

Many Headwinds in Today's Supply Chain

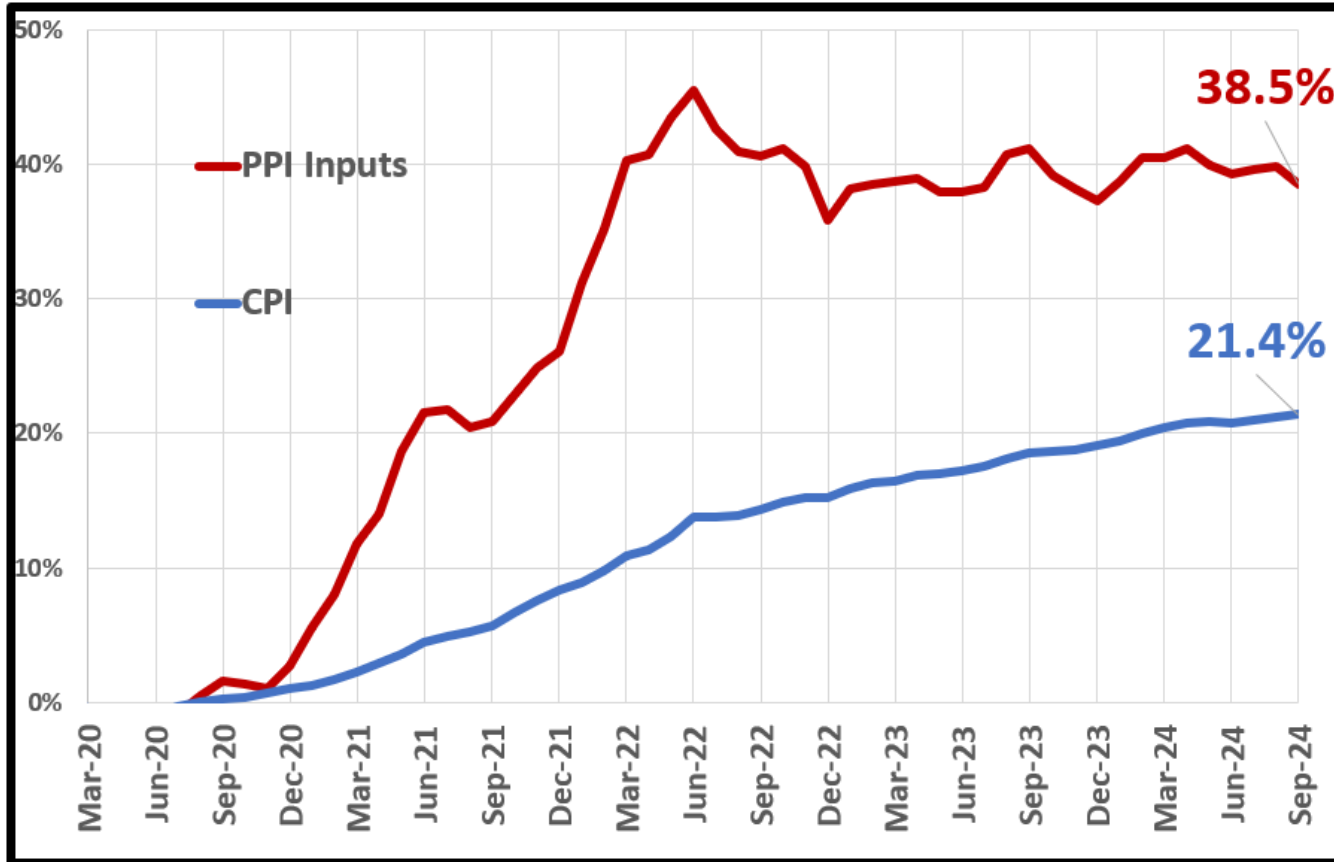
- **Cost Escalation & Volatility**

- Materials Shortages & Supply Chain Challenges

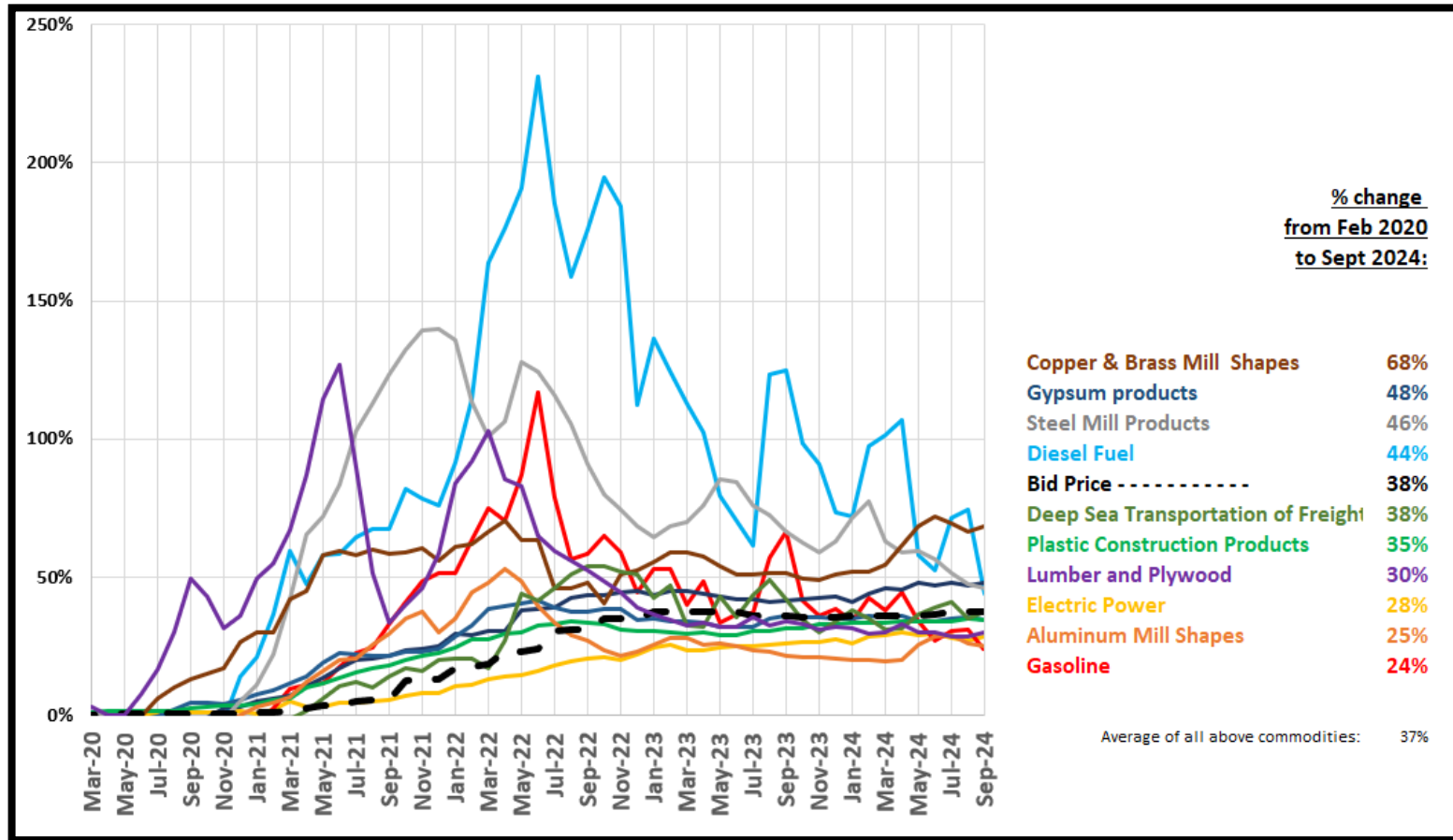
- Quick Macro

- Workforce

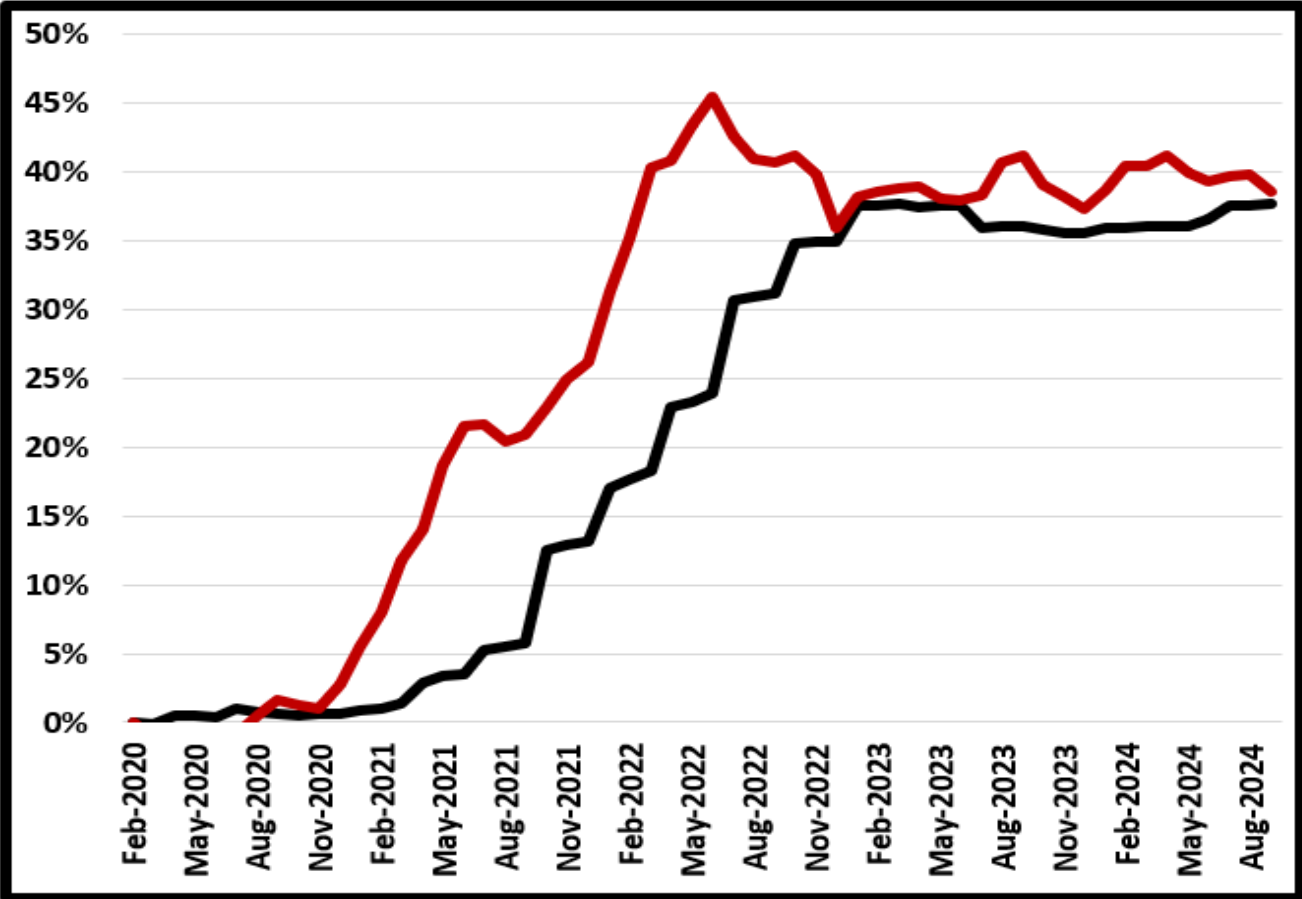
Stuff has Gotten A Lot More Expensive



Material Prices & Uncertainty – Sept 2024 BLS



Economic Uncertainty?



% Change
from Feb 2020
to Sept 2024

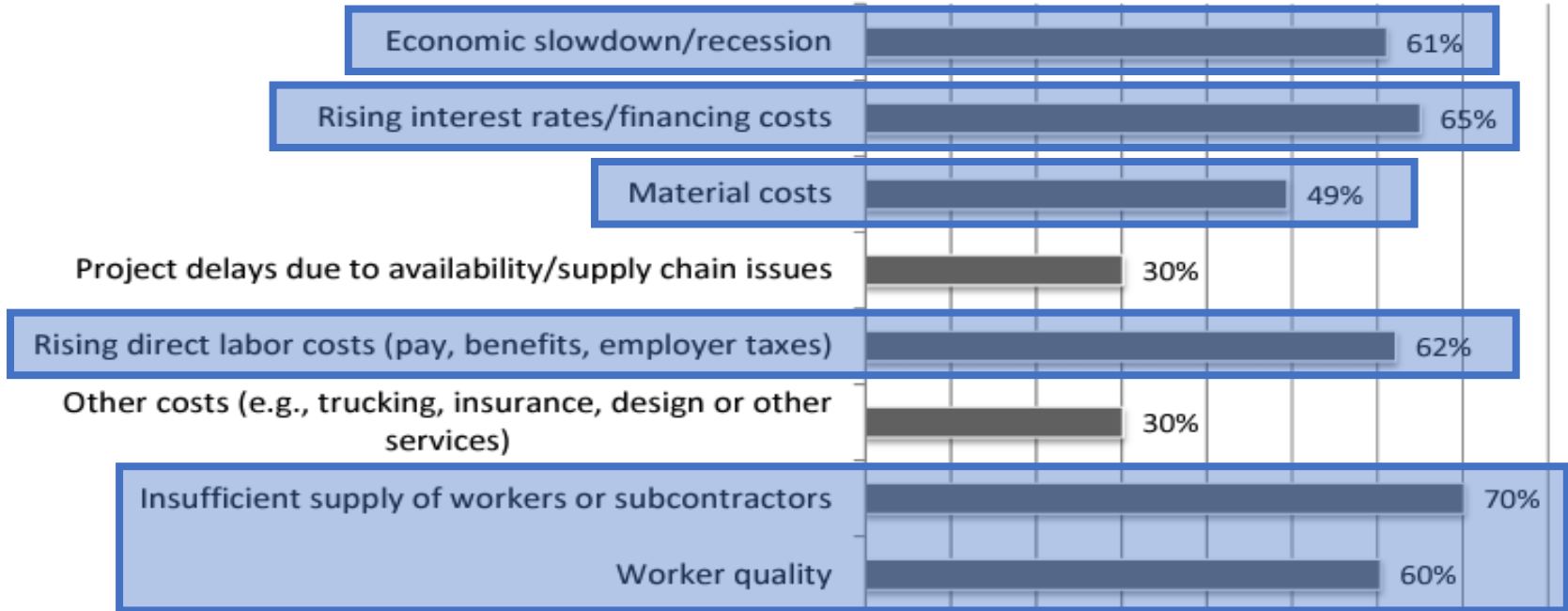
39.8% Inputs PPI (goods)
37.6% Bids

What are your biggest concerns – Aug/Sept 2024?



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Sage

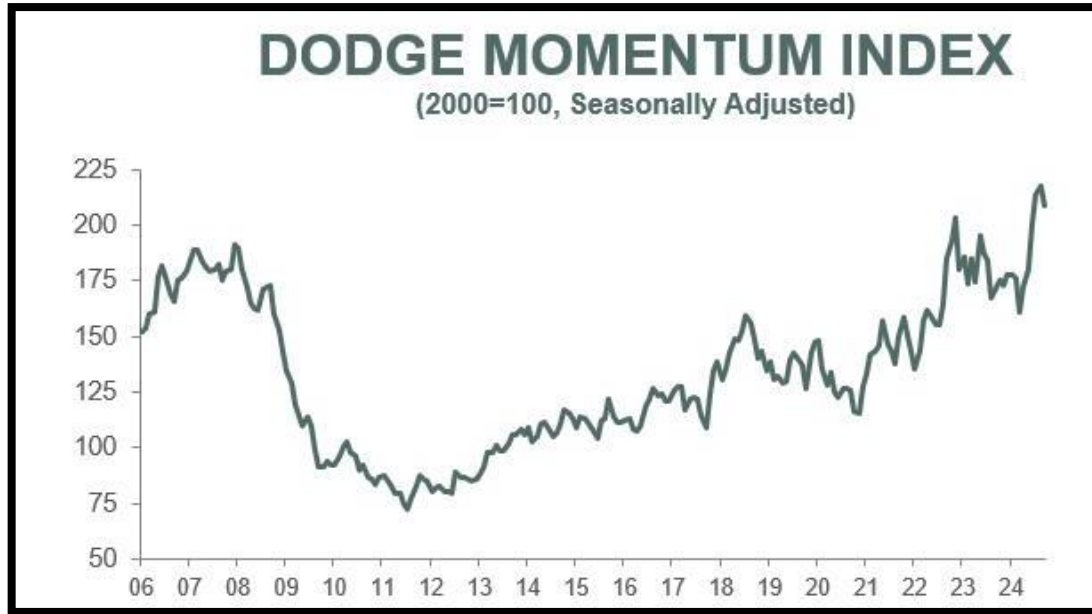


Economic - Dodge Momentum Index

More Work Coming? (Up 31% y/y Aug 2023-2024)

Dodge Momentum Index (Sep 2024 update) 

- Monthly measure of nonresidential projects in planning, [leading](#) indicator of construction [by 1-year](#)
 - Commercial **UP** year-over-year by 31% ; Institutional **UP** year-over-year by 4%



More Work Coming? — ENR 2024 Q2 Report

ENR CONFIDENCE INDEX SECOND QUARTERLY COST REPORT

Private Financing Woes Cut Confidence

Stubbornly high interest rates lessen demand for construction services **By Jonathan Keller**

The results of this quarter's Construction Industry Confidence Index survey show a dip in confidence among construction industry executives. The overall confidence index fell 11.5% to a 46 rating this quarter, from a 52 rating in Q1. The economic index is also down, falling four points to a 44 rating.

The CICI measures executive sentiment about where the current market will be in the next three to six months and over a 12-18-month period, on a 0-100 scale. A rating above 50 shows a growing market. The measure is based on responses by U.S. executives of leading general contractors, subcontractors and design firms on ENR's top lists to surveys sent between May 13 and June 17.

As with last quarter, GCs and CMs are more pessimistic than either designers or subcontractors; however, that gap widened significantly in Q2. GC/CM confidence comes in at a 37 confidence rating, down



from 47 in Q1 for that group. Although less extreme, confidence among both designers (from a 56 rating in Q1 to 54 in Q2) and subcontractors (57 to 51) has also dropped. Over 40% of GCs and CMs see a declining market both currently and 3-6 months from now.

Confidence is highest among firms who do business in the Midwest, with a confidence rating of 49, down from 55 last quarter. Firms who work in the Far West/Pacific region are the most pessimistic this quarter, with a 40 rating, significantly down from 52 last quarter.

CFI Confidence Dips

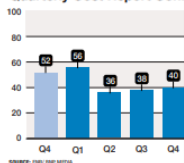
The CICI's results are largely mirrored by those of the Confindex survey from Princeton, N.J.-based Construction Financial Management Association (CFMA). Each quarter, CFMA polls CFOs from general and civil contractors and subcontractors on market and business conditions.

The resulting Confindex is based on four separate financial and market components, each rated on a scale of 1 to 100. A rating of 100 indicates a stable market; higher ratings indicate market growth.

All indices that the Confindex tracks fell between Q1 and Q2 of 2024, with the exception of the

ENR CONFIDENCE INDEX THIRD QUARTERLY COST REPORT

Quarterly Cost Report Confidence Index



higher ratings indicate market growth.

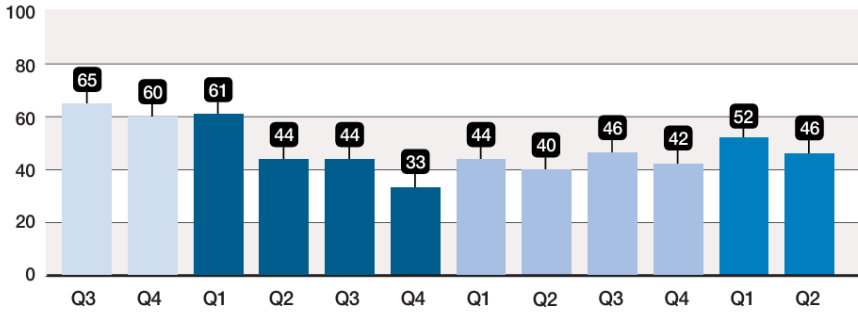
The Confindex fell 2.8% between Q4 of 2023, down from a rating of 52. The "current confidence" index also fell, down 5.4% to a 106 rating, and the "business conditions" index tumbled 6.8% to 101. The "business conditions" index rebounded slightly after a major drop last quarter, up two points to a 106 rating. "All indices are down significantly in comparison to last year's third quarter reading," says Stuart Binstock, CFMA's CEO.

Despite the dip in confidence, construction CFOs may not be pessimistic enough, thinks CFMA economic adviser and CEO of economic consultant Sage Policy Group Anirban Basu. "I think we're headed into a recession in 2023, and I think it's going to be a deep recession."

Whereas CFMA respondents have previously reported strong profit margins, this quarter the number of firms reporting improved profit margins has been "virtually offset" by those who report they have not improved, he says. With construction costs still rising "it'll be more and more difficult for those contractors to pass along those cost increases to their project owners," he adds. The "year ahead outlook" index of CFMA's survey fell below 100 this quarter and is down 18.2% when compared with last year.

The full impact of the conflict in Ukraine is also yet to be felt, he thinks. "When we came into the year in North America, natural gas prices were \$3 per million BTU; recently we have been in the mid-40s," explains Basu. As cold weather hits

Quarterly Cost Report Confidence Index

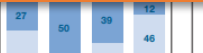


SOURCE: ENR/BNP MEDIA

Even if confidence in the construction market overall is low, confidence in many individual markets remains high. The water/sewer and waste (a 72 rating)/manufacturing (68) health care (68) markets posted numbers.

Basu sees a rising market at least in the short term. "Interest rates are good for the market, because people, at a certain period, can't buy homes. According to Freddie Mac, fixed mortgage rates are at 7.5% as of September 22. That number is down from 8.5% on January 6.

At the other end of the confidence remains low in the rating) and commercial of markets. Basu does not see citing data from Castle 5 provides security to 2,000 America. "On average 41% of workers swiped in he reports. He foresees a of office space in the near future may be banks. "August was the fastest leasing of New York City office space during the pandemic, and that in large measure is because banks are demanding their people come back," the Source CEO says.



The index measures executive sentiment about where the current market will be in the next three to six months and over a 12- to 18-month period, on a 0-100 scale.

A rating above 50 shows a growing market.

The measure is based on responses by U.S. executives of leading general contractors, subcontractors and design firms on ENR's top lists.

PROSPECTS IN INDIVIDUAL SECTORS BY FIRMS WORKING IN THOSE MARKETS

Sector	GROWING MARKET				STABLE MARKET				DECLINING MARKET			
	Number of Firms	Increasing Activity	Stable Activity	Improving Activity	Number of Firms	Increasing Activity	Stable Activity	Improving Activity	Number of Firms	Increasing Activity	Stable Activity	Improving Activity
COMMERCIAL OFFICES	78	75	28	1	65	31	4	35	49	17		
DISTRIBUTION, WAREHOUSE	48	32	35	25	21	56	39	4	52	31		
EDUCATION K-12	58	7	65	27	5	66	29	4	62	34		
ENTERTAINMENT, THEME PARKS, CULTURAL	33	10	55	27	19	56	31	9	58	41		
HOSPITALS, HEALTH CARE	67	4	54	42	1	51	48	3	53	54		
HIGHER EDUCATION	71	10	48	34	17	52	31	11	58	28		
HOTELS, HOSPITALITY	51	37	55	19	34	54	12	14	68	26		
MULTI-UNIT RESIDENTIAL	49	37	41	22	35	33	31	21	55	44		
METALS	44	45	46	7	43	58	7	18	61	28		
INDUSTRIAL, MANUFACTURING	55	19	53	35	35	47	46	2	47	51		
TRANSPORTATION	37	8	41	31	6	39	56	3	55	42		
WATER, SEWER AND WASTE	38	6	58	36	6	56	39	3	58	43		
POWER	28	4	45	59	4	32	64	8	31	76		
PETROLEUM, PETROCHEMICAL	31	11	27	35	0	27	73	8	34	56		
ENVIRONMENTAL, HAZARDOUS WASTE	18	30	40	33	20	58	30	10	48	38		



SOURCE: ENR/BNP MEDIA

PROSPECTS IN INDIVIDUAL SECTORS BY FIRMS WORKING IN THOSE MARKETS

	NUMBER OF FIRMS	CURRENTLY (%)			3-6 MONTHS (%)			12-18 MONTHS (%)		
		DECLINING ACTIVITY	STABLE ACTIVITY	IMPROVING ACTIVITY	DECLINING ACTIVITY	STABLE ACTIVITY	IMPROVING ACTIVITY	DECLINING ACTIVITY	STABLE ACTIVITY	IMPROVING ACTIVITY
COMMERCIAL OFFICES	78	71	28	1	65	31	4	35	49	17
DISTRIBUTION, WAREHOUSE	48	32	53	15	21	60	19	6	62	31
EDUCATION K-12	56	7	66	27	5	66	29	4	62	34
ENTERTAINMENT, THEME PARKS, CULTURAL	33	18	55	27	19	50	31	9	50	41
HOSPITALS, HEALTH CARE	67	4	54	42	1	51	48	3	33	64
HIGHER EDUCATION	71	18	68	14	17	62	21	11	65	24
HOTELS, HOSPITALITY	51	37	53	10	34	54	12	14	60	26
MULTI-UNIT RESIDENTIAL	49	37	41	22	35	33	31	21	35	44
RETAIL	44	45	48	7	43	50	7	18	61	20
INDUSTRIAL, MANUFACTURING	55	13	53	35	13	47	40	2	47	51
TRANSPORTATION	37	8	41	51	6	39	56	3	35	62
WATER, SEWER AND WASTE	36	6	58	36	6	56	39	3	56	42
POWER	28	4	46	50	4	32	64	0	21	79
PETROLEUM, PETROCHEMICAL	11	27	73	0	27	73	0	18	36	45
ENVIRONMENTAL, HAZARDOUS WASTE	10	30	40	30	20	50	30	10	40	50

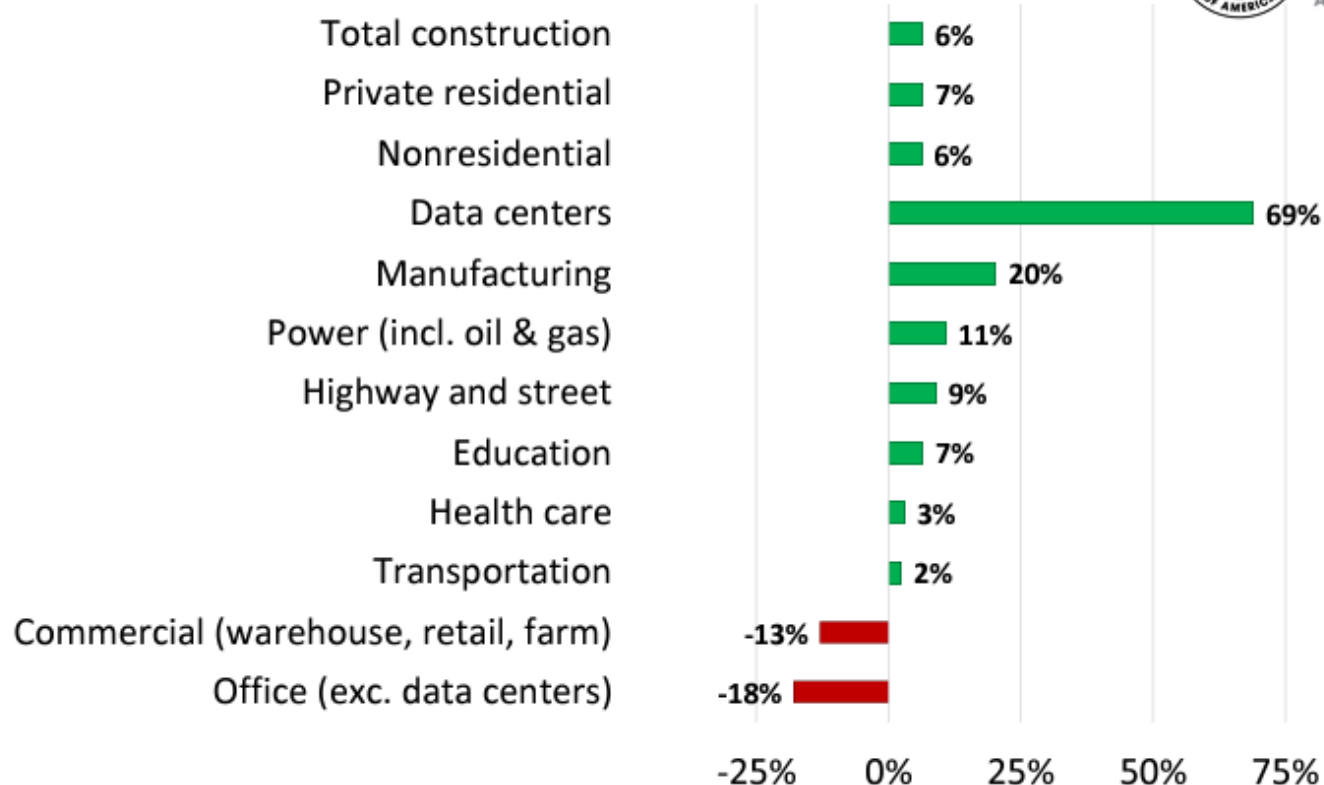
SOURCE: ENR/BNP MEDIA. FIGURES MAY NOT ADD UP TO 100% DUE TO ROUNDING

Change in construction spending: May 2023-May 2024

Year-over-year % change in current (not inflation-adjusted) dollars, seasonally adjusted

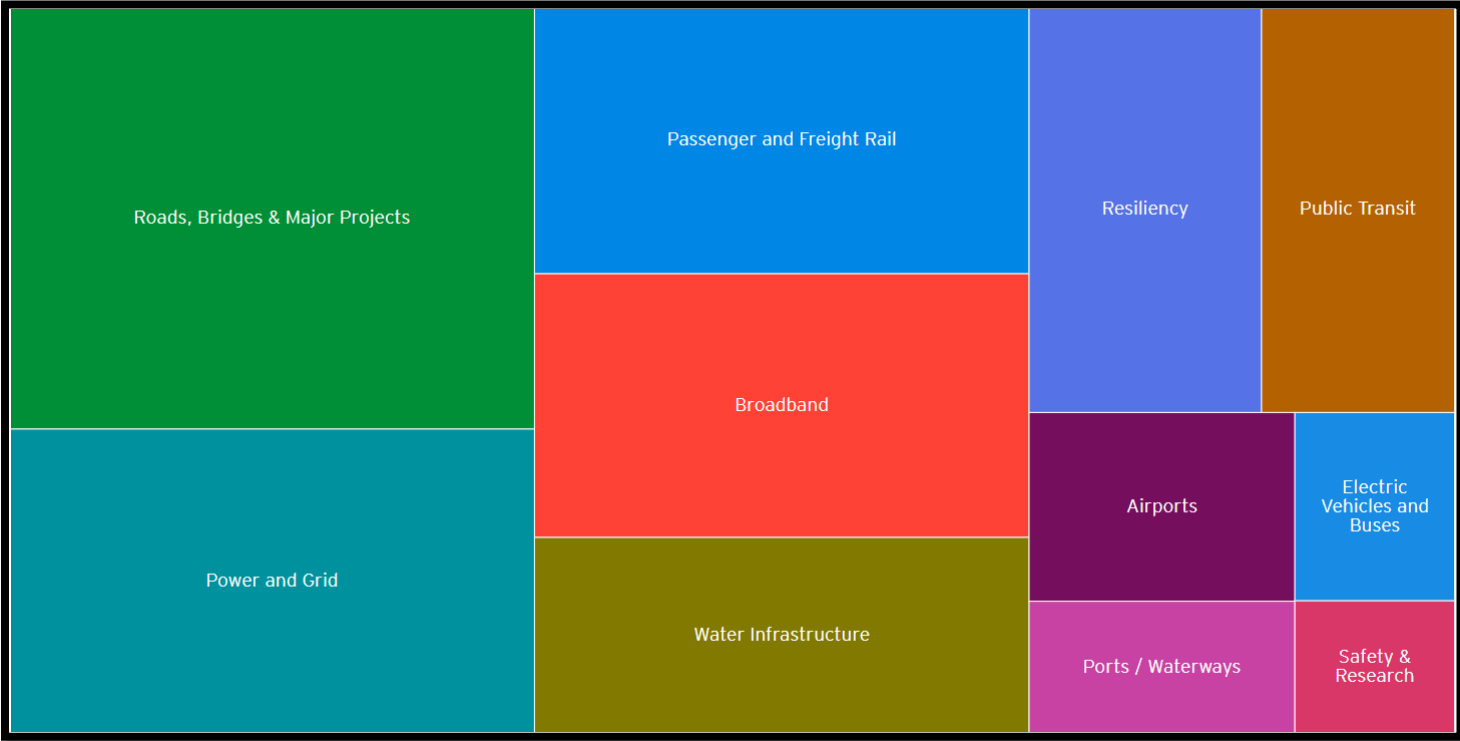


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IIJA (“Infrastructure Bill”) - \$1.2T/5yr (Nov ’21)

- Roads and bridges: \$110B
- Power and grid: \$73B
- Rail: \$66B
- Broadband: \$65B
- Water infrastructure: \$55B
- Resiliency: \$46B
- Transit: \$39B
- Airports: \$25B
- Environmental: \$21B
- Ports/waterways: \$17B
- Safety/Research: \$11B
- Low-carbon buses and ferries: \$7.5B
- EV infrastructure: \$7.5B



More Work Coming? - Others

- Dodge – new starts up 2% from same time last year
 - Non-residential starts down 7%
 - Residential starts up 5%
 - Non-building starts up 14%
 - May '24 up 49% from April (up 17% ytd since Jan)
- AGC - Total Value of Starts up 6% Year to Year
 - Non-residential – Up 6%
 - Commercial/Data Centers – Down 13%/Up 69%
 - Office – Down 18%
 - Education – Up 6%
 - Highway/Bridge – Up 9%
 - Industrial/Manufacturing – Up 20%
 - Power/Energy – Up 11%
 - Healthcare – Up 3%
- Decarbonization/Energy Policy for Existing Buildings?
- On-Shoring / Deglobalization – Reindustrialization of America (+Mexico)
- Semi/Chip and Data Centers (\$280B CHIPS and Science Act (\$52B subsidy to semi))

“Risks continue to mount for the construction sector,” said Richard Branch, chief economist for Dodge Construction Network. “Over the last 12 months, construction starts have essentially froze as rates increased and credit tightened. The industry needs further adjusting as rates are expected to stay higher for longer, along with the potential for higher energy costs and continued political uncertainty. A return to broad-based growth in construction starts is still some time away.”



Biden Administration Announces Federal Building Performance Standard

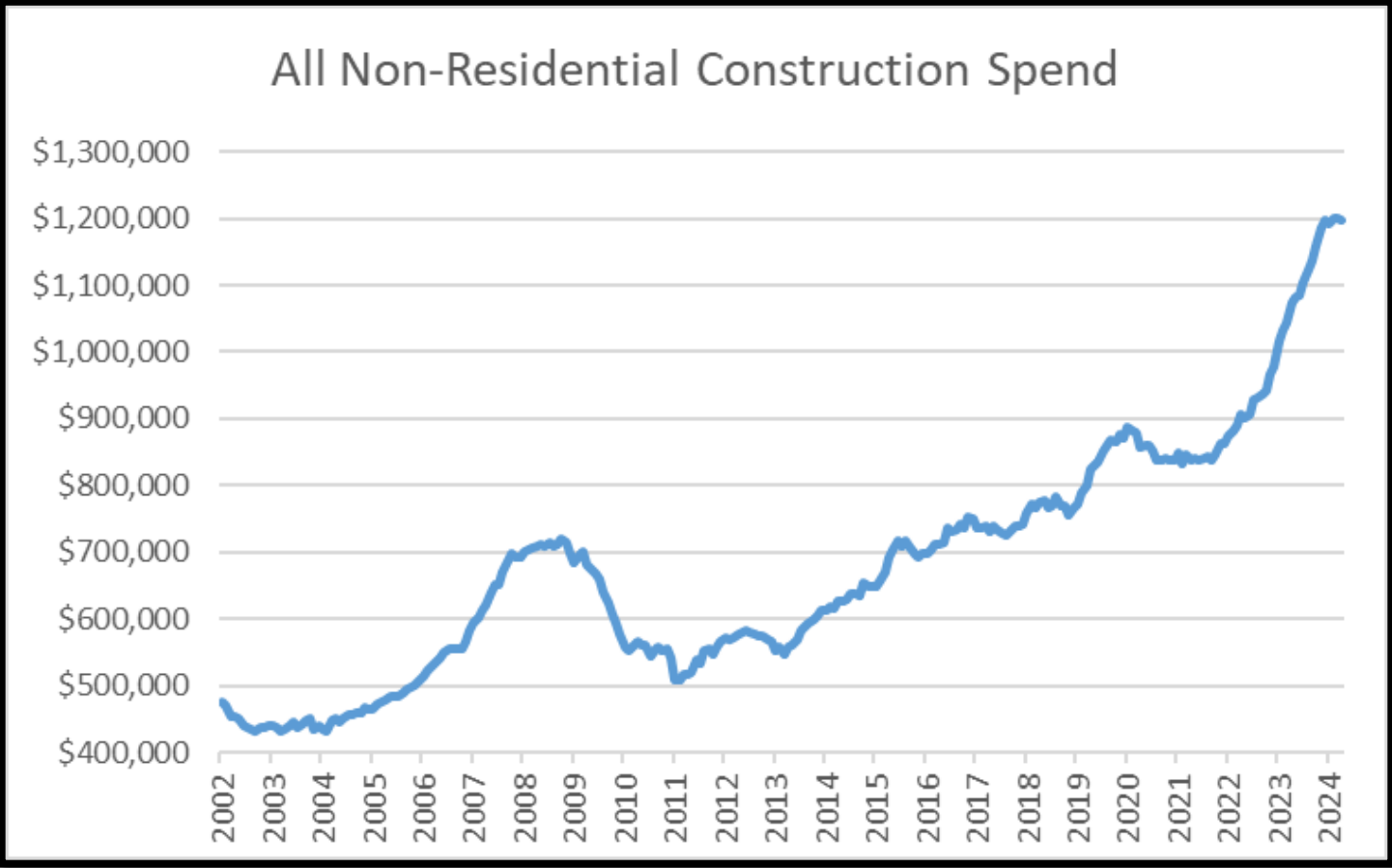
The standard will help federal facilities meet several concurrent sustainability and emissions reduction goals. December 29, 2022



By Greg Zimmerman, senior contributing editor

ENERGY EFFICIENCY

Total Construction Spend – All Non-Residential



Energy crisis: Govern billion on fossil fuel s

NEWS ISRAEL-HAMAS WAR POLITICS U.S. NEWS WORLD BUSINESS HEALTH NBC NEWS TIPLINE VIDEO WATCH LIVE

ISRAEL-HAMAS WAR

Iran and its proxy forces loom over Israel-Hamas war, sparking fears of wider regional conflict

"There's a real risk of escalation," one expert told NBC News.

TAP TO LINK ITEM

Impact of gas supply cuts
Directorate-General for Energy
rd quarter impact of gas supply cuts



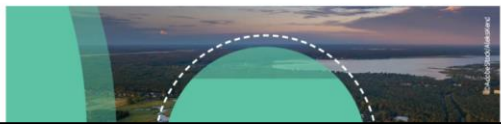
Energy

Home Topics Data and analysis Studies Publications Consultations Energy explained

Home News EU reaches 90% gas storage target ahead of winter

NEWS ANNOUNCEMENT | 18 August 2023 | Directorate-General for Energy

EU reaches 90% gas storage target ahead of winter



Russia's war in Uki continues

By Kathleen Magramo, Eliza Mackintosh, Aditi Sangal, Mike Hayes, CNN

Updated 12:03 a.m. ET, March 21, 2023

incident, Kremlin says

◆ WSJ NEWS EXCLUSIVE | MIDDLE EAST

Iran Helped Plot Attack on Israel Over Several Weeks

The Islamic Revolutionary Guard Corps gave the final go-ahead last Monday in Beirut

How Scary Is China's Crisis?

Aug. 21, 2023

China / Military

PLA will 'show no mercy' against Taiwan independence moves, top Chinese general says

- CMC vice-chairman Zhang Youxia tells Beijing Xiangshan Forum the military 'will never agree' to separate the island from China
- He also takes a thinly veiled swipe at the US, saying a 'certain country' is interfering in the region and internal affairs of other nations

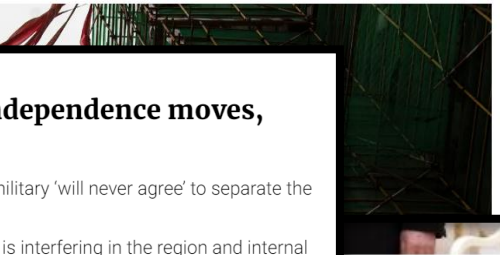


PHOTO: AP/WIDEWORLD/GETTY IMAGES

Drones attack deep in Russia as Medvedev threatens Ukraine's 'existence'

Ukraine attacks military and energy infrastructure in at least three cities deep inside Russia, showing new drone capabilities.



North Korea fires cruise missiles off west coast, Seoul says

Reuters January 24, 2024 12:51 AM MST - Updated 10 hours ago



8 hours ago - World

China steps up Taiwan pressure campaign with more balloons

Bethany Allen-Ebrahimian, author of *Axios China*

Facebook Twitter LinkedIn Email



World / Europe

Turkish parliament approves Sweden's NATO membership bid

By Isil Sariyuce 3 minute read

Facebook X Email



Belarus adds nukes to its military doctrine

Alexander Lukashenko has been pressing Russia's Vladimir Putin to return Soviet-era nuclear weapons to Belarus.



SPECIAL SERIES Middle East crisis — explained

U.S. hits Iraq militia sites and anti-ship missiles in Yemen

JANUARY 24, 2024 · 3:24 AM ET

By The Associated Press



Many Headwinds in Today's Supply Chain

- Cost Escalation & Volatility

- **Materials Shortages & Supply Chain Challenges**

- Quick Macro

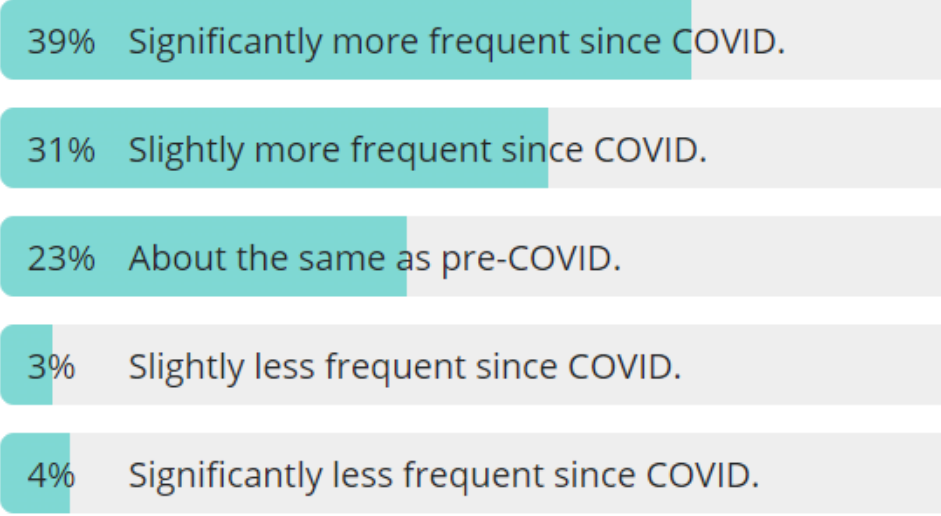
- Workforce

Supply Chain Issues

- **90% of projects have had supply chain impacts**
- **84% of projects have had higher cost**
- **72% of projects have taken longer**

- **Actions People are Taking:**
 - Accelerated purchasing after contract award (cash flow)
 - Alternative suppliers
 - Alternative materials/products (change the spec)
 - Stocking inventory
 - Increasing Bids/Budgets
 - Longer Completion Times
 - Some Primes advising Owners to push Risk to Subs

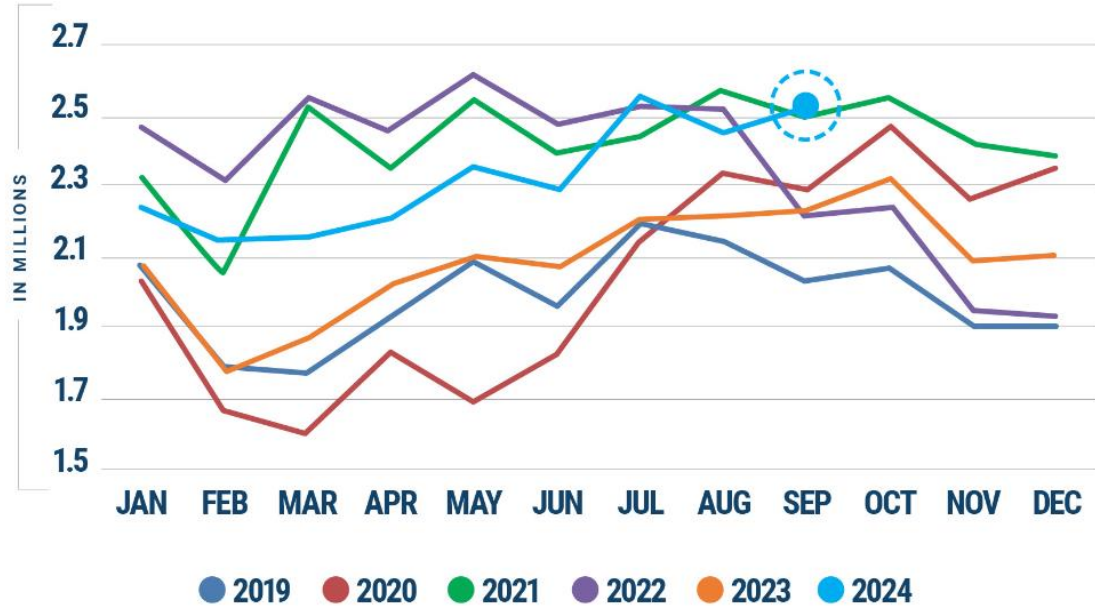
Cost Overruns (October 2024)



74 votes · Final results

Supply Chain: shipping

2019-2024 U.S. CONTAINER IMPORT VOLUME (TEUs)



US Container Imports:

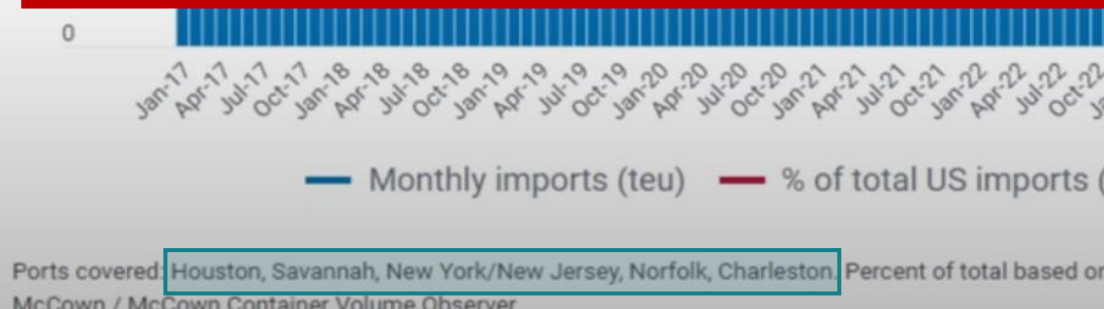
- July '24 is a 26-month high since May '22
- 1st time in 22mo where volume >2.4M TEU level which created port congestion in COVID
- Growth in 2024 is 15.6% higher than same months in 2019.
- Top commodities were furniture/bedding + plastics / articles thereof
- 40% of imports are from China.
- Panama canal back to near-full operating depth and rising.
- Cargo avoiding Suez for longer more expensive routes, disrupted by weather at tip of South Africa



- US East and Gulf Coast Ports strike
(current agreement expired on Oct 1st – Oct 3rd tentative deal in place till Jan 15th – automation and AI...and then workers to vote on it...)
- The USMA-ILA were not at the table together.
 - ILA is largest US union of maritime workers
 - Prior west-coast union negotiations proceeded without a contract. ILA not same.
 - ILA Pres is *“certain ILA members will achieve a landmark agreement, even if it takes a coast-wide strike beginning Oct 1st to get it.”*
- A strike would have shut down 1M+ TEUs entering the US.
 - *And everything leaving.*

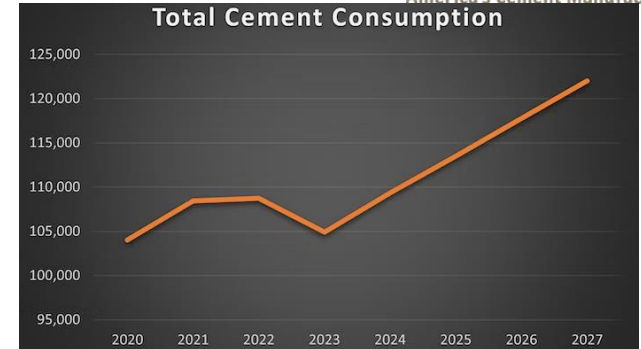
Imports to top five US east and Gulf coast ports

The International Association of Machinists and jet maker Boeing (BA) reached a tentative deal, which union leaders recommended their 33,000 members accept. The leadership even described it as the best deal they had ever negotiated with the company. But union members voted nearly unanimously to reject it and have remained on strike since September 13.



Others: Materials Shortages

- 43 states had shortages in cement
- No cement capacity has been added in the US since 2009
- Additional cement production capacity coming, but PCA expects demand to outpace supply
- *Fly Ash Shortage Coming – some stockpiling*
- **IV Fluid Shortage – Nation Wide**
- Hurricane Helene

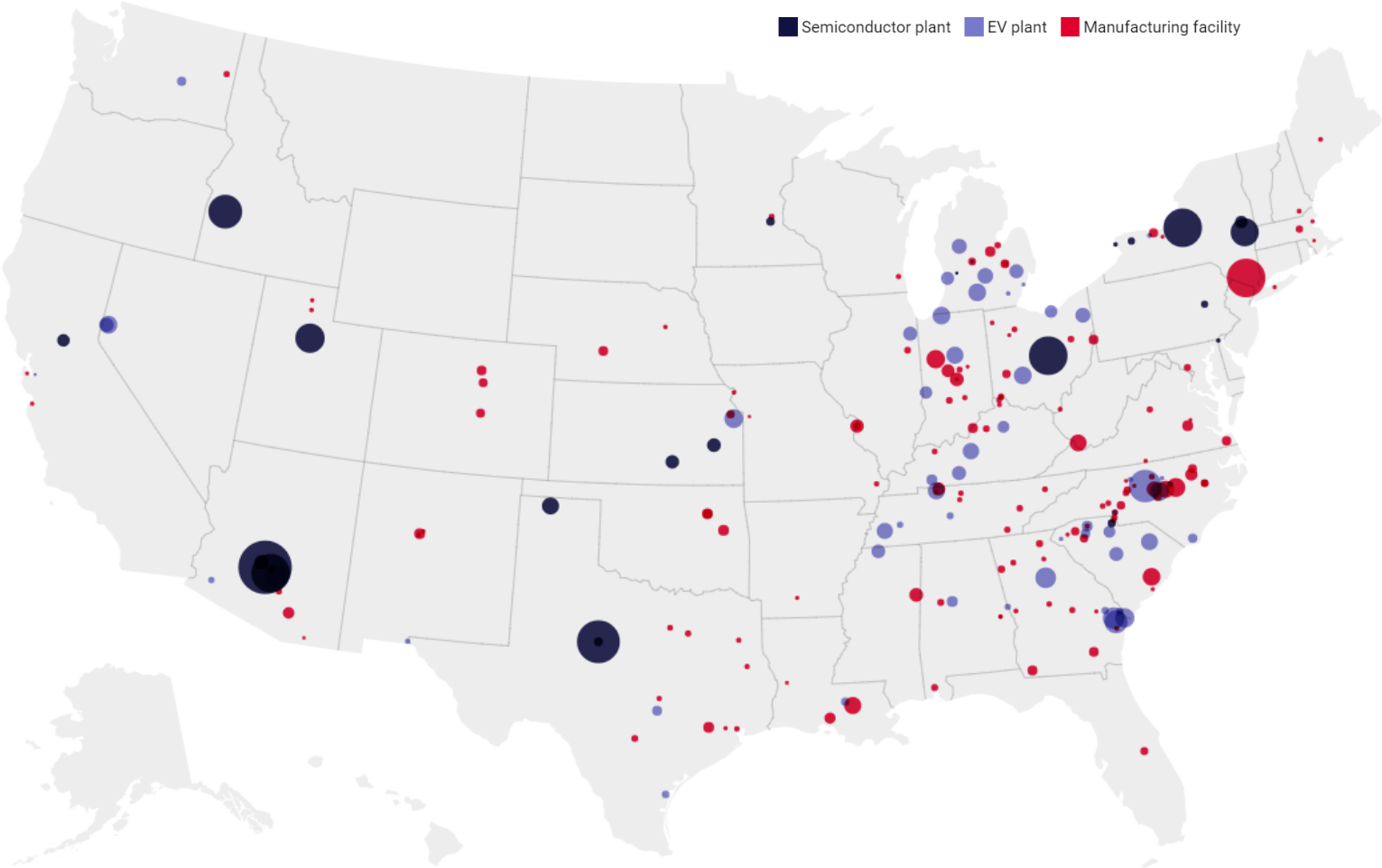


Hurricane Helene exacerbated the issue by shutting down a key IV fluid manufacturing plant in North Carolina, owned by Baxter International, which supplies 60% of the nation's IV fluids.

Manufacturing construction surges across US

Top projects by value and location since August 2022

■ Semiconductor plant ■ EV plant ■ Manufacturing facility



More “Megaprojects”

- 2023 = new annual record of 41 megaprojects (\$103.9B)
- 2022 = at the time, record of 31 megaprojects (\$103.2B)
- Pre-2019 = prior best of 35 megaprojects (\$79.1B)

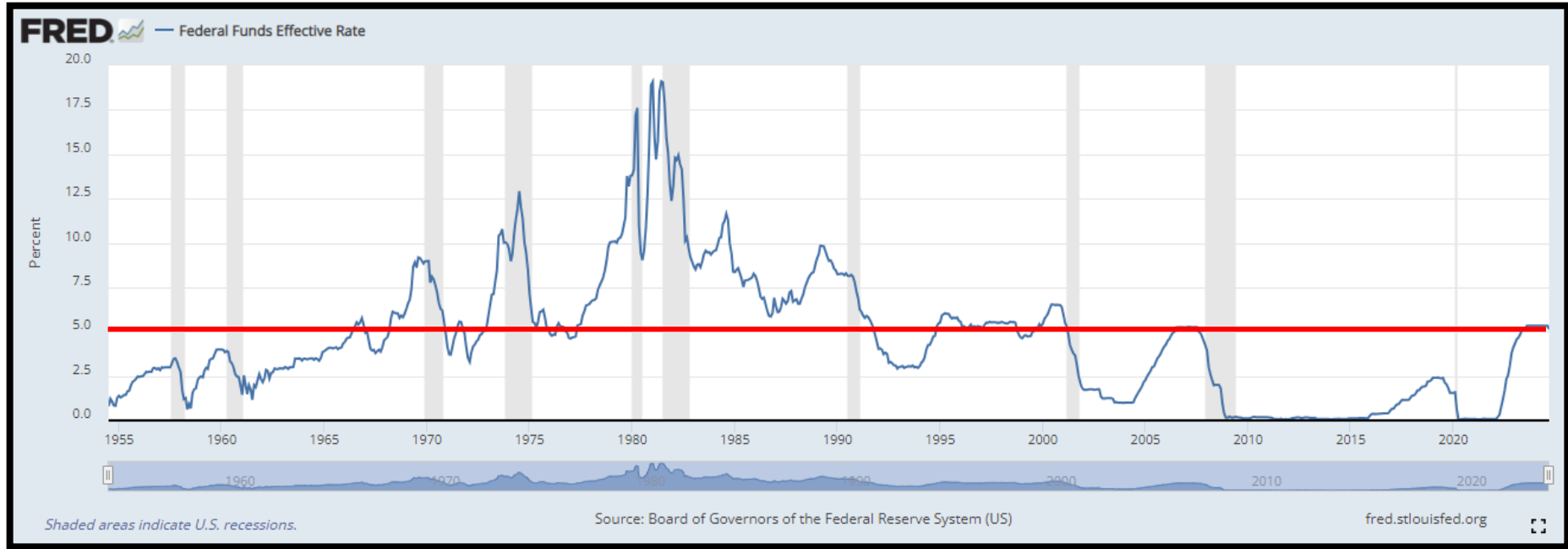
Many Headwinds in Today's Supply Chain

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We Have Been Here Before vs. Not Been Here Before

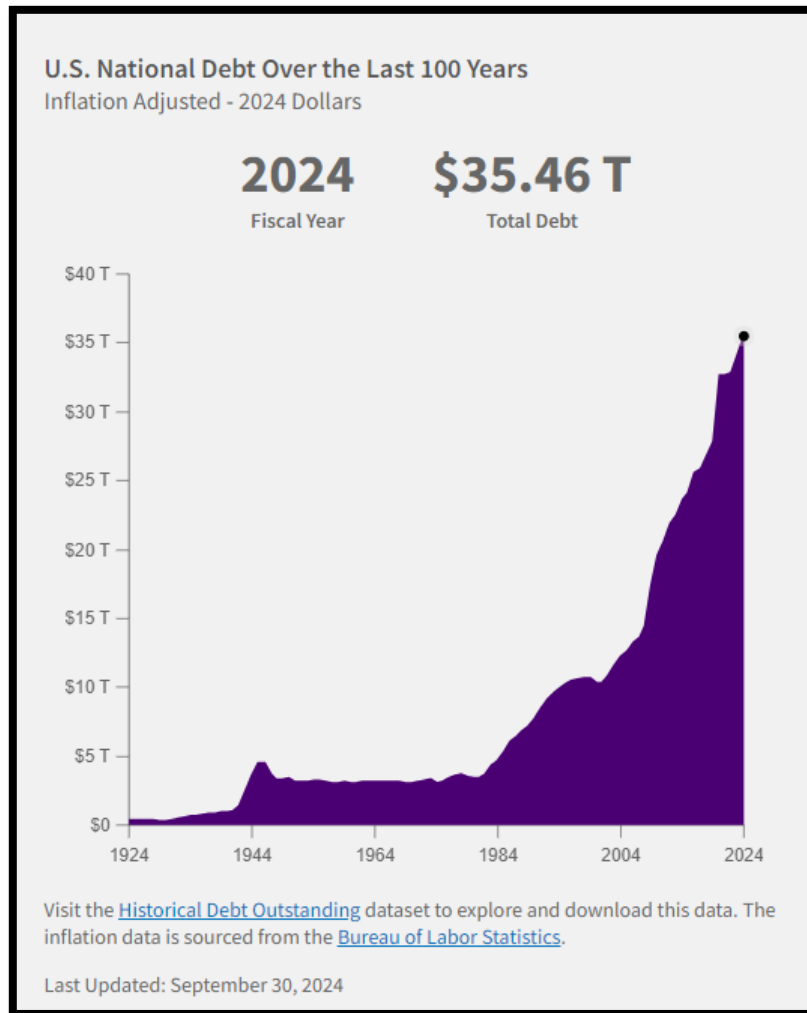
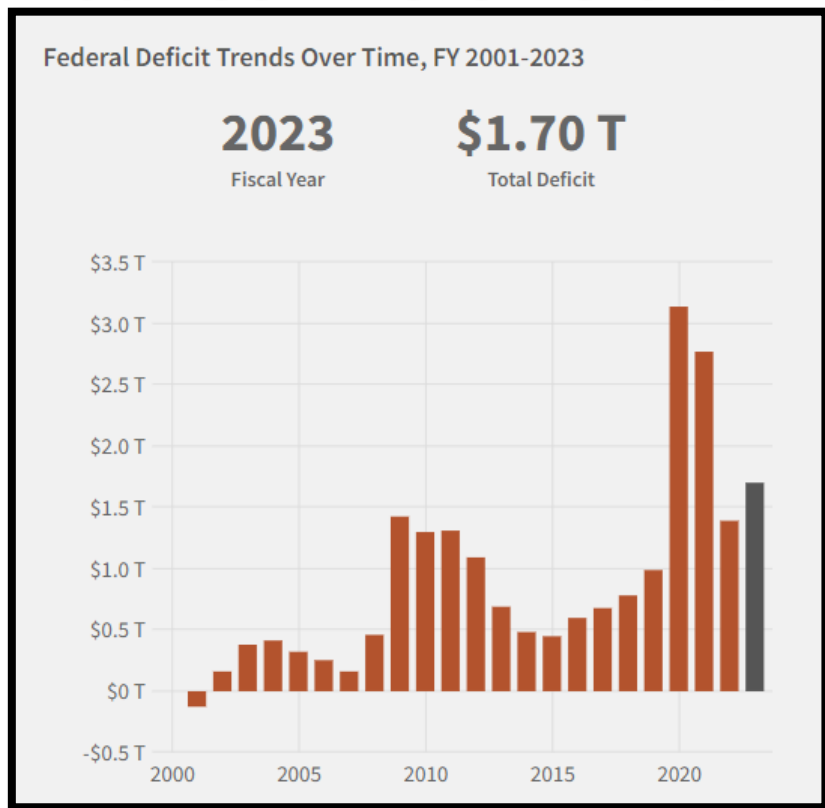
- **Lots of things happening all at once....so let's take a look**
- **A Few Guiding Principles:**
 - **We are navigating by the stars under cloudy skies**
 - **History never repeats itself, but it does often rhyme**
 - **Everyone has a plan until they get punched in the face**
 - **If you put clowns in charge, you get a circus**

Fed Funds Rate – Been Here Before



US National Debt & Deficit

- Not Been Here Before



US National Debt & Deficit

- Not Beer

U.S. National Debt Over the Last 100 Years

Federal Deficit Trends

202

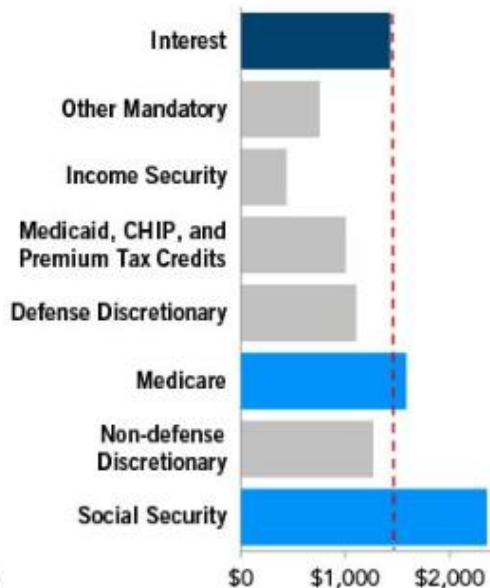
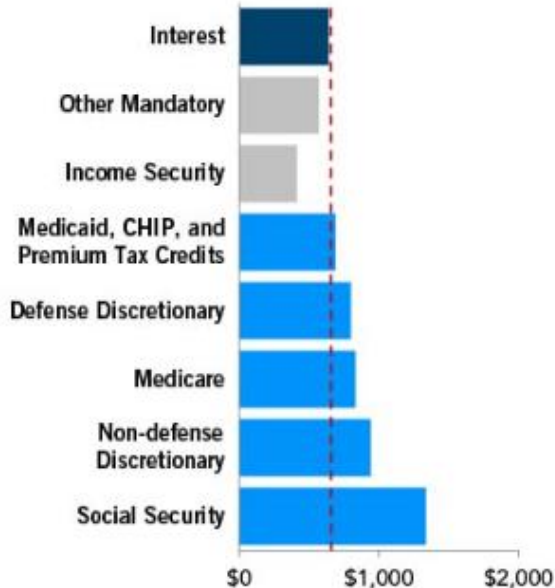
Fiscal Y



Spending on interest will exceed spending on a number of categories over the next decade

FISCAL YEAR 2023 (BILLIONS OF DOLLARS)

FISCAL YEAR 2033 (BILLIONS OF DOLLARS)

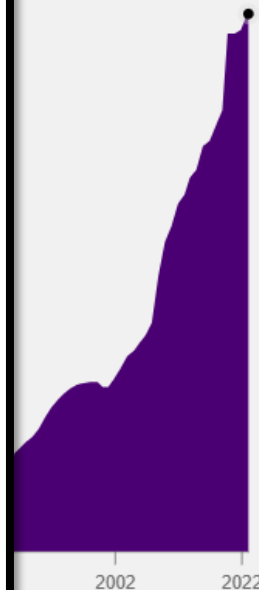


SOURCE: Congressional Budget Office, *The Budget and Economic Outlook: 2023 to 2033*, February 2023.
 NOTES: Medicare outlays are net of offsetting receipts. Income Security outlays include only mandatory programs.
 © 2023 Peter G. Peterson Foundation

PGPF.ORG

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Inflation data is sourced from the [Bureau of Labor Statistics](#).

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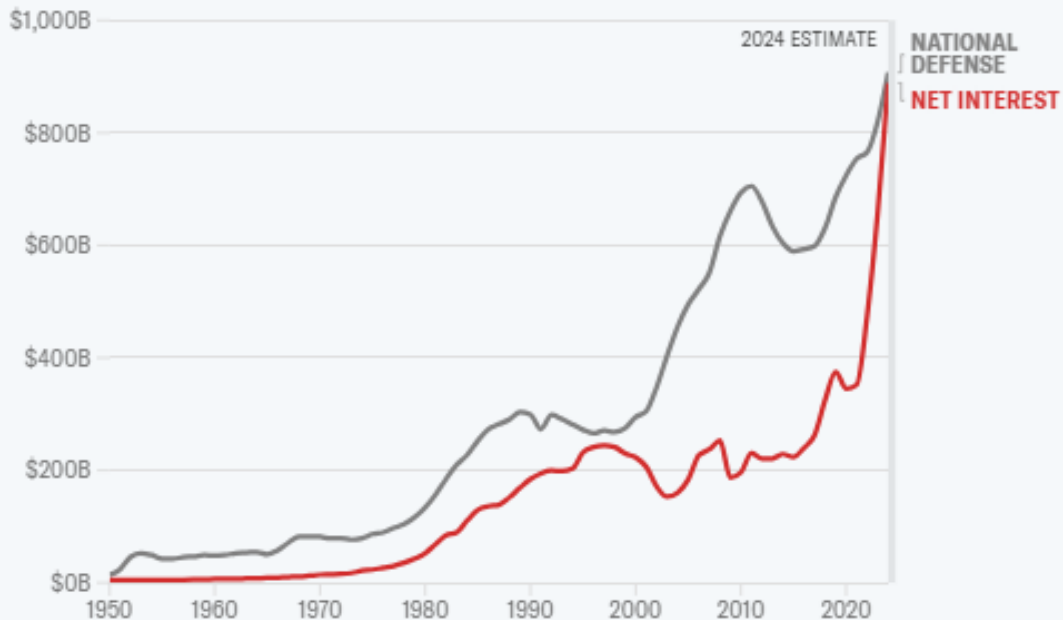
Last Updated: September 30, 2023

US N - Not

SOARING INTEREST COSTS

Interest payments on federal debt are set to overtake defense this year as the third-largest category of spending.

Federal



NOTES: Medicare outlays are net of offsetting receipts. Income Security outlays include only mandatory programs.
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the Last 100 Years

Number of

(LARS)

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\$2,000

2002

2022

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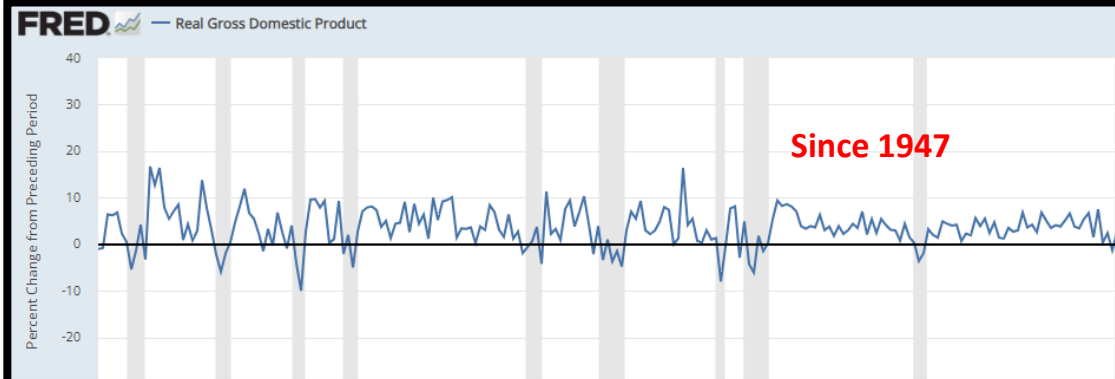
inflation data is sourced from the [Bureau of Labor Statistics](#).

Last Updated: September 30, 2023

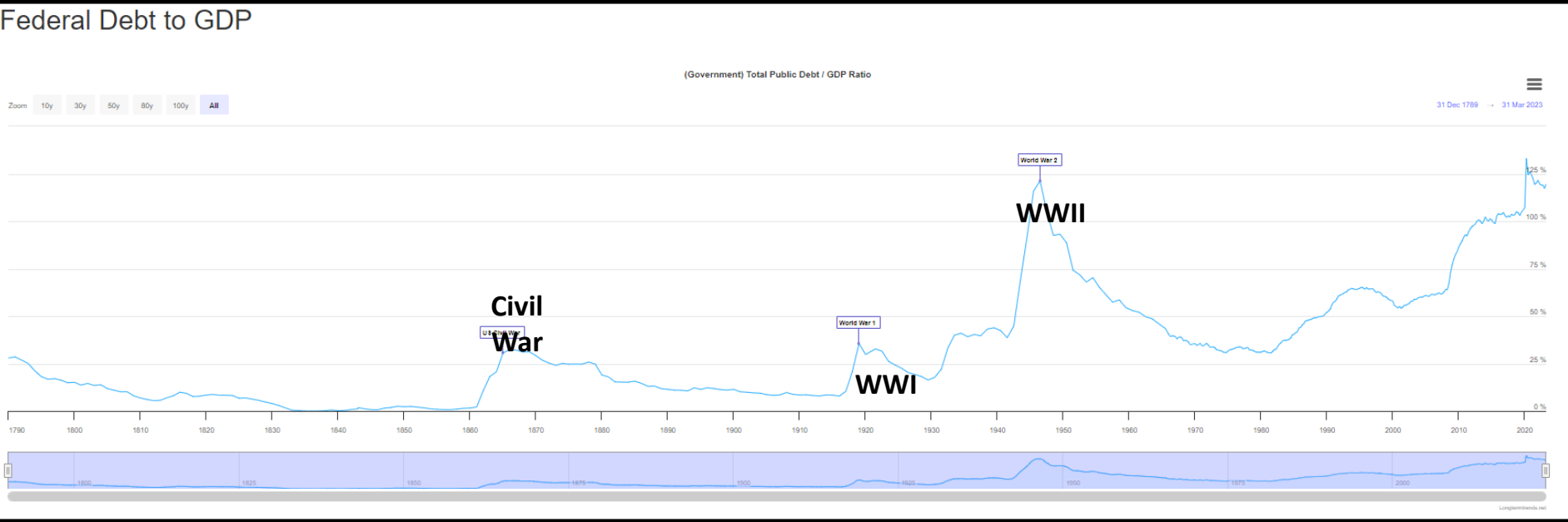
GDP Growth – Been Here Before

GDP Report: Latest Estimate Shows Economy Grew by 3% in Second Quarter of 2024

Second-quarter growth is up from the first quarter's 1.4% growth.

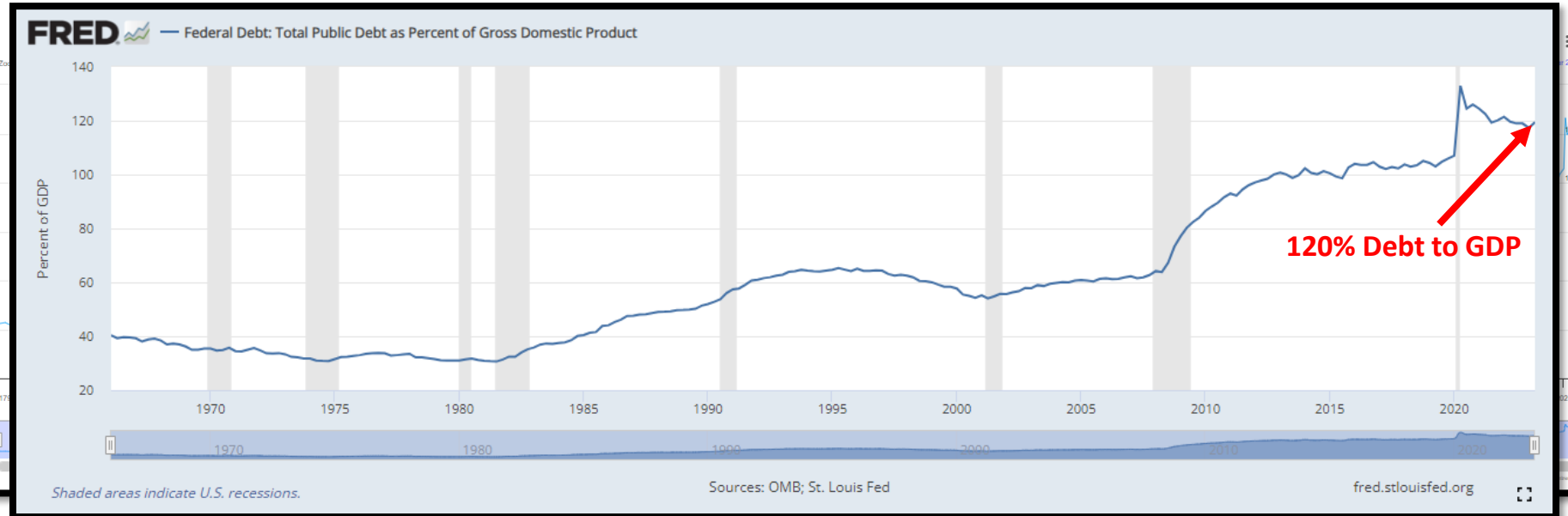


Debt to GDP – Not Really Been Here Before



Debt to GDP – Not Really Been Here Before

Federal Debt to GDP



Debt to GDP Not Really Been Here Before

BONDS >

Fitch Downgrades U.S. Credit Rating

August 2, 2023 • [Kathy Jones](#)

The surprise move takes the rating to AA+ from AAA.



fred.stlouisfed.org

So Far....

- Debt is very high, Debt to GDP is very high
- Interest rate is not historically high but...
 - In 70s and 80s when it was 13%-18%, Debt to GDP was 30-40%
 - That is not the case now
- No “war” like WWII, so not an easy way to cut spending

How much revenue has the U.S. government collected this year?

Government revenue is income received from taxes and other sources to pay for government expenditures. The U.S. government has collected \$4.39 trillion in fiscal year 2024.

\$ 4 , 3 9 1 , 1 1 5 , 9 3 3 , 7 6 1

How much has the U.S. government spent this year?

The U.S. government has spent \$6.29 trillion in fiscal year 2024 to ensure the well-being of the people of the United States.

\$ 6 , 2 8 8 , 1 9 4 , 9 3 1 , 7 0 3

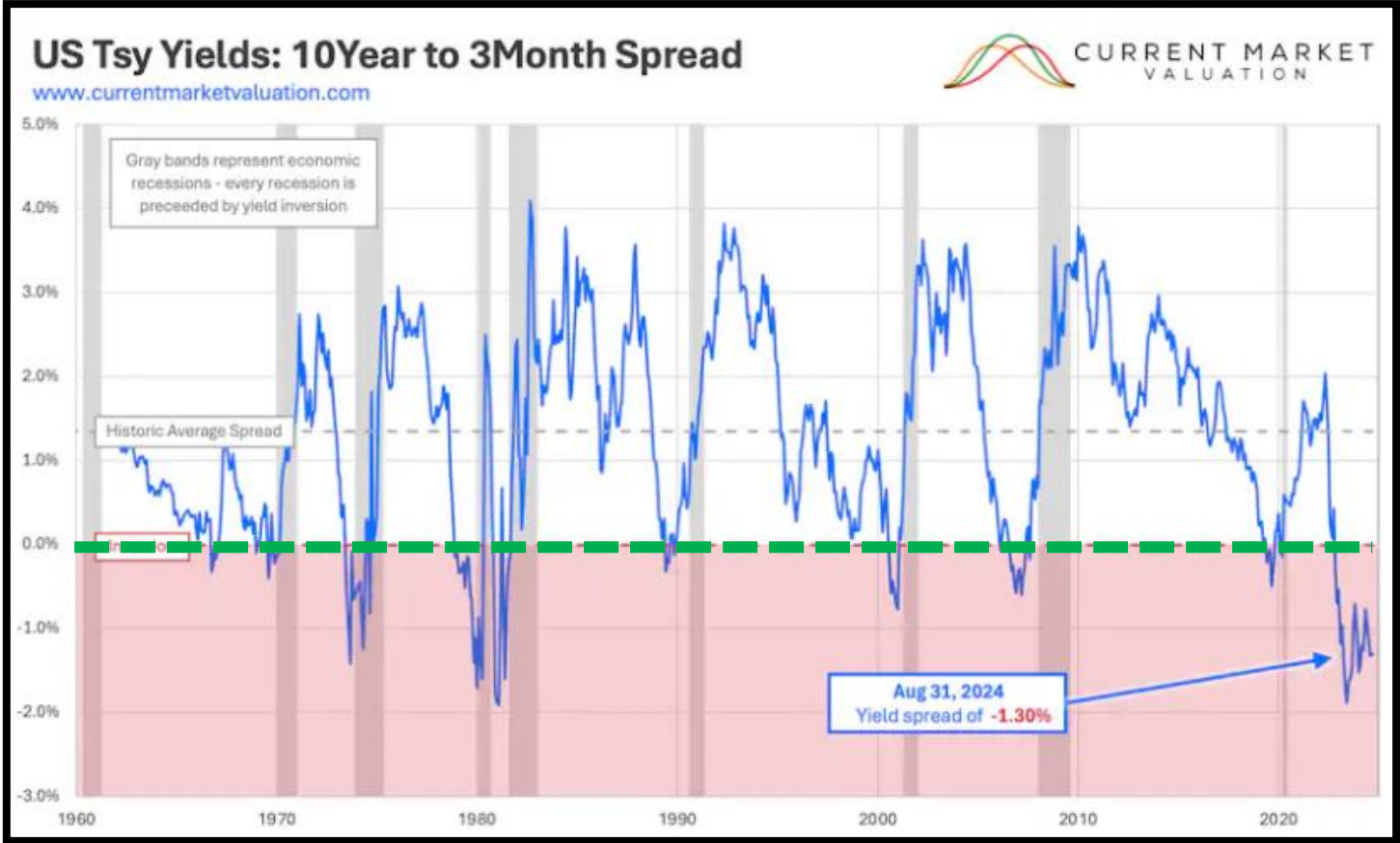
What is the national deficit?

A deficit occurs when the federal government's spending exceeds its revenues. The federal government has spent \$1.90 trillion more than it has collected in fiscal year (FY) 2024, resulting in a national deficit.

\$ 1 , 8 9 7 , 0 7 8 , 9 9 7 , 9 4 2

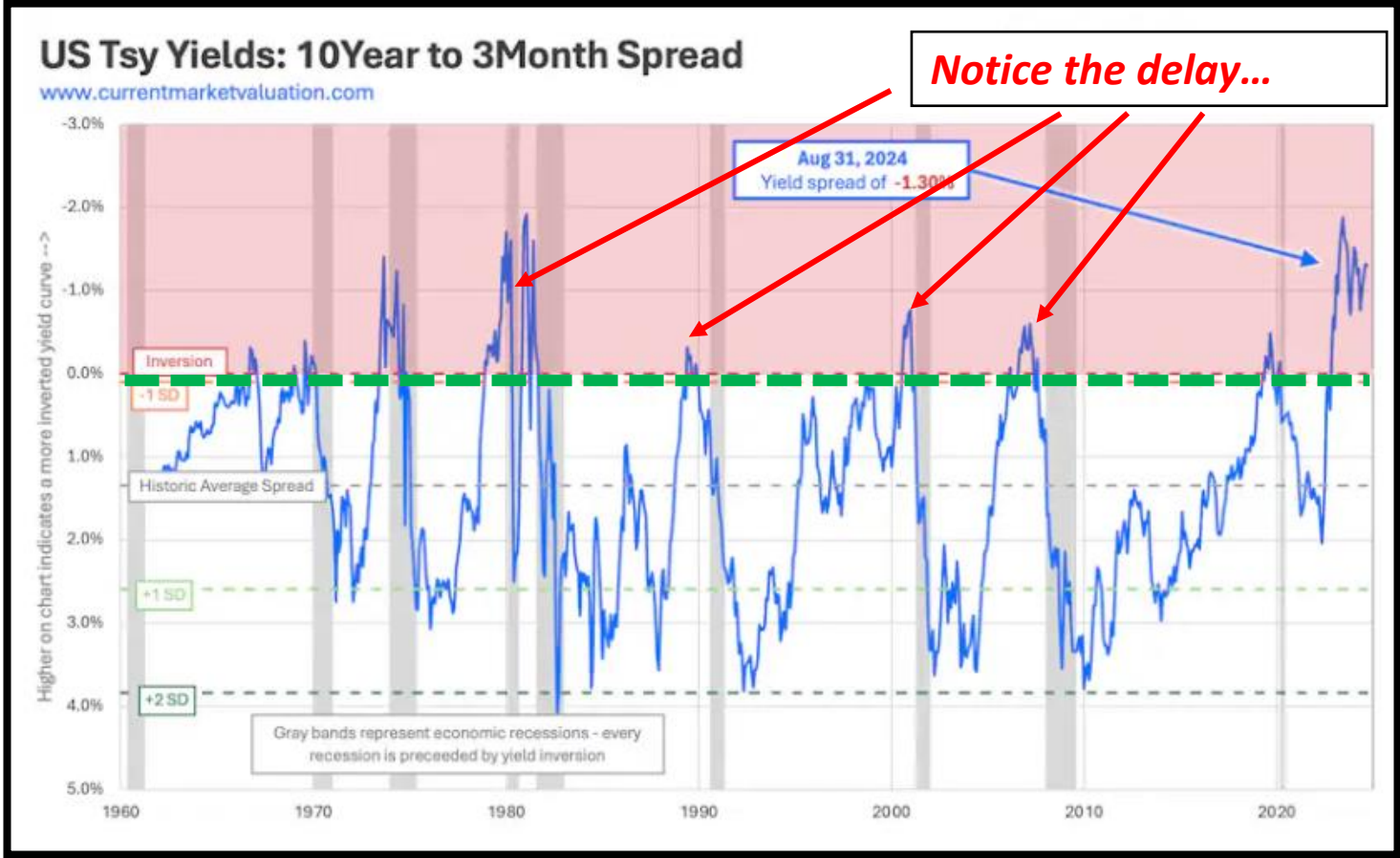
What Else....

- Inverted Yield Curve... **Not Really Been Here Before**



What Else....

- Yield Curve...

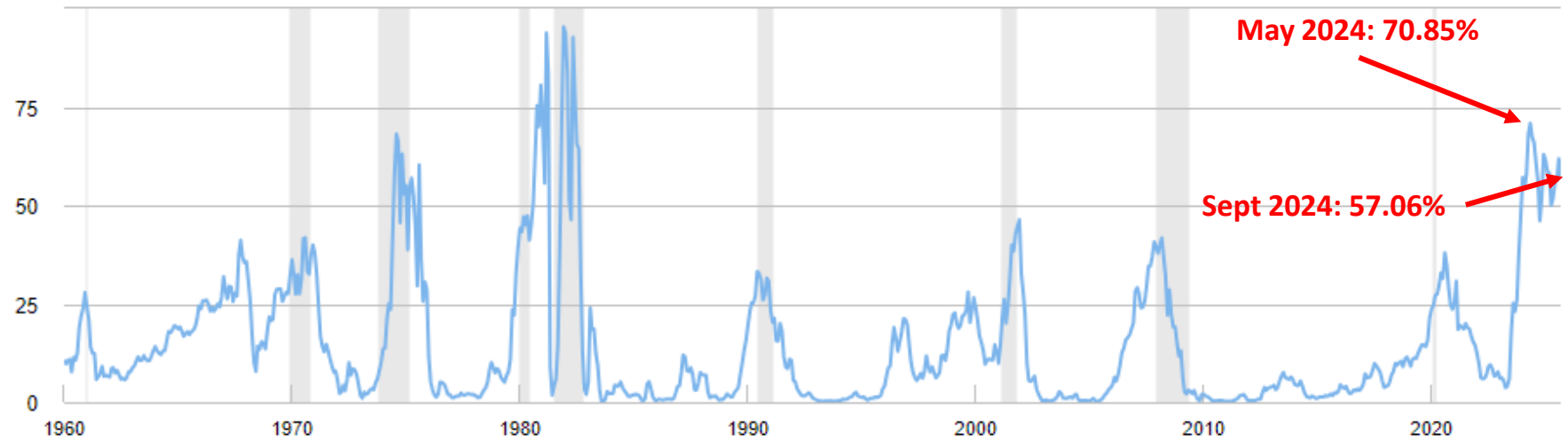


Fed uses Yield Curve to put Odds on a Recession

- Been Here Before

Probability of U.S. Recession, Twelve Months Ahead of Term Spread Readings

Percent (monthly average)



Residential Real Estate Been Here Before? - **Yes & No**

- Mortgage Rates – 50%+ than 10 yrs ago – *but about the same as 20yrs ago*
- Historic Home Price to Income Ratio (highest ever)
 - **7.18 Home Price to Income ('06 = 6.83)**

Primary Mortgage Market Survey®

U.S. weekly averages as of 10/10/2024

30-Yr FRM

6.32%

1-Wk change \uparrow 0.2
1-Yr change \downarrow 1.25
4-Wk avg. 6.15%
52-Wk avg. 6.84%

15-Yr FRM

5.41%

1-Wk change \uparrow 0.16
1-Yr change \downarrow 1.48
4-Wk avg. 5.24%
52-Wk avg. 6.1%

52 Week Range 6.08% | 7.79%

52 Week Range 5.15% | 7.03%

Zoom 1Y 3Y 5Y 10Y All

10/10/2023 - 10/10/2024



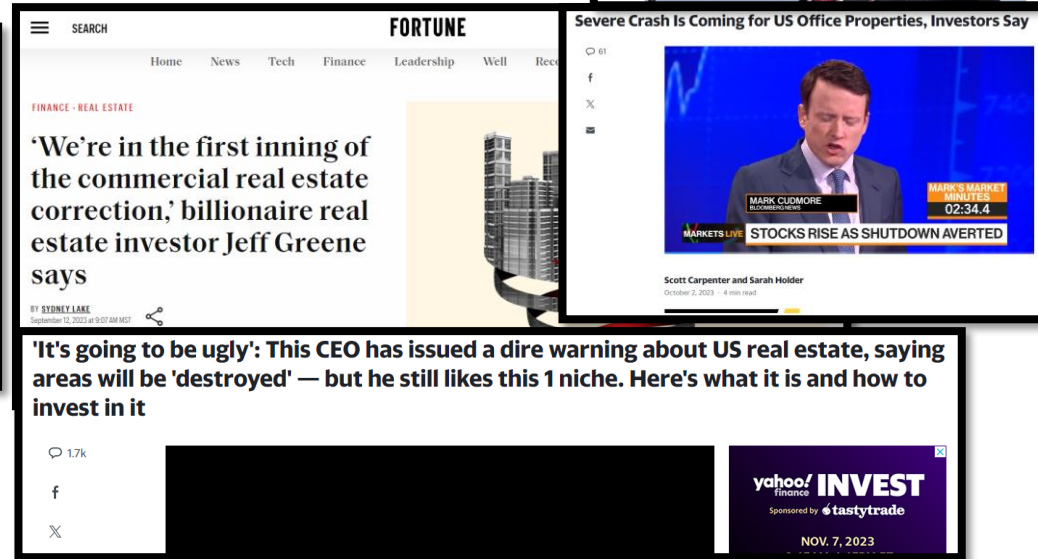
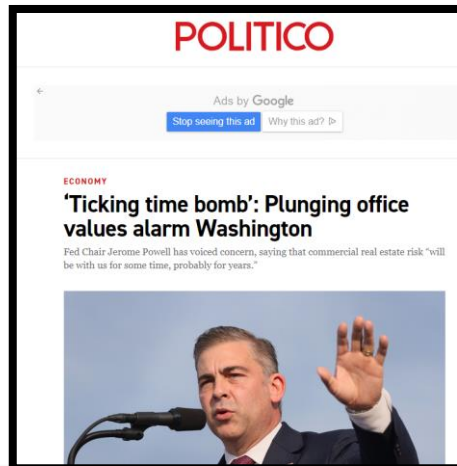
Home Price to Income Ratio (US)

Home Price / Median Household Income Ratio



Commercial Real Estate – Not Been Here Before (Post Covid)

- Jerome Powell to the Senate: Commercial real estate risk “will be with us for some time, probably for years”
- 21.9% “Vacant” (not leased) but 52% of leased space sits empty
- Bloomberg Survey – over 2/3 believe severe crash – end of 2024
- Debt \$930B comes due by end of 2024, over \$1T/yr 2025-2028



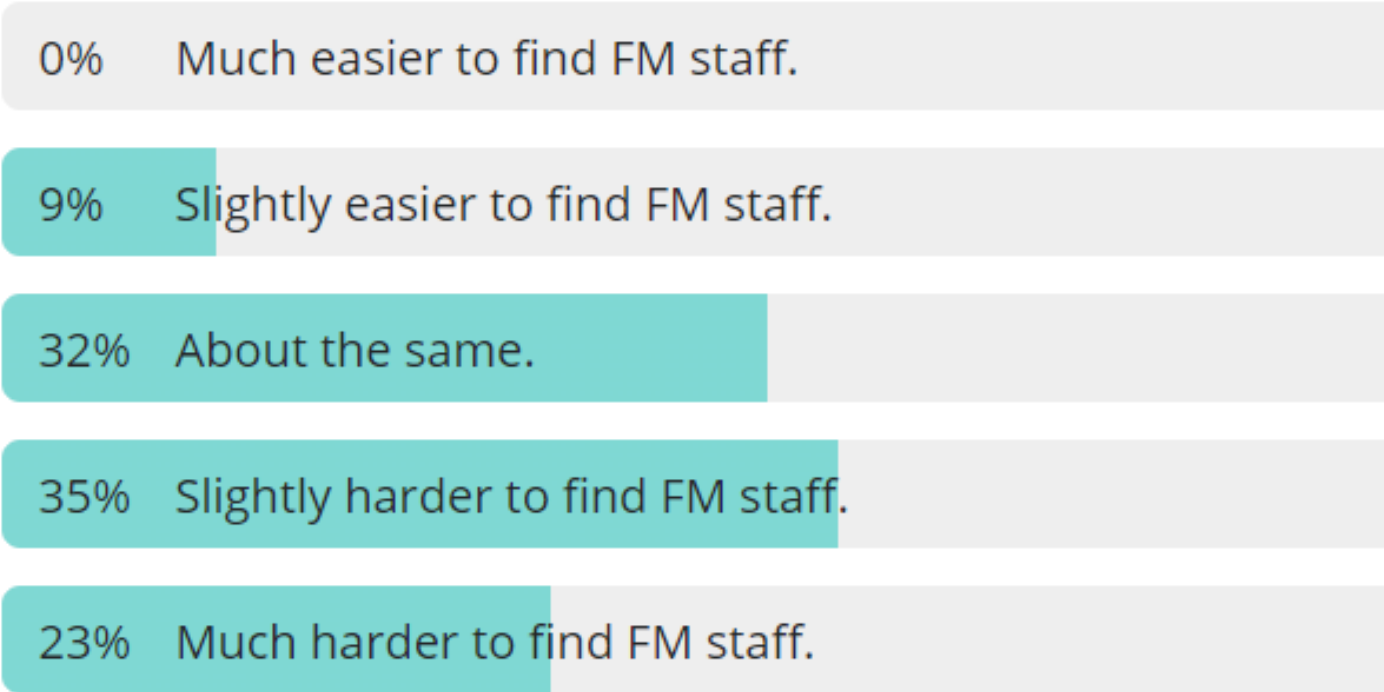
Many Headwinds in Today's Supply Chain

- Cost Escalation & Volatility
- Materials Shortages & Supply Chain Challenges
- Quick Macro
- **Workforce**

Workforce Shortages

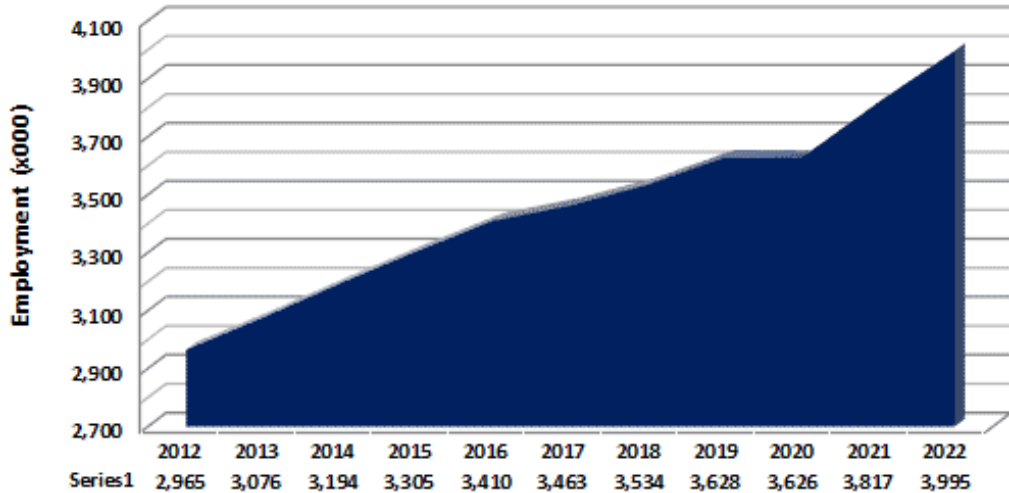
- 60-80% of orgs struggling to fill positions**
- 55% feel will be as hard or harder to find skilled people**
- Mental health and productivity are challenges with high levels of hiring, shortages, and change (retirement, etc.)**

Finding Qualified Staff (October 2024)



Workforce Growth in IT

**Historic IT Job Market Size - 3.99 million Jobs
Still Growing**

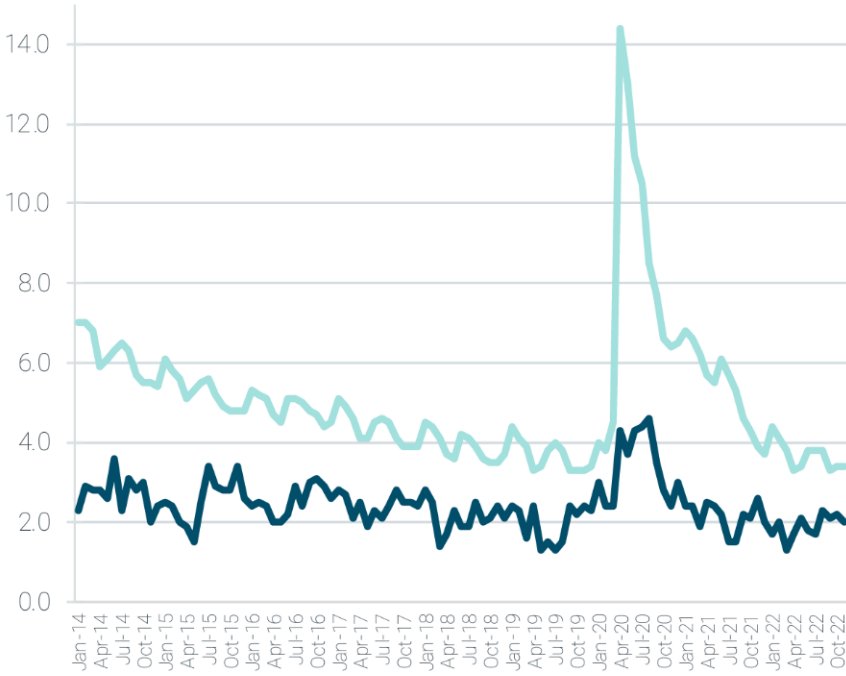


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UNEMPLOYMENT RATE TRENDING

— Tech Occupation Rate — National Rate



CompTIA.

Market Personal Finance Business Economy Featured NextGen Engage **GINGE**

F&O Curukul SME Champion Awards Budget Ballot 2024 Latest News Market Live Newslett

NIFTY Adani Enterpris 2903.45 (0.24%) Adani Ports 1120.60 (-1.45%) Apollo Hospital 6213.35 (0.97%) Asian Paints 2999.45

HOME Education News Google Likely To Layoff 30,000 Employees Post New AI Innovation

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MARKET LIVE

Google likely to layoff 30,000 employees post new AI innovation

Google had laid off approximately 12,000 employees, a move Sundar Pichai deemed essential for the company's adaptability and capacity to invest in emerging areas amid a transformative global environment.

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Featured Article

A comprehensive

From major layoffs at Google, Am

Startups and

Oct 11, 2024

- September 2024: 3,765 employees laid off — [see all September 2024 Tech Layoffs](#)
- August 2024: 26,024 employees laid off — [see all August 2024 Tech Layoffs](#)
- July 2024: 9,051 employees laid off — [see all July 2024 Tech Layoffs](#)
- June 2024: 10,083 employees laid off — [see all June 2024 Tech Layoffs](#)
- May 2024: 11,011 employees laid off — [see all May 2024 Tech Layoffs](#)
- April 2024: 22,423 employees laid off — [see all April 2024 Tech Layoffs](#)
- March 2024: 7,403 employees laid off — [see all March 2024 Tech Layoffs](#)
- February 2024: 15,639 employees laid off — [see all February 2024 Tech Layoffs](#)
- January 2024: 34,107 employees laid off — [see all January 2024 Tech Layoffs](#)

BIOTECH

Fierce Biotech Layoff Tracker 2024: Ikena lays off 35% staff; Cuts at Cara

By Gabrielle Masson, Max Bayer · Jan 22, 2024 9:20am

layoffs Biotech Special Reports

Investopedia INVESTING SIMULATOR BANKING PERSONAL FINANCE

COMPANY NEWS

Boeing Plans 17,000 Job Cuts as CEO Ortberg Shakes Up Plane Maker

By NISHA GOPALAN Updated October 14, 2024 10:42 AM EDT

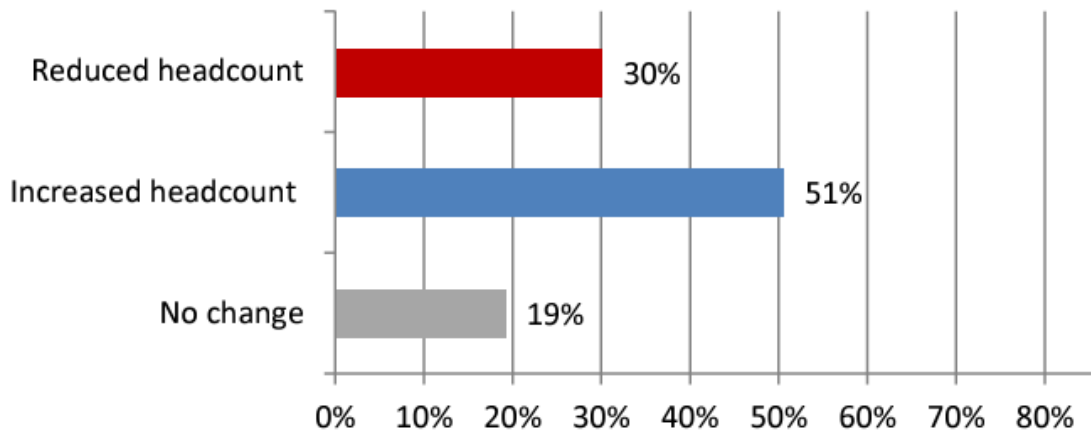
f X

Oct 14, 2024

AGC 2024 Workforce Survey

- **National survey conducted in Aug 2024**
- **1,492 Contractors Responded Nationally**

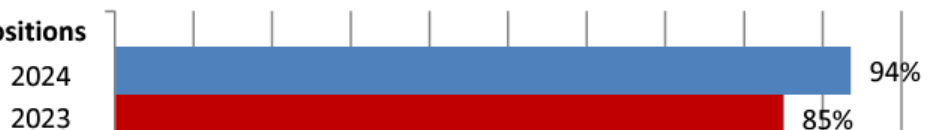
By what percentage has your firm's headcount changed in the past 12 months? Responses: 1,492



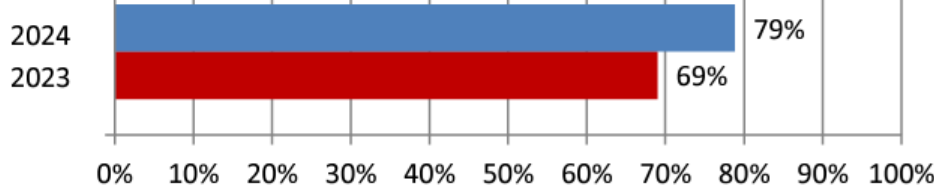
Do you currently have an open hourly craft or salaried position? Responses:

2024: 1,185 Salaried, 995 Craft; 2023: 1,149 Salaried, 1,101 Craft

% of firms with openings for hourly craft positions



% of firms with openings for salaried positions

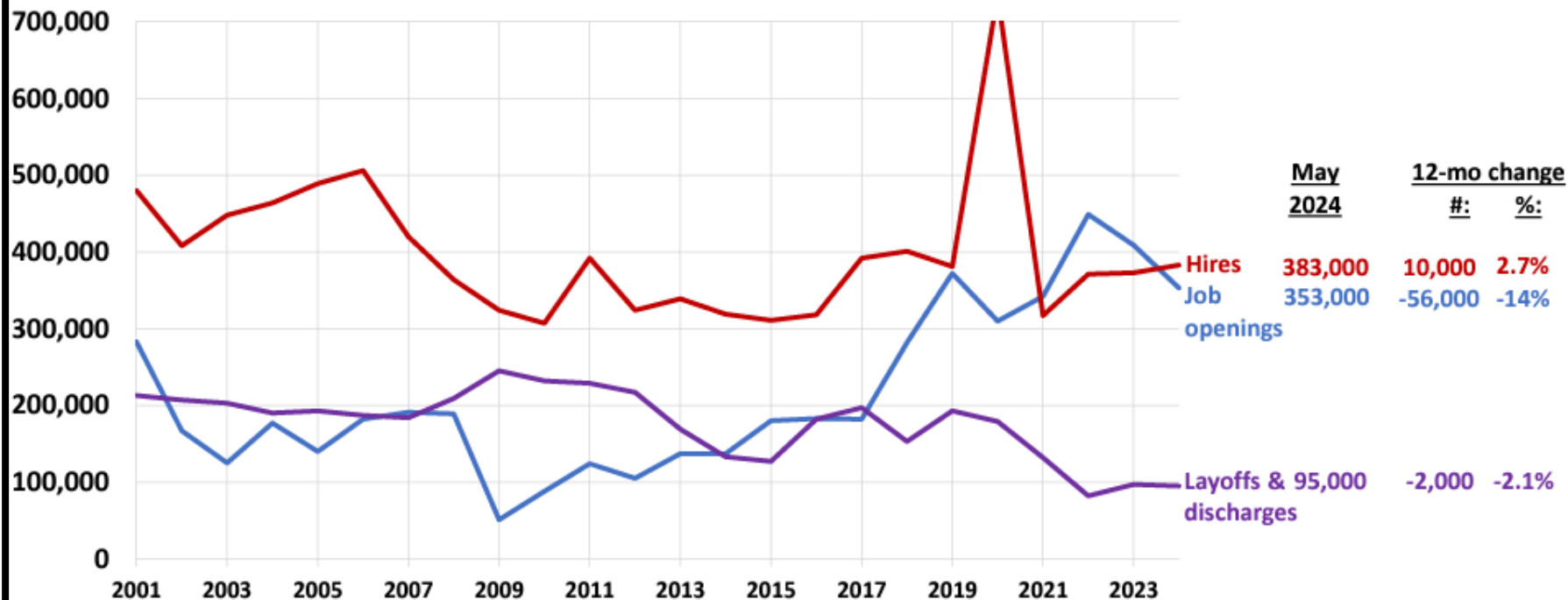


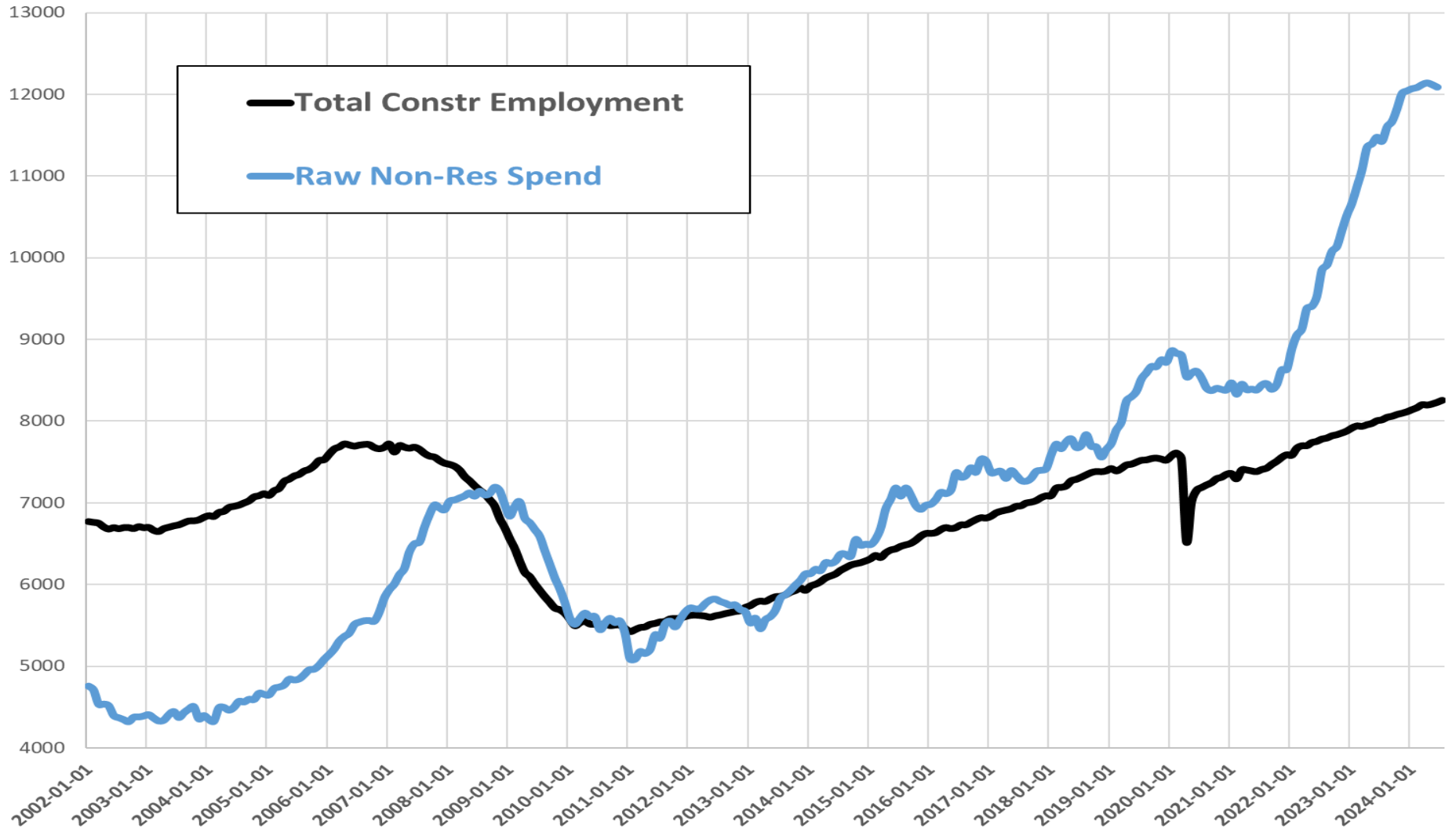
Construction job openings, hires & layoffs

Job openings, hires, and layoffs May 2001-May 2024, seasonally adjusted



AGC
THE CONSTRUCTION
ASSOCIATION





Other Workforce Challenges

- Before pandemic – trades wage rates exceed average total private sector by 20-25% historically
- **Now Trade Wage Rate is 16-18% above national average....**
 - Pay is not keeping up
 - Cannot work from home
 - Benefits not as comprehensive
 - Non-flexible hours
 - Vaccination requirements were an issue
- **Procurement Professionals**
 - 25-45% underpaid
 - Significant resource shortages/understaffed
 - HR struggling to adapt

Workforce

- Since the year 2000, the US Population has gotten:
 - Older or Younger?

Workforce

- Since the year 2000, the US Population has gotten:
 - Older by 3.4 years

Workforce

- Since the year 2000, the US Population has gotten:
 - Older by 3.4 years
- This trend is:
 - Accelerating or Decelerating?

Workforce

- Since the year 2000, the US Population has gotten:
 - Older by 3.4 years
- This trend is:
 - Accelerating (2021 was most rapid increase across the 21yr range)

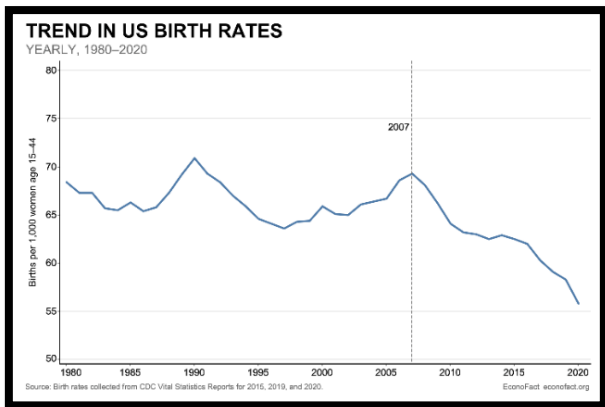
Workforce Challenges

*2020 Birth Rate 4% lower than 2019
Lowest Ever
(11.99 Births per 1000 people)
(up 1% in '21, up 0.09% in '22
11.00 in '23)*

As of '23, 1.62 Births/woman – Lowest Ever Recorded

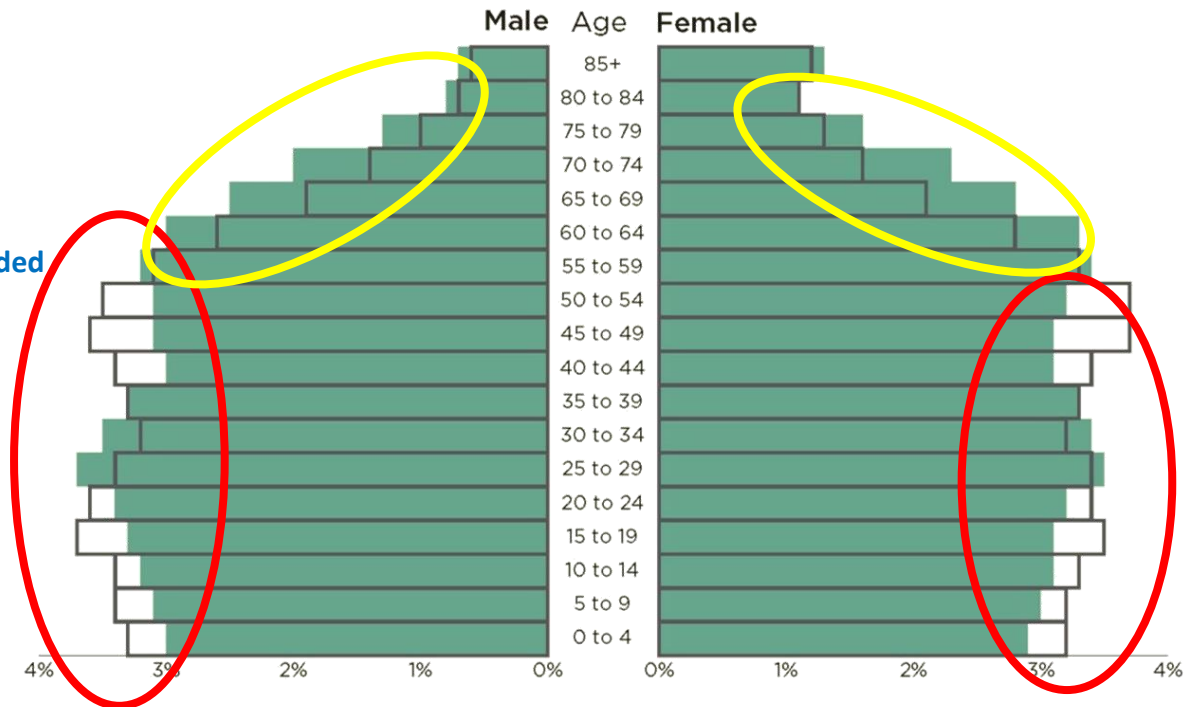
(was 31% higher in 1990)

(was 102% higher in 1950)

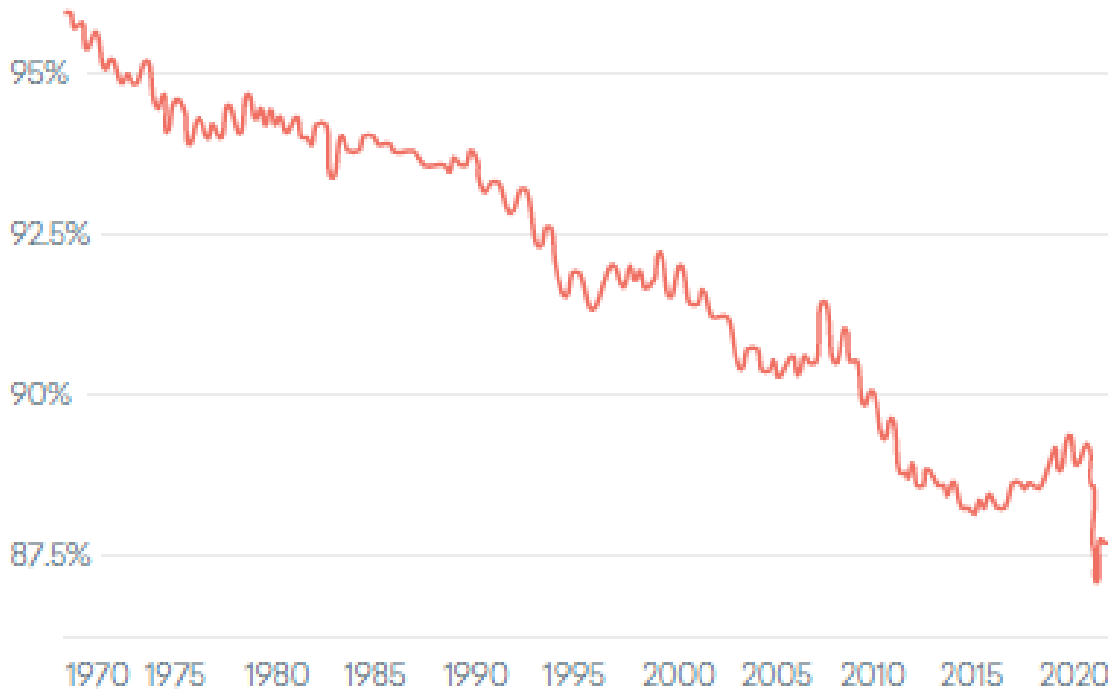


Percent of Total Population in 2010 and 2019

□ 2010 ■ 2019

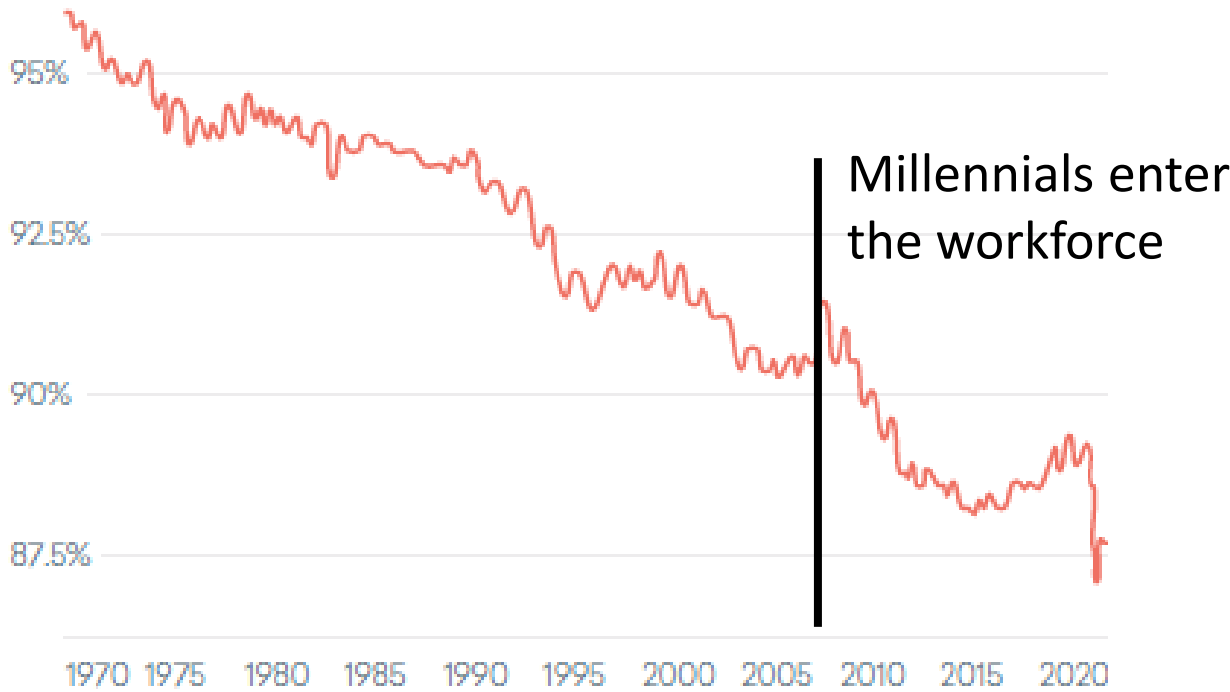


Workforce Challenges – Prime Age (25-54) Male Workforce Participation



Source: BLS Current Population Survey.

Workforce Challenges – Prime Age (25-54) Male Workforce Participation

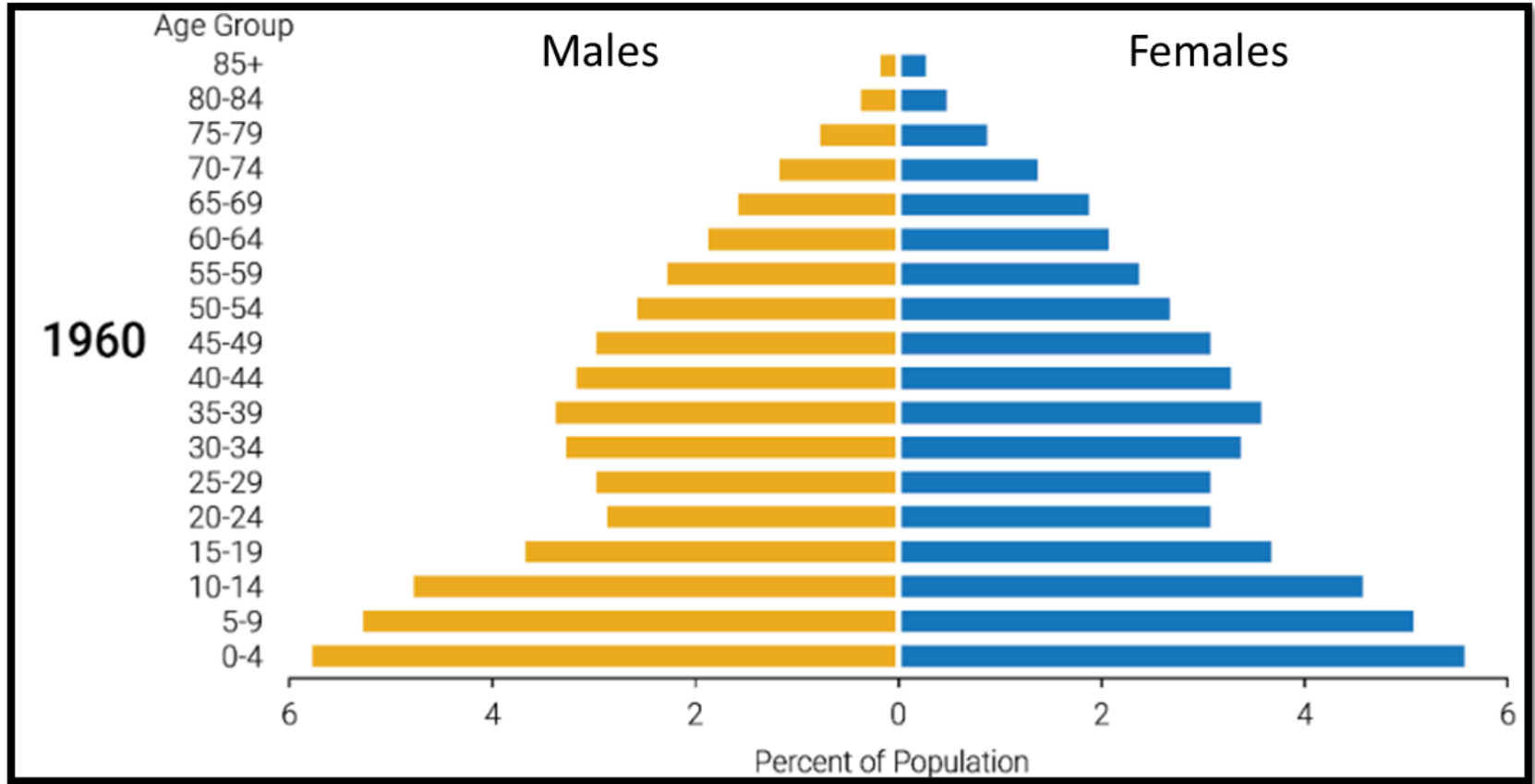


Source: BLS Current Population Survey.

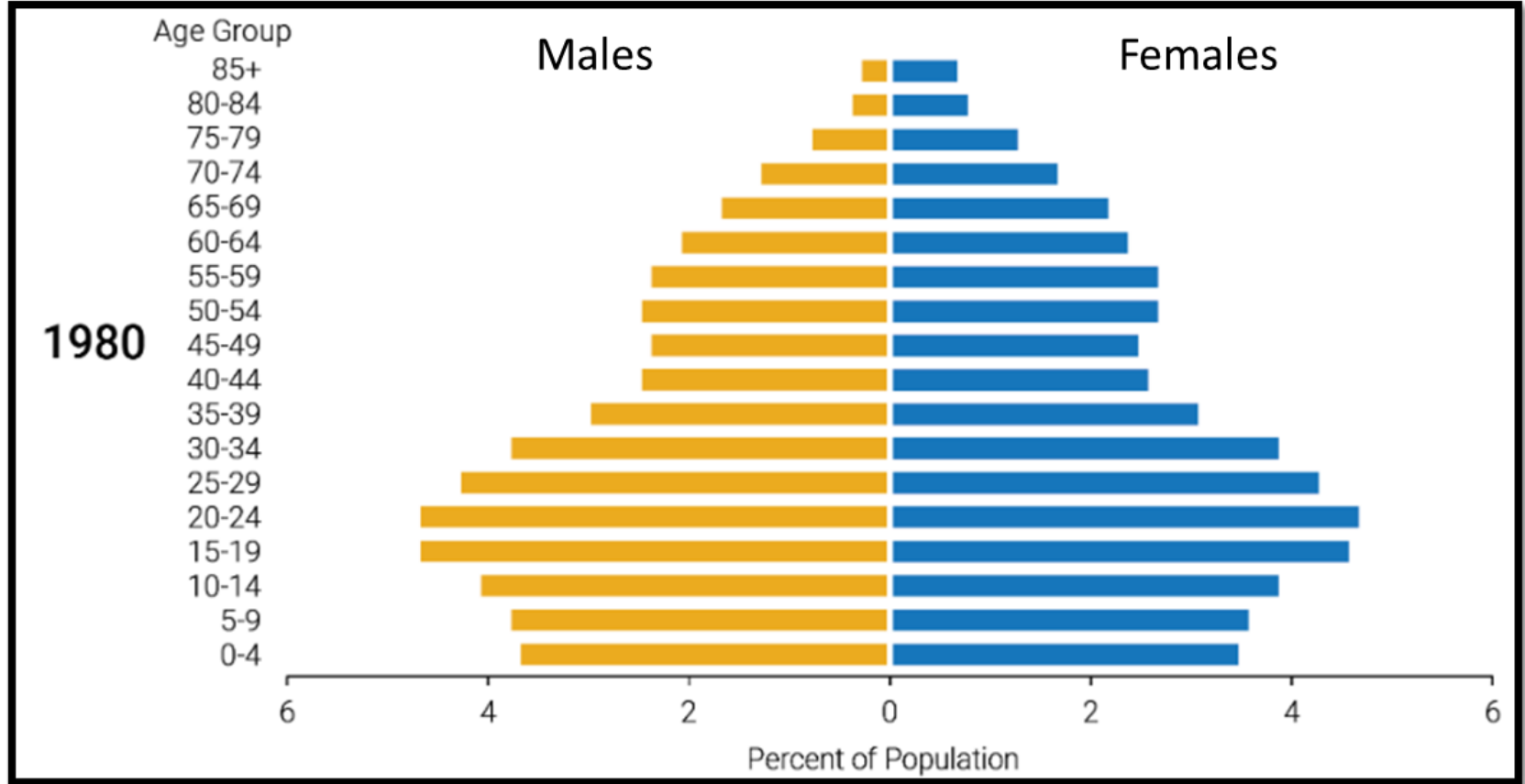
Workforce Challenges

- Baby Boomers created incredible wealth
 - Young X, Old Millennials are expected to inherit ~\$80 Trillion from their parents - begins 2030-2035
- More men 25-34 yo live with parents than with spouse (first time since 1880)
- Drugs are a big problem (robbing nearly a million prime-age men a year from the workforce)
- 2.4M Women left workforce since Feb 2020 – still growing
- Demographics will only be getting worse moving forward

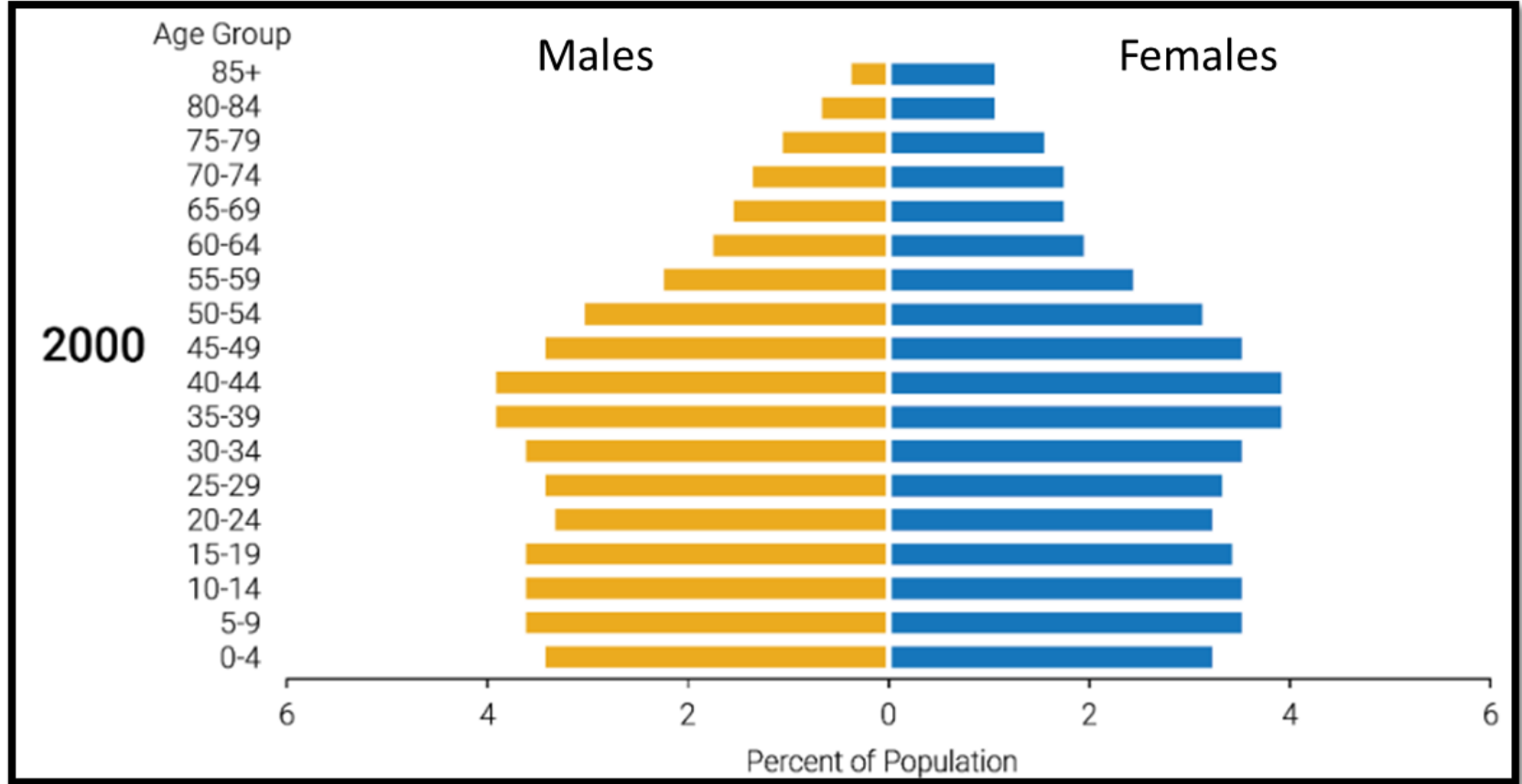
US Population Histogram



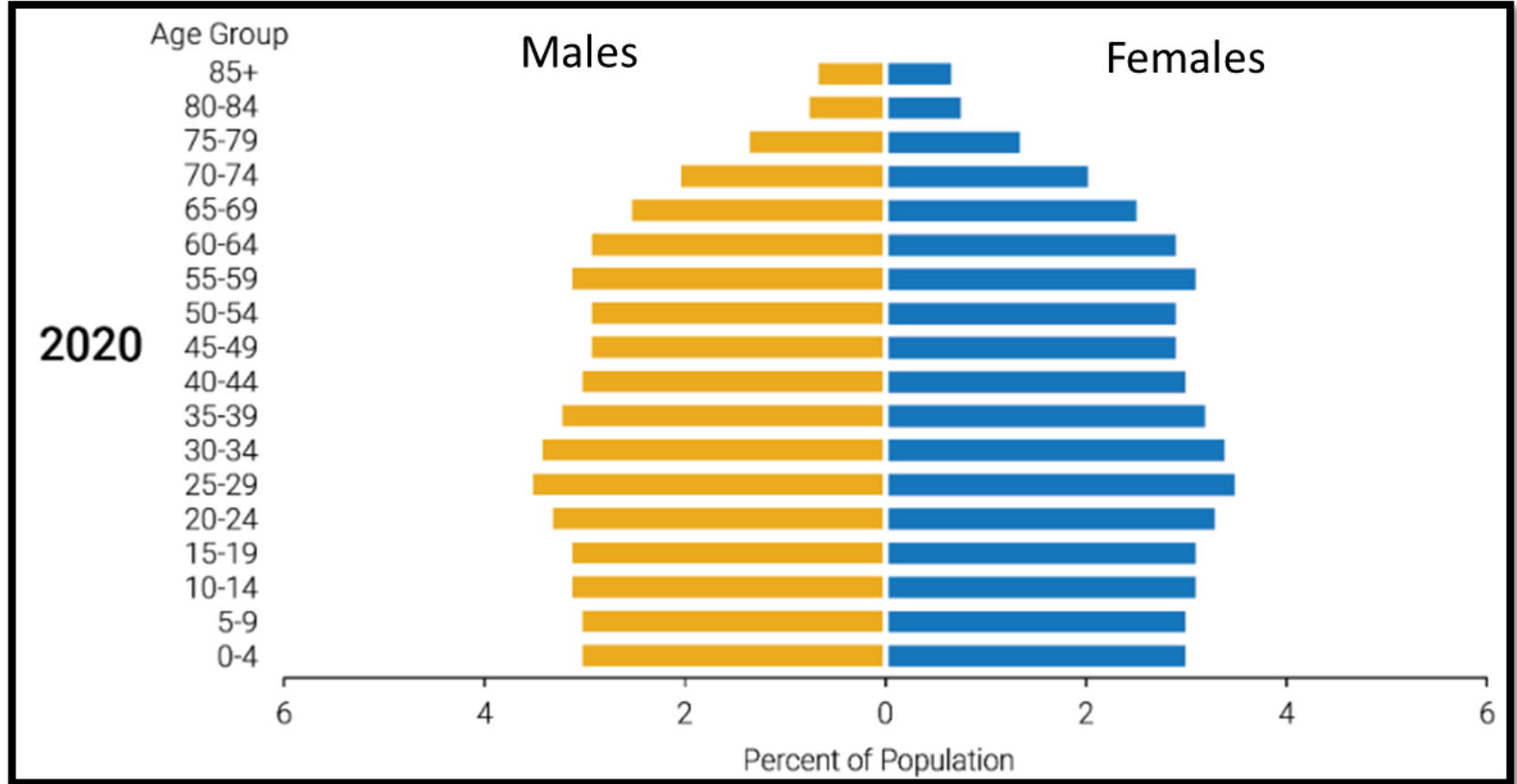
US Population Histogram



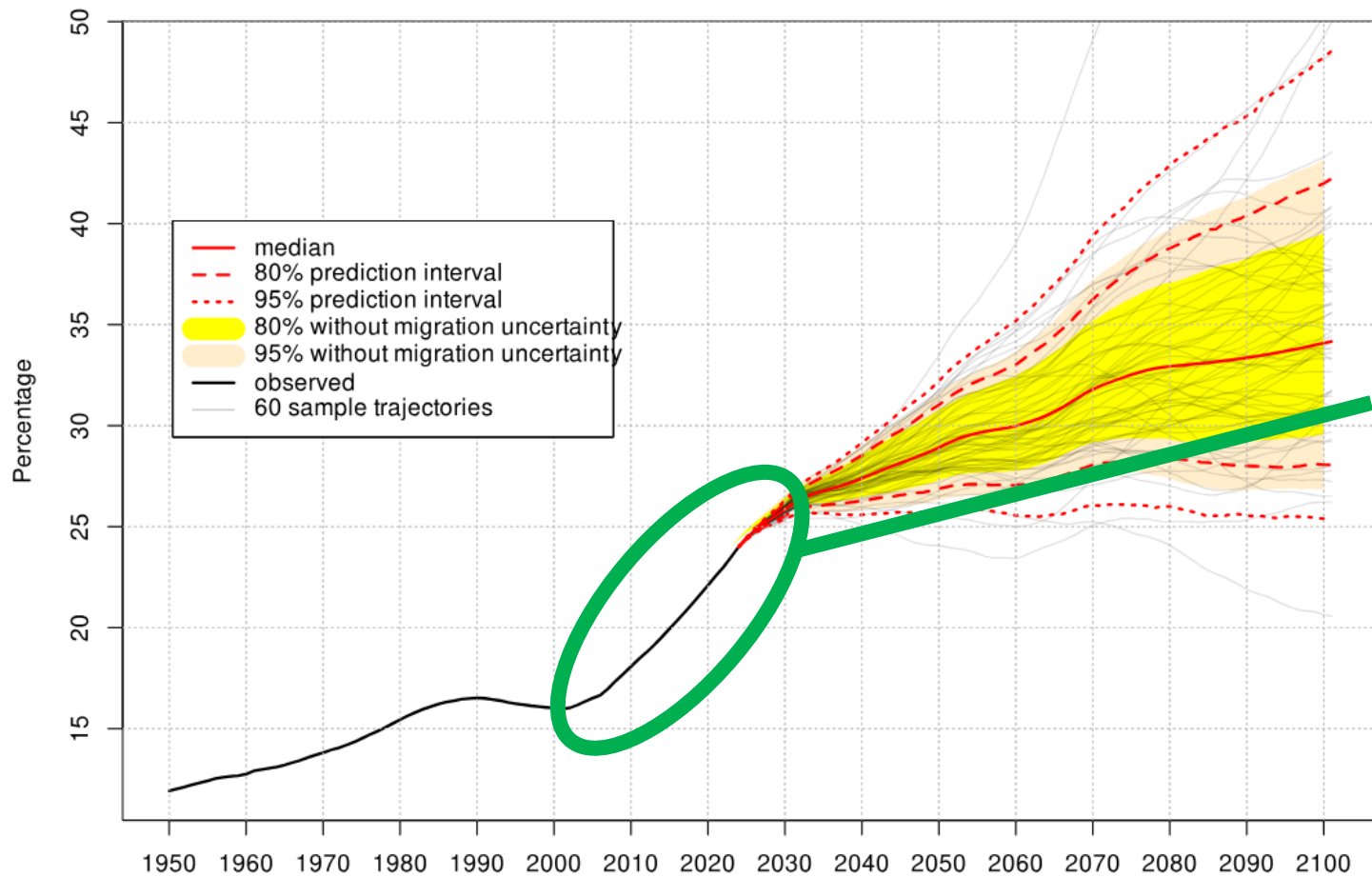
US Population Histogram



US Population Histogram



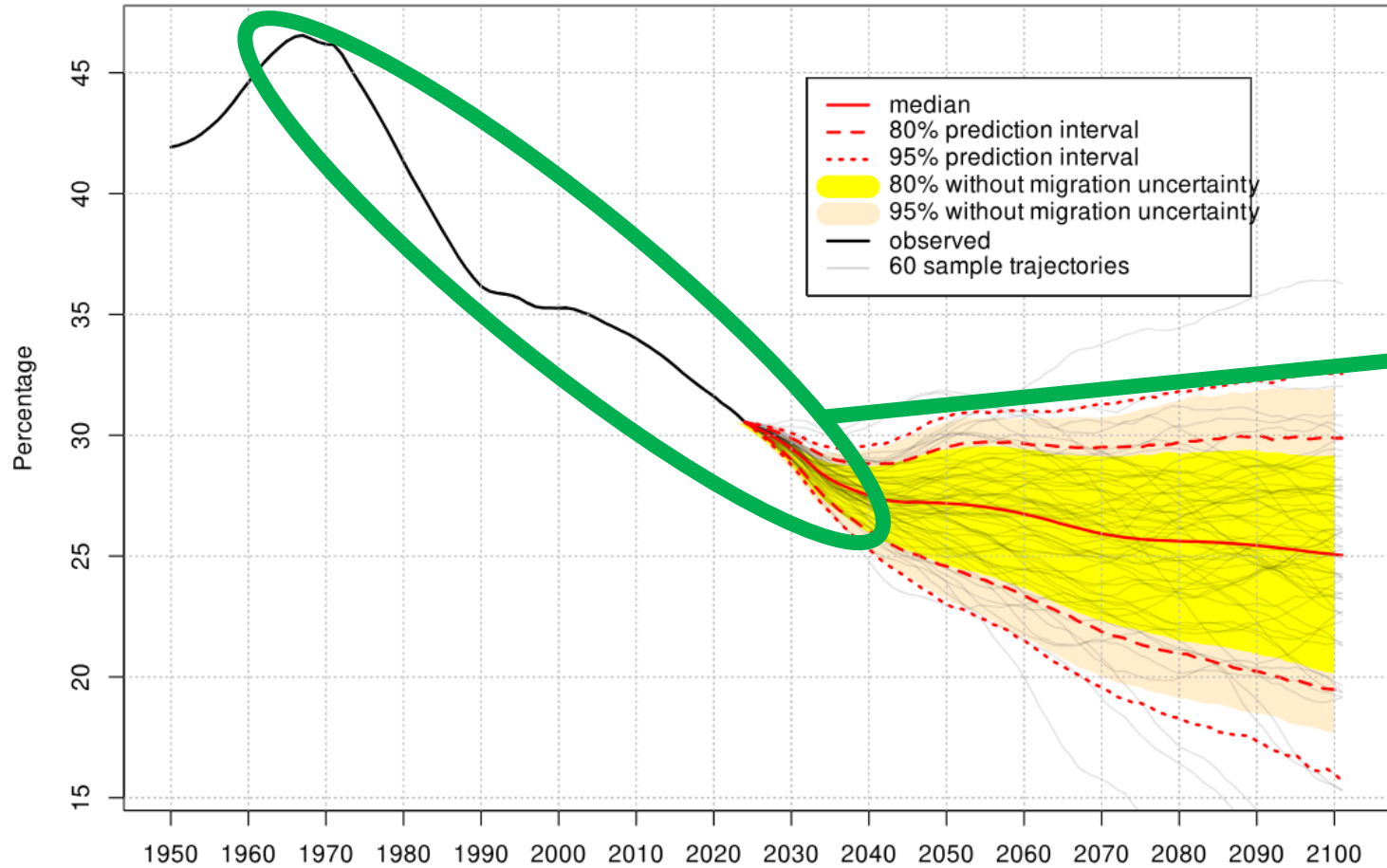
United States of America: Percentage of population aged 60 years or over



Near Exits

*-60+ yr olds as a % of population has grown 50%
-Doesn't level off to mid-2030s*

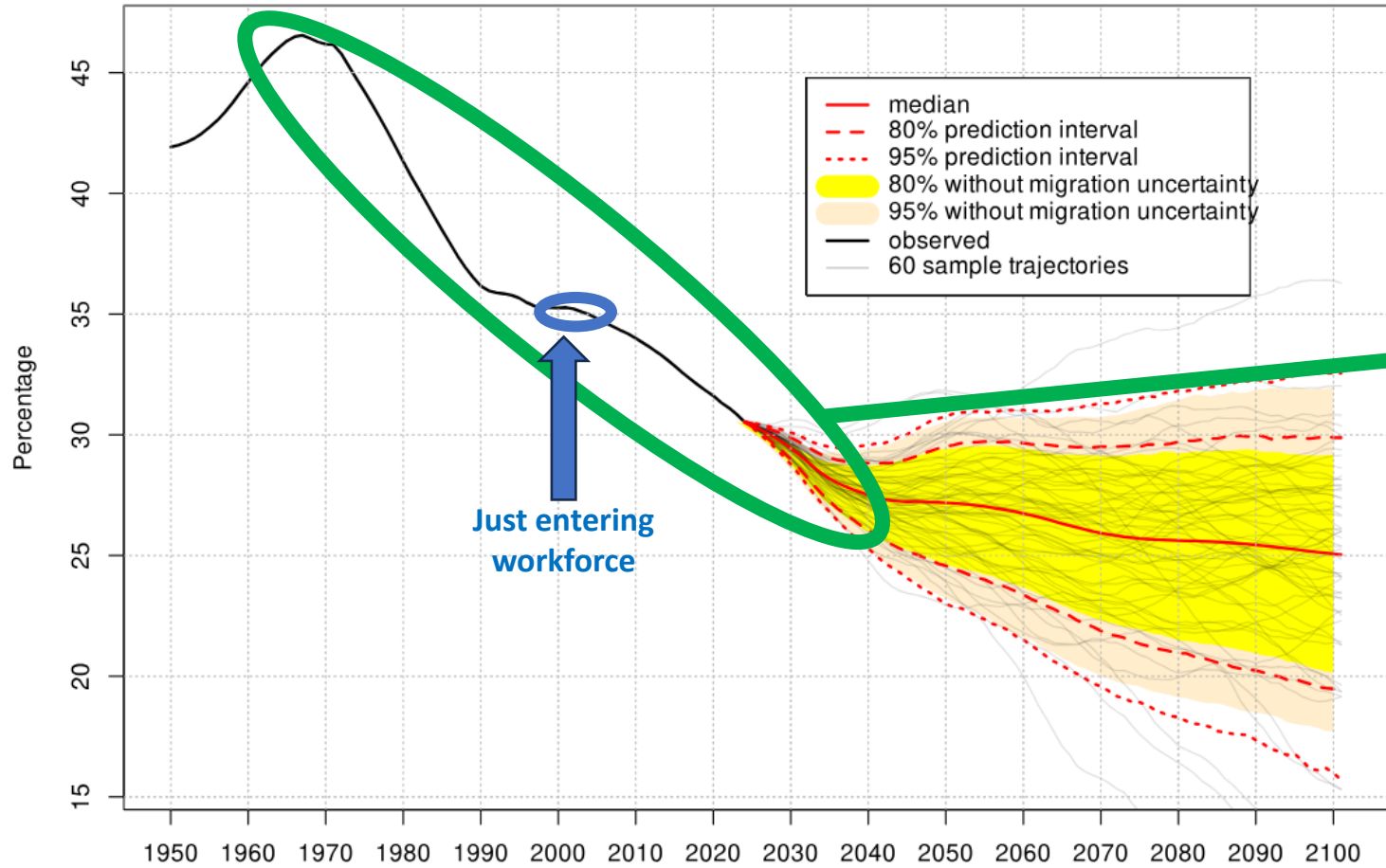
United States of America: Percentage of population under 25 years of age



No More Senior Discounts

Massive decrease in future workforce as a % of population

United States of America: Percentage of population under 25 years of age



Just entering
workforce

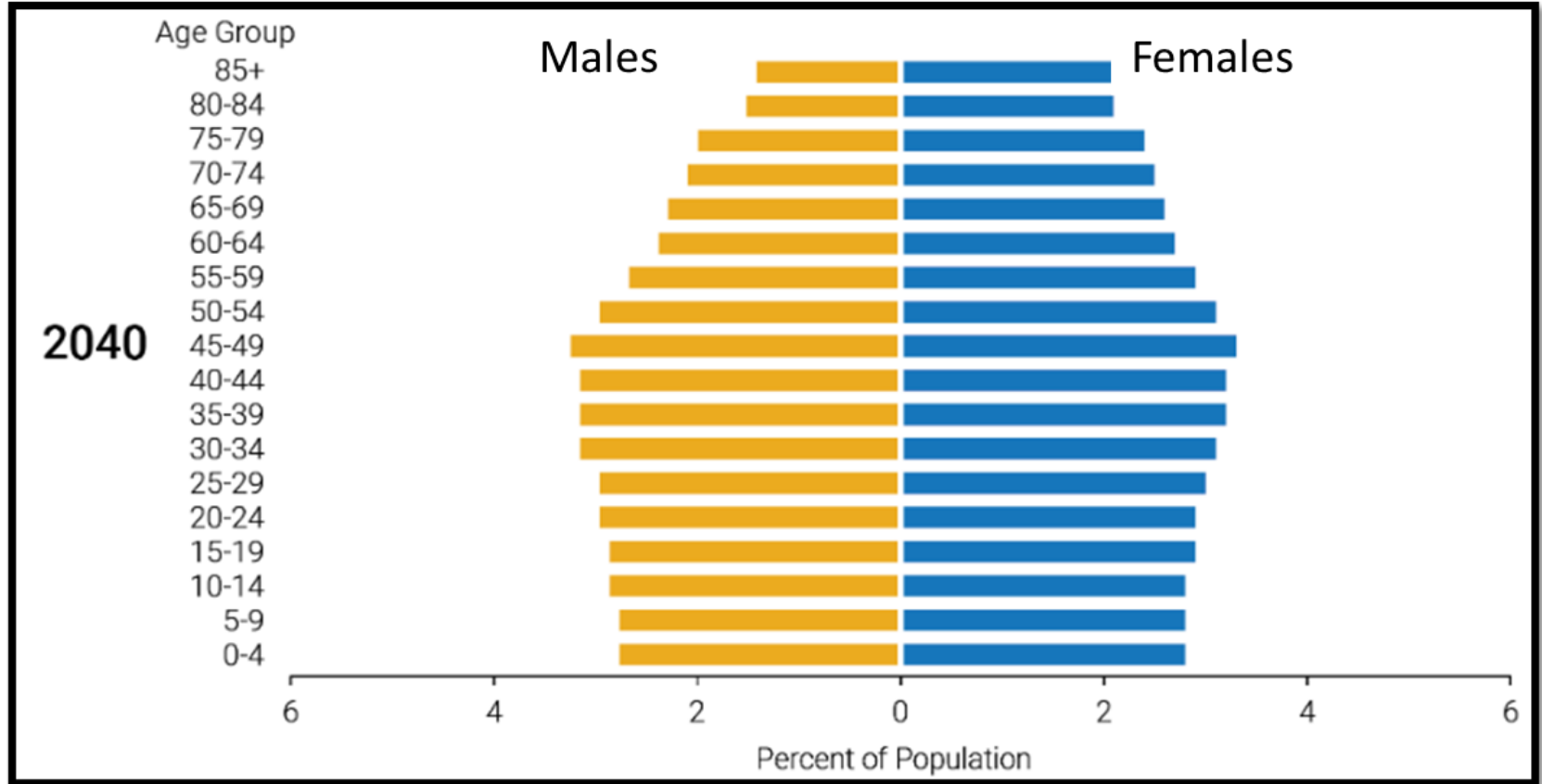
**No More Senior
Discounts**
*Massive decrease
in future
workforce as a %
of population*

Zoomer “Fun” Facts - *New York Post, Cigna, Others*

Gen Z Workers

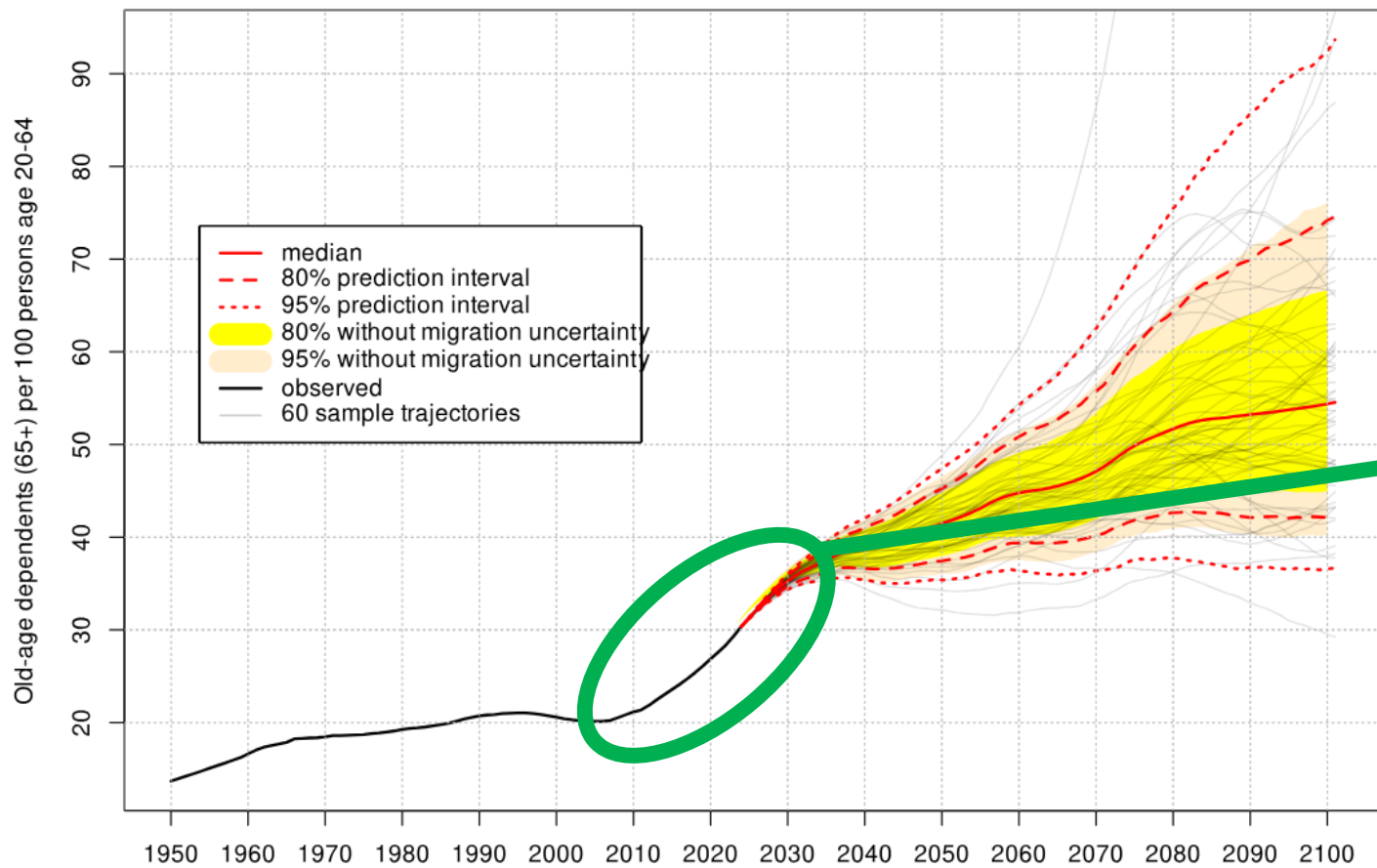
- 98% experience burnout
- 23% face unmanageable stress
 - Most stressed generation of all time
- 48% feel drained
- 46% of lack professionalism
- 39% of lack communication skills
- 75% of companies say some or all of Gen Z workers are unsatisfactory
- 50% of companies say Gen Z lacks motivation
- 6 out 10 employers have fired Gen Z workers within one month of hiring
- 1 out 7 employers indicate they may not hire Gen Z workers next year

US Population Histogram



*2040 Fertility Rates will be below replacement rate – all growth will be immigration
2024 Growth rate of 65+ Age will outpace growth of younger generations thru 2054*

United States of America: Old-age Dependency Ratio $\left(\frac{\text{Age 65+}}{\text{Age 20-64}}\right)$



**Employer
Opportunity:
Family
Caretakers to
Double**

**Currently about 1
out of 4 have an
older family
member they care
for....this will
double in next few
years**

Mid- and Long-Term Outlook

this is the

BEST

it will be

(for the remainder of our careers
barring a sustained recession/depression)

When You See a Another Employer



Talking To Your Top Performer

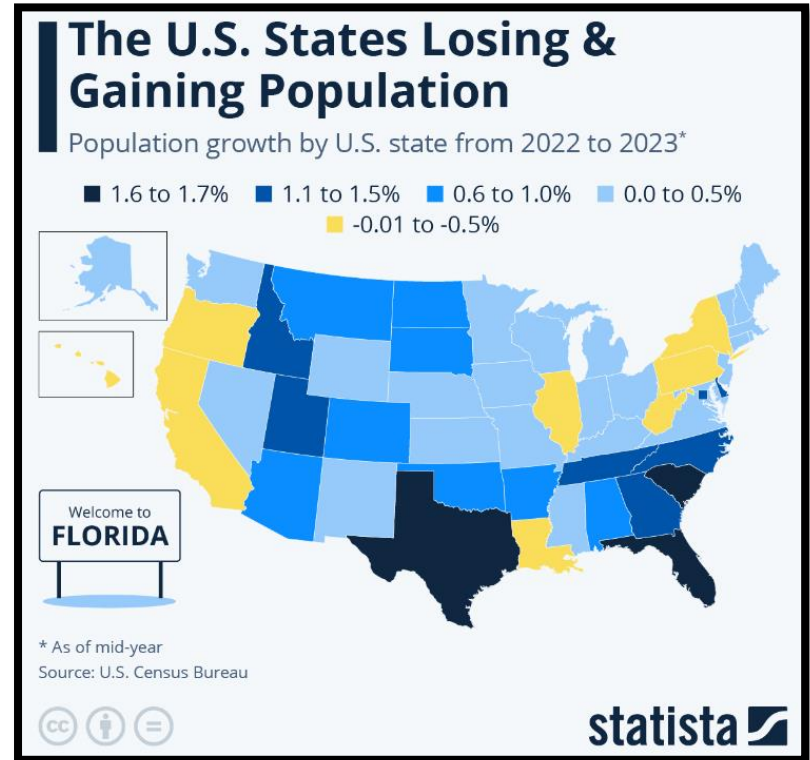
Client/Buyers Experiences:

These are the current market realities...

- Hot Markets for Vendors
- Workforce will not be improving
- Product/Equipment/Material availability will continue to vary
- Cost escalation/ uncertainty/ “**sticker shock**”
- Quality & Safety worsening
- Productivity worsening
- Margins diminished
- Everyone looking for solutions – trying old ways again....

So.....

- Lots of “Never Been Here Before” & “Near Historic” all at the same time for the Economy
- Notable uncertainty globally
- Demographics
- But Lots of Good Things Too



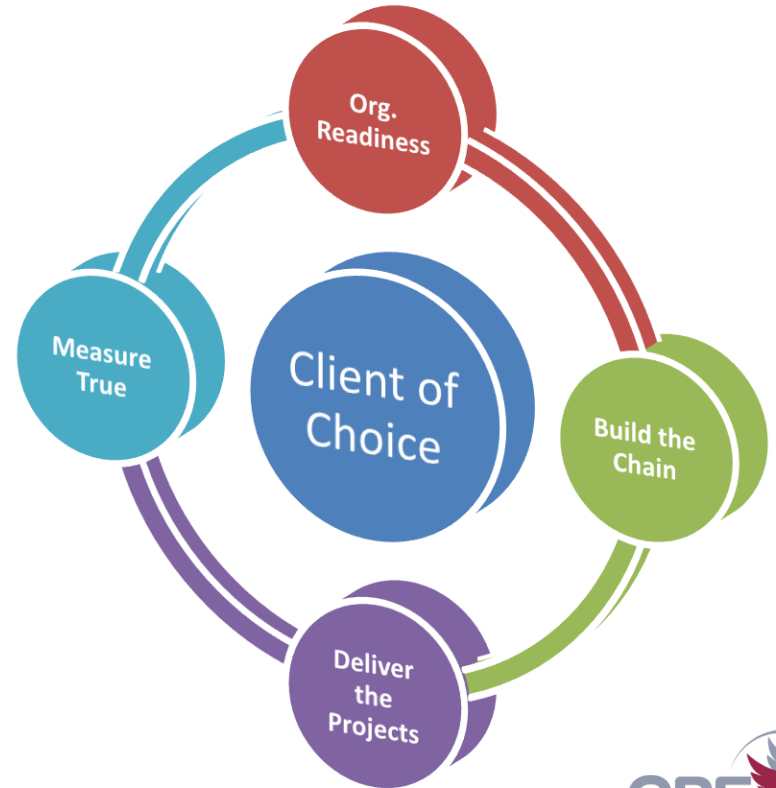
Reality

Reality of the Situation

- Performance **has been proven to NOT correlate** to contract types, delivery methods, software, design quality, etc.
- Performance **HAS BEEN PROVEN to highly correlate** to the capability, skill, and experience of the people doing the work – the critical personnel on a project or service

Transforming & Becoming a *Client of Choice*

- **Org Readiness**: Prepare the Organization, Train & Develop the People
- **Build the Chain**: How the org. attracts, competes and hires the right teams
- **Projects**: How the org. facilitates the expertise within the vendor teams
- **Measurement**: How the org. manages & creates accountability



Contrary to popular belief, digital transformation is less about technology and more about people.

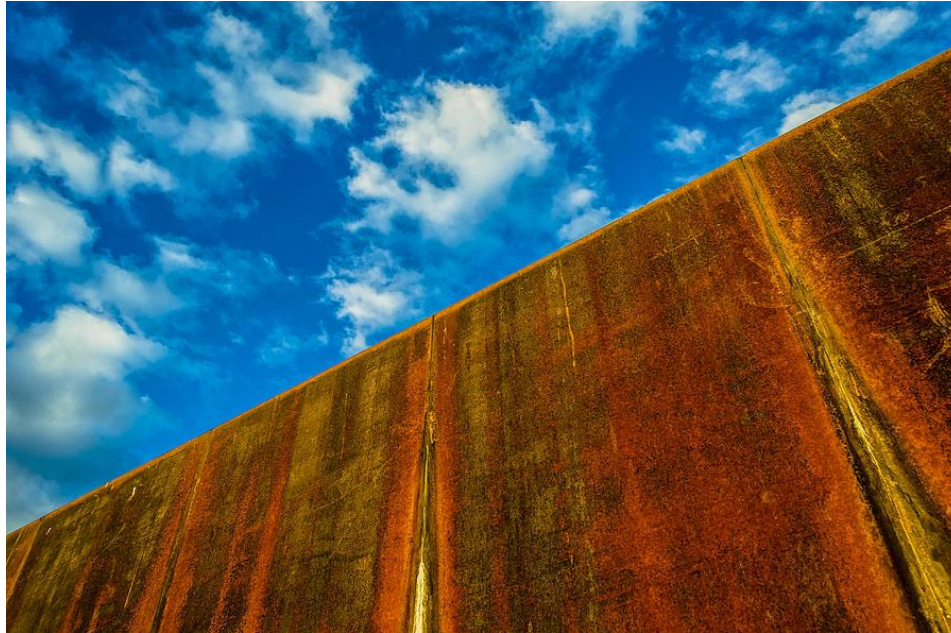
You can pretty much buy any technology, but your ability to adapt to an even more digital future depends on developing the next generation of skills - [the future is to focus on reskilling and upskilling people so that they are better equipped to adjust to change.](#)

- Harvard Business Review

Changing is Not Easy

Iron Curtain of Knowledge

- Greatest barrier to learning something new is what you think you already know



Dunning–Kruger Effect



■ Lemon disguise was no help

PITTSBURGH — A middle-aged bank robber who rubbed lemon juice on his face because he thought it would prevent surveillance cameras from taking a clear picture of him was sentenced to 24½ years in prison.

Surveillance photos at the bank clearly showed MacArthur Wheeler and Clifton Earl Johnson taking \$5,200 from a Mellon Bank in Swissvale on Jan. 5, 1995.

U.S. District Judge Gary Lancaster sentenced Wheeler, 46, on Friday to the prison term and ordered that he serve three years on probation after that.

Johnson, 43, received a five-year sentence in April, in part because he testified against Wheeler. Johnson told him about the juice, Wheeler said.

The men didn't wear masks because they were sure the lemon juice would obscure their faces, according to Shaun Sweeney, who prosecuted Wheeler.

Obligatory AI Section



PERSONAL FINANCE

A.I. is on a collision course with white-collar, high-paid jobs — and with unknown impact

PUBLISHED MON, JUL 31 2023 7:30 AM EDT

BUSINESS

Two-Thirds of Jobs Are at Risk: Goldman Sachs A.I. Study

...ent bank's economists estimate that 46% of administrative positions, ... positions, and 37% of engineering jobs could be replaced by artificial

Forbes

ENTERPRISE TECH

Half Of All Skills Will Be Outdated Within Two Years, Study Suggests

Joe McKendrick Senior Contributor

I track how technology innovations move markets and careers

Follow

Oct 14, 2023, 11:20am EDT



Guardian

...m with \$5 per month

The Guardian

tion Sport Culture Lifestyle More

as Asia Australia Middle East Africa Inequality Global development

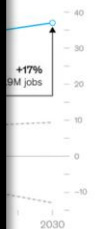
AI having 'positive impact' on UK jobs but could increase regional inequalities, says report

Study finds new technologies have created and upskilled jobs but disparities in education and investment may affect pace of change

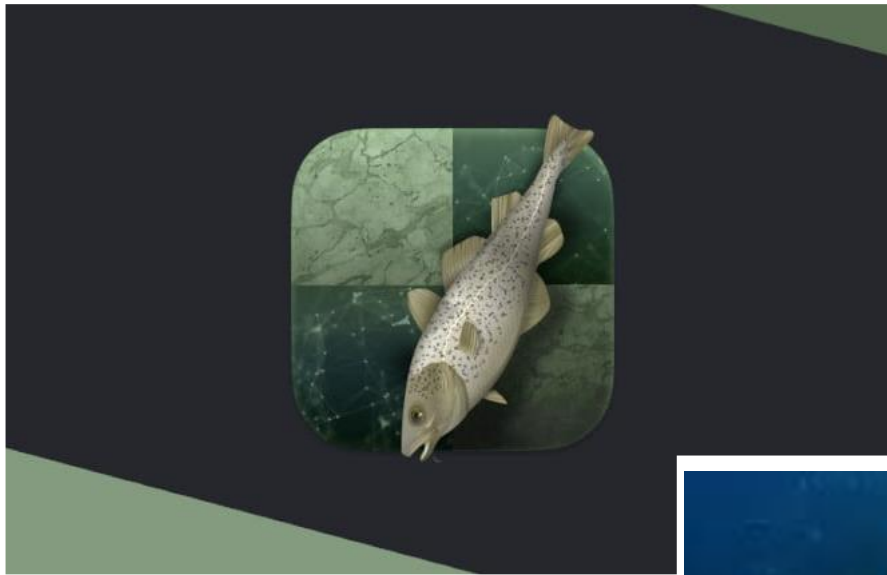



Next >

ons



1 million
From a resilient and growing occupation to any other occupation



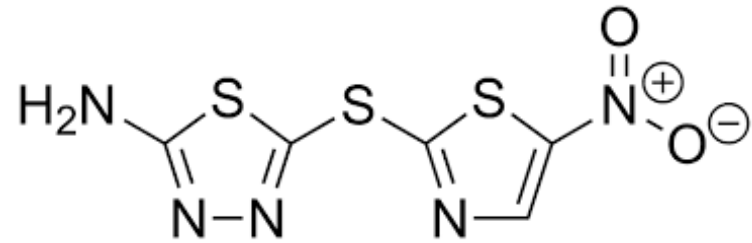


“Chess has
been shaken to
its roots by
AlphaZero”

- Garry Kasparov

*Russian Chess Grandmaster, World Champion (1985
to 2000), Ranked #1 for 255 Consecutive Months*







ChatGPT correctly diagnosed a 4-year-old's mysterious disease after 17 doctors failed

Kate Hull | Sep 12, 2023, 3:20 PM MST

Share Save

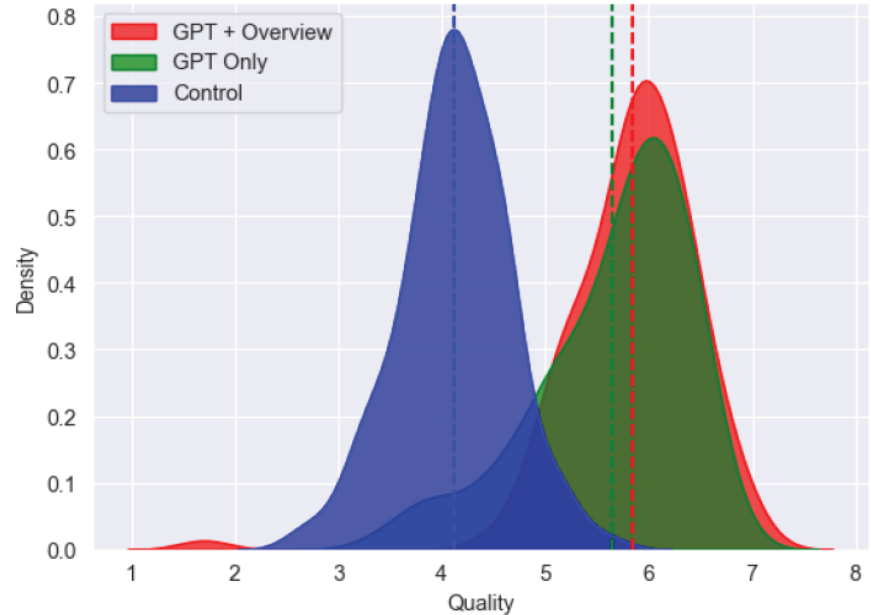


“I went line by line of everything that was in his (MRI notes) and plugged it into ChatGPT,” she says. “I put the note in there about ... how he wouldn’t sit crisscross applesauce. To me, that was a huge trigger (that) a structural thing could be wrong.” (Mother)



A Piece of the Workforce Solution

- Generative AI is here NOW
- Recent Study of impact of GenAI
 - **12.2%** More Tasks Completed
 - **25.1%** Less Time per Task
 - **40%** Higher Quality
 - **AI Training Significantly Increase Efficacy**
 - For control performance
 - For those starting below average performance – **AI improved performance 43%**
 - For those starting above average performance – **AI improved performance 17%**
- My study on students with AI enable tech was significant improvement – 10 to 30% performance impact (+ speed impact)



GenAI use cases in Sourcing & Procurement



Based on Deloitte experience and wholistic view of the Generative AI landscape, the areas highlighted below will be where Generative AI will be most impactful

	Strategic sourcing		Category management		Contract management		PR/PO management		Invoice and payments management	
GAI use cases	RFI/RFP/RFQ generation	Risk assessment Reports	Category strategy generation	Contract drafting	Contract renewal proposal drafts	Purchasing strategy suggestions	Purchase order approval routing	Invoice coding and approval	Payment mode analysis	
	Sourcing optimization suggestions	Bid evaluation Reports	Spend Analytics	Contract amendment drafts	Contract dispute resolution suggestions	Purchase requisition drafts	Purchase requisition-to-order conversion	Payment terms analysis	Payment scheduling	
	Supplier prequalification reports	Sourcing event feedback analysis	Supplier negotiation strategy/scenarios	Contract summary documents	Contract termination notices	Purchase order drafts	Purchase order amendment drafts	Cash flow forecasting	Foreign exchange impact analysis	
	Supplier comparison reports	Sourcing event communications	Supplier communication messages	Contract negotiation suggestions	Contract review/redlining	Purchase requisition approval	Order fulfillment alerts	Early payment opportunities analysis	Fraud detection reports	
								Payment prioritization recommendations	Duplicate invoice alerts	
								Payment status notifications		
	Supply Chain Resiliency									

*The expected impact of GAI is derived considering 2 factors: (i) Degree of automation and (ii) Incremental value addition vis-à-vis current solutions

Expected impact of GAI* ■ High ■ Medium ■ Low



Unique Leadership Considerations for Leaders

- **Actions today vs tomorrow – what is the timeline?**
 - Generative (ChatGPT) – **NOW**
 - Prepare Data that can be used for GOOD TRAINING - **NOW**
 - AI Apps/Enabled requiring investment – **WAIT (18-36months)**
- **New Impacts - Not experienced from other innovations**
 - Structural impacts – organizational (depts, functions), foundational (basics of construction process, contract, owner role, etc.)
 - Cultural & Mind Impacts – changing work patterns (80%/20% - losing the 80%)
 - Constant Change – change adoption culture
 - Outperforming Humans – new baseline for value and expectations

One Quick Thing About AI....

- In most all previous technologies and innovations – junior (or younger) employees were very effective at teaching and helping the more experienced and senior employees learn and adopt the new technology
 - Largely due to willingness to try innovation that conflicts with traditional or standard practice (and not having invested as much time & expertise)
- For AI, this is being proven to NOT BE TRUE for AI. Juniors are not more capable than seniors at adopting AI
- Thoughts are the technology is so different that being younger is not as advantageous....

One Aspect of Training: AI - Currently Two Paths

- People say “AI” but really “two paths”
- Path 1: Generative + Assistance (Good to OK now)
 - ChatGPT, Gemini, Co-Pilot, plugins for current apps/software
- Path 2: AI Enable Solutions (Wild West)
 - “Applications/Software”
 - 6000+ in past 12 months

Future – I am Very Excited

‣ What do I know? = Nothing

‣ Prices = Uncertainty; Materials = More Certain; Limited control of either

‣ Labor = A New Model Needed; Key Differentiator

‣ Possibility of Tremendous Improvements– but window may be tight

- Technological Revolution
- Moving into a New Economy

Questions? – More Info?

PPT version of Slides?

Jake.Smithwick@charlotte.edu



center4procurement.org/kppa/