# Future Economy


VENEZUELA
INTEREST RATES
CHINA
UNCERTAINTY
FED
TARIFFS
CLIMATE
JOBS

FUTURE ECONOMY


# CONTEXT

*Economy, Govt. Policy & Trends*

# Application

*Growth Opportunities*

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# ECONOMIC PAST


*Chaos*

*Recap!*

COVID

Stimulus

War

# Inflation

# ECONOMIC PRESENT


## *Disruption*

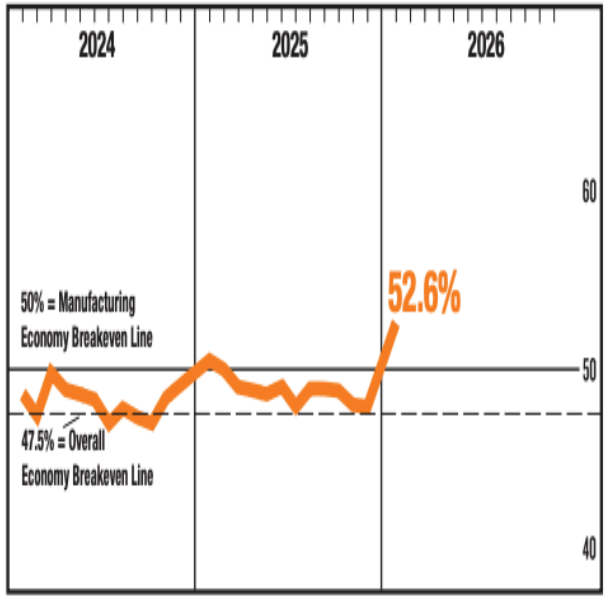
# Rebalanced

# US Economy Growing

## MANUFACTURING

# PMI® at 52.6%

The U.S. manufacturing sector expanded in January for the first time in 12 months, registering 52.6 percent, a 4.7-percentage point increase compared to the seasonally adjusted reading of 47.9 percent in December. Of the five subindexes that directly factor into the Manufacturing PMI®, three (New Orders, Production, and Supplier Deliveries) are in expansion territory, one more than in December. The Employment and Inventories indexes stayed in contraction, though both improved compared to December.

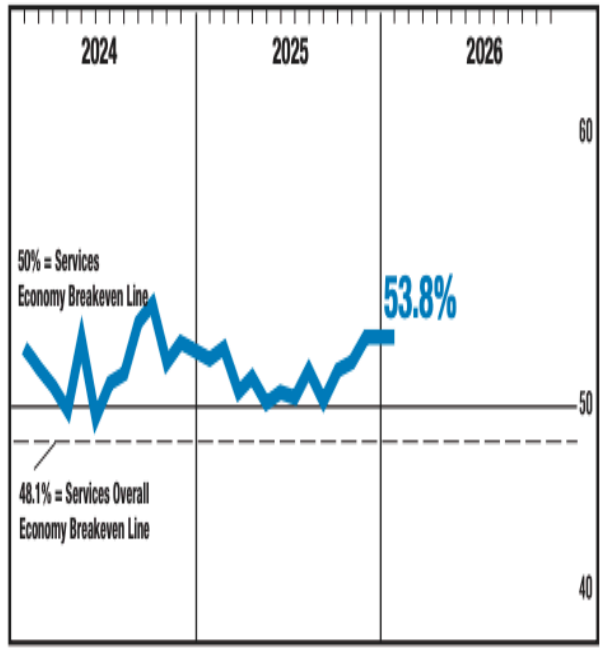



## SERVICES

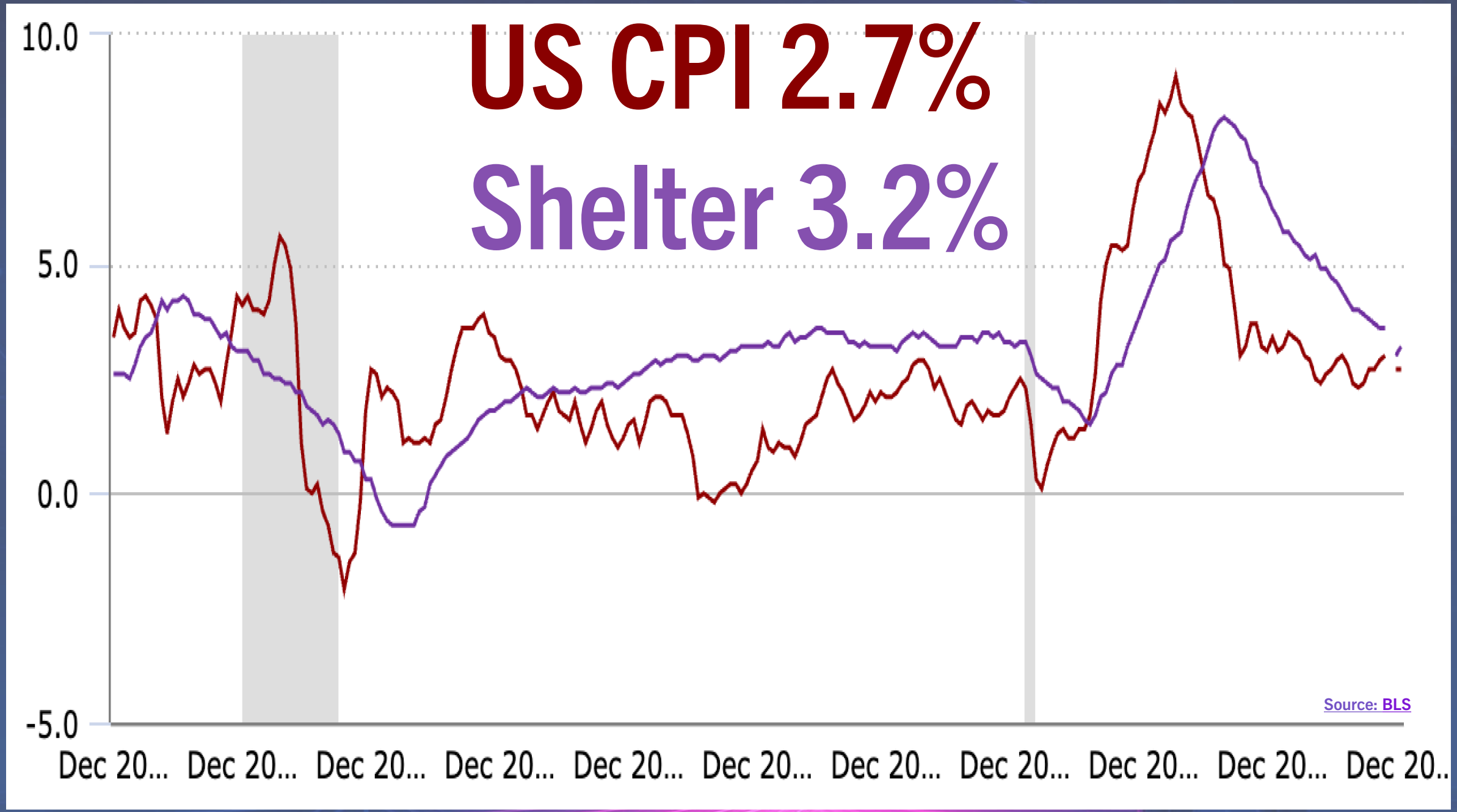
Source: ISM

# PMI® at 53.8%

In January, the Services PMI® registered 53.8 percent, the same as its seasonally adjusted December reading – both months are the index's highest readings since it registered 55.5 percent in October 2024. A reading above 50 percent indicates the services sector economy is generally expanding; below 50 percent indicates it is generally contracting.

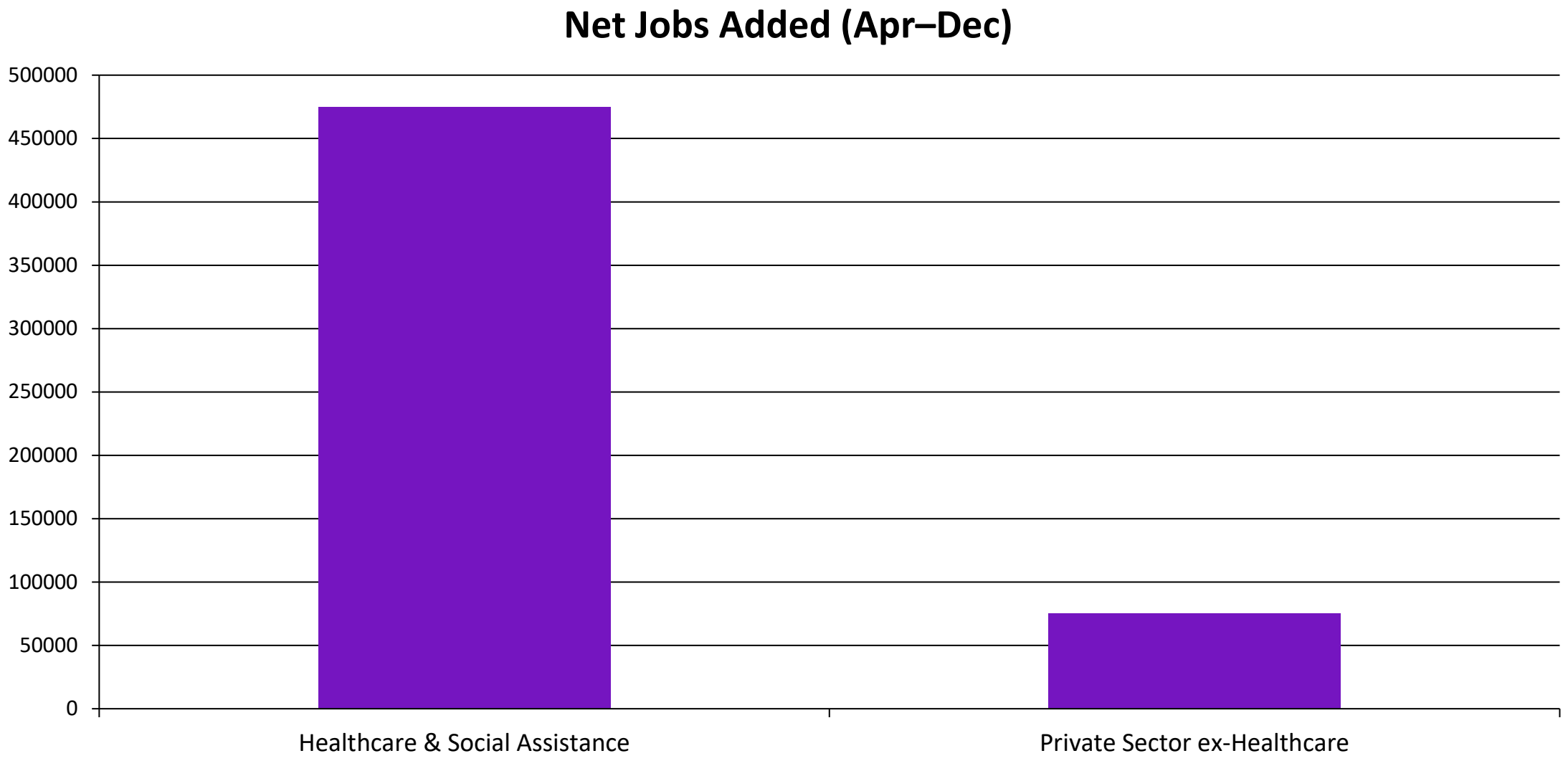


Slowed


US CPI 2.7%
Shelter 3.2%
10.0
5.0
0.0
-5.0
Dec 20...
Dec 20...
Dec 20...
Dec 20...
Dec 20...
Dec 20...
Dec 20...
Dec 20...
Dec 20...
Dec 20...
Dec 20..
Source: BLS

# Stalled

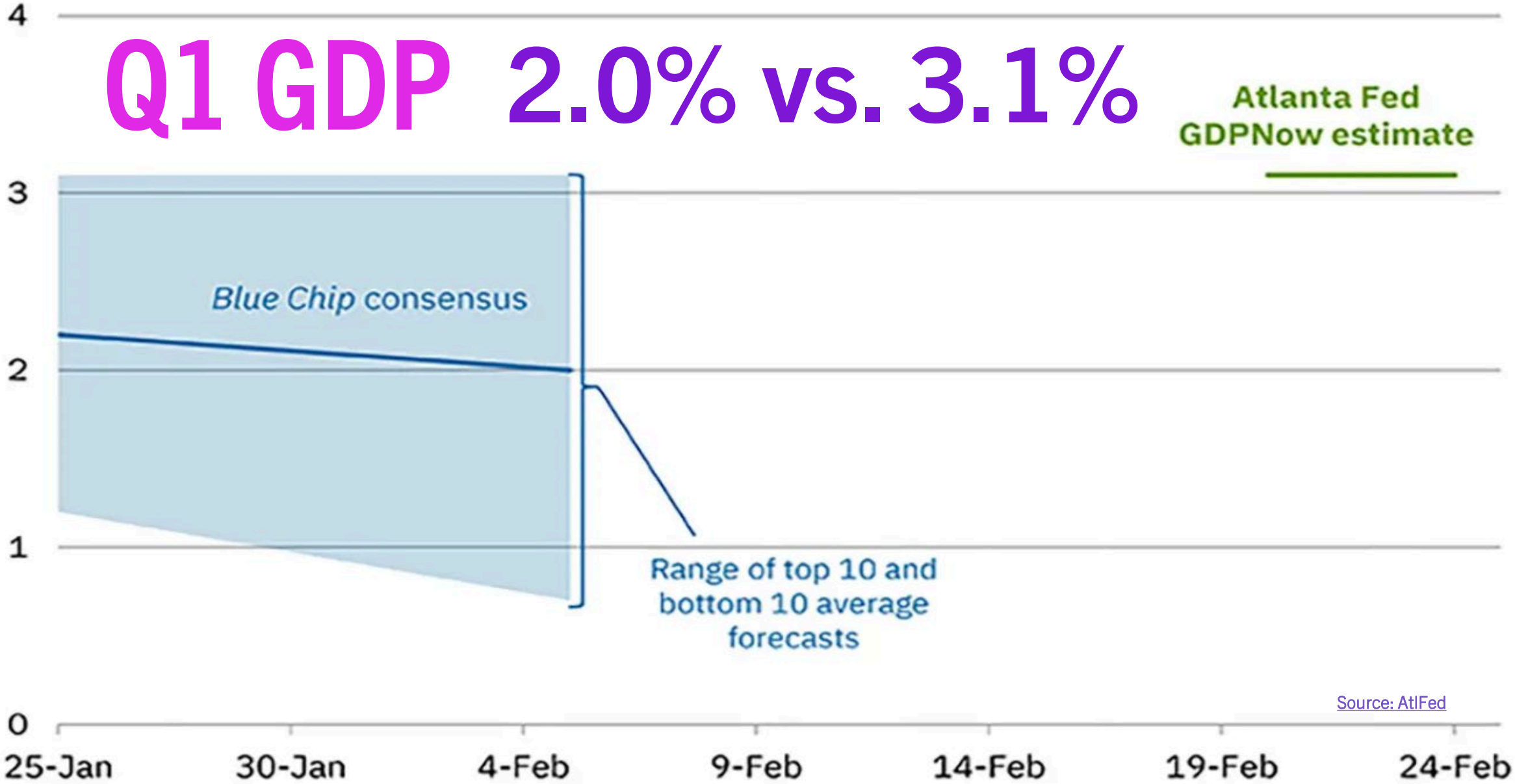
# Private-Sector Job Gains Since April 2025




Source: BLS

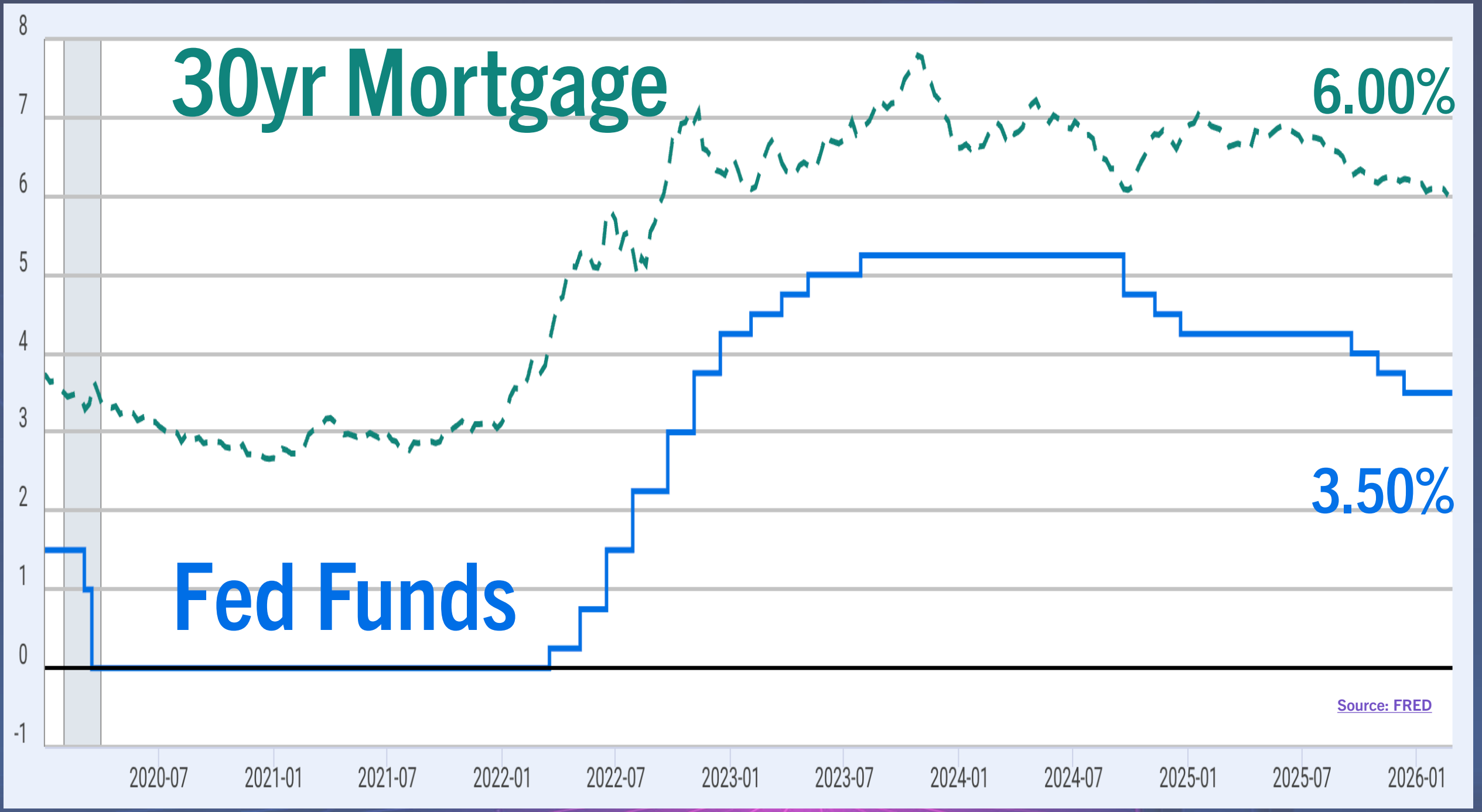
Growing

# Q1 GDP 2.0% vs. 3.1%




Source: AtlFed

Stuck


30yr Mortgage
6.00%
Fed Funds
3.50%
Source: FRED
8
7
6
5
4
3
2
1
0
-1
2020-07
2021-01
2021-07
2022-01
2022-07
2023-01
2023-07
2024-01
2024-07
2025-01
2025-07
2026-01

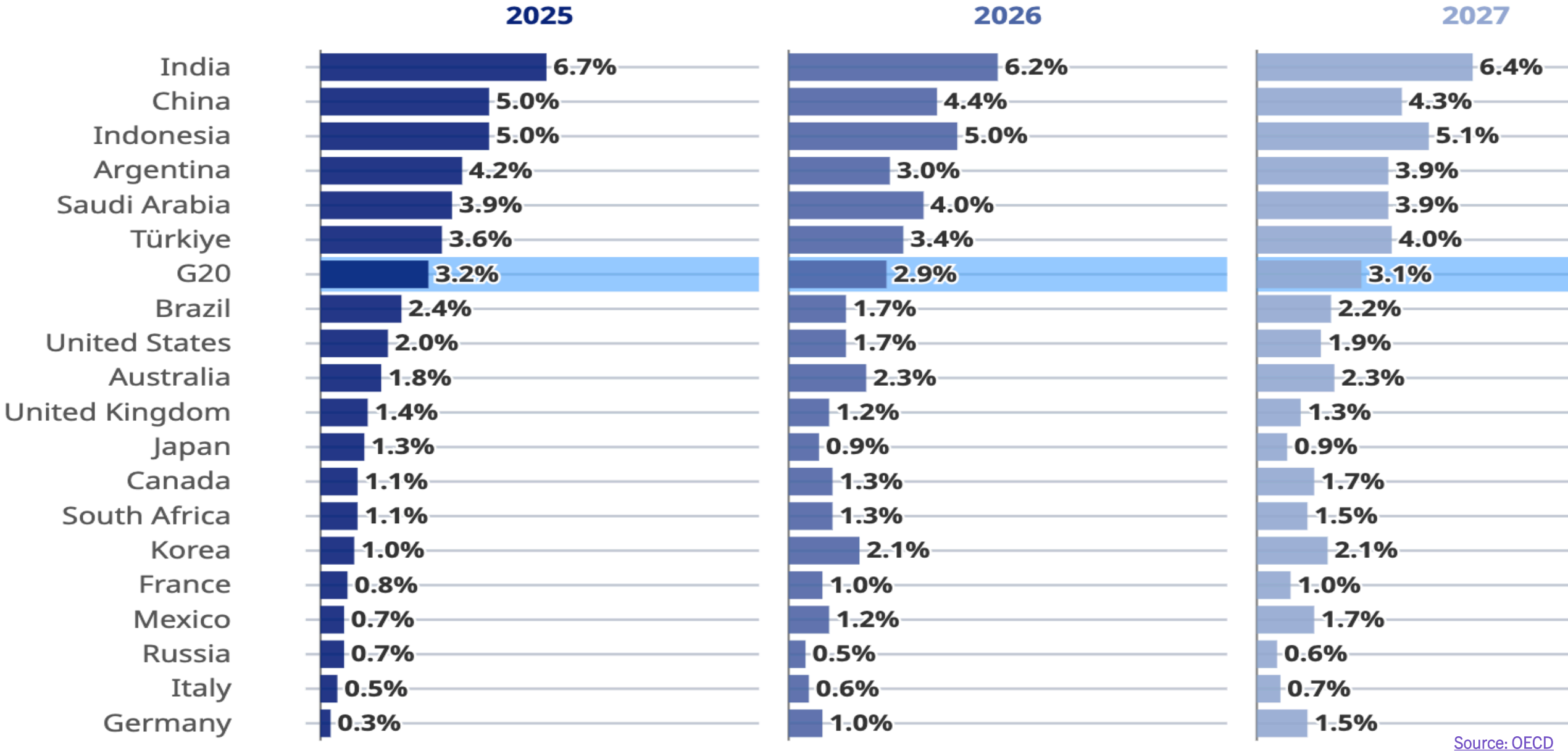
# Why LT Rates Higher 4 Longer?

1. **Demographics ($ supply)**
2. **Debt ($ demand)**
   a) Deglobalization
   b) Data Centers
   c) Defense

# ECONOMIC FUTURE

*Volatile*

# OECD GDP Estimates




Source: OECD

# Big Economic Secret!

# Top 10 2026 X-factors

## ST: 2-years

1. Post-Peak Trump
2. Chinese Exports
3. Extreme Weather
4. AI Capex Pullback
5. Societal Instability/ Disputed Midterms

## LT: 3 to 10-years

6. Adverse AI
7. Cyber/Cloud shutdown
8. Massive Solar Flare
9. Synthetic Pathogens
10. US Debt Crisis

# ST Economic Takeaways

*US inflation sticky @ 2.25%-2.75. Fed cuts cautiously 2-3 times?*

*US 2026 GDP grows 2.0%-2.5% w/front loaded fiscal stimulus & less negative impact from tariffs.*

*2026/2027 Global GDP f(x)= #CB rate cuts + China stimulus + US tax cuts/spending - Tariffs – X factors*


# GOVT. POLICY & POST-PEAK TRUMP

# Trump Themes

1. **US economy reset:** Tariffs & immigration policy' goal to renew US manufacturing w/jobs.
2. **US govt. policy reset:** low tax rates, more energy, reduce regulations & shrink US govt.
3. **Executive Branch reset:** centralize power in presidency, test legal boundaries, bend judicial branch, test Congress' purse power.

# IEEPA Exposures

| Material / Product | IEEPA Exposure |
| --- | --- |
| Electronic-grade precursors | China-related intermediates; costly re-qualification if disrupted |
| Specialty intermediates & reagents | Rule/tariff volatility drives input price shocks and lead-time risk |
| Catalysts & critical-mineral derivatives | Sanctions/export-control exposure; substitution challenges |
| Battery electrolyte solvents/salts | Cost spikes impair scaling; inventory buffering needed |
| Agrochemical actives/intermediates | Seasonal demand + tariff swings transmit into pricing |

# Non-IEEPA Tariffs

| Material / Product | Tariff Exposure |
| --- | --- |
| China-origin specialty intermediates | Section 301 duties; supplier shift and qualification risk |
| Plant equipment metals (steel/aluminum) | Section 232 impacts capex, maintenance, and spares |
| Hazmat packaging | Tariff + logistics increases delivered cost; procurement volatility |
| Solvents/additives from Asia/EU | Reciprocal tariff risk; longer lead times and higher working capital |
| Fertilizer/ag-chemical upstream inputs | Trade actions can drive seasonal price spikes |

| Top Trump EOs | Changes | Impact on Specialty Chemicals |
| --- | --- | --- |
| Regulatory cost controls | Rules/guidance scrutiny | Lower compliance drag; faster project decisions |
| Permitting streamlining | Faster federal reviews | Shorter timelines for expansions and controls |
| Supply-chain resiliency focus | Domestic critical inputs | Incentives to localize intermediates/capacity |
| Trade enforcement posture | Tariff enforcement | Higher volatility; stronger case for dual-sourcing |
| Industrial competitiveness actions | Manufacturing prioritization | More policy attention to domestic production |

| Regulatory Item | Enacted / Considered | Impact |
|---|---|---|
| EPA air toxics controls | Enacted/active tightening | Higher monitoring/control capex; operating cost |
| TSCA PFAS reporting | Delayed/rolling implementation | Supply-chain data burden; product portfolio risk |
| OSHA HazCom updates | Considered/updated alignment | Label/SDS updates; training and documentation |
| OSHA PSM enforcement | Active emphasis | More audits; stronger MOC/incident prevention discipline |
| TSCA new chemicals review | Ongoing | Commercialization timeline risk; documentation overhead |

# OBBB +/-

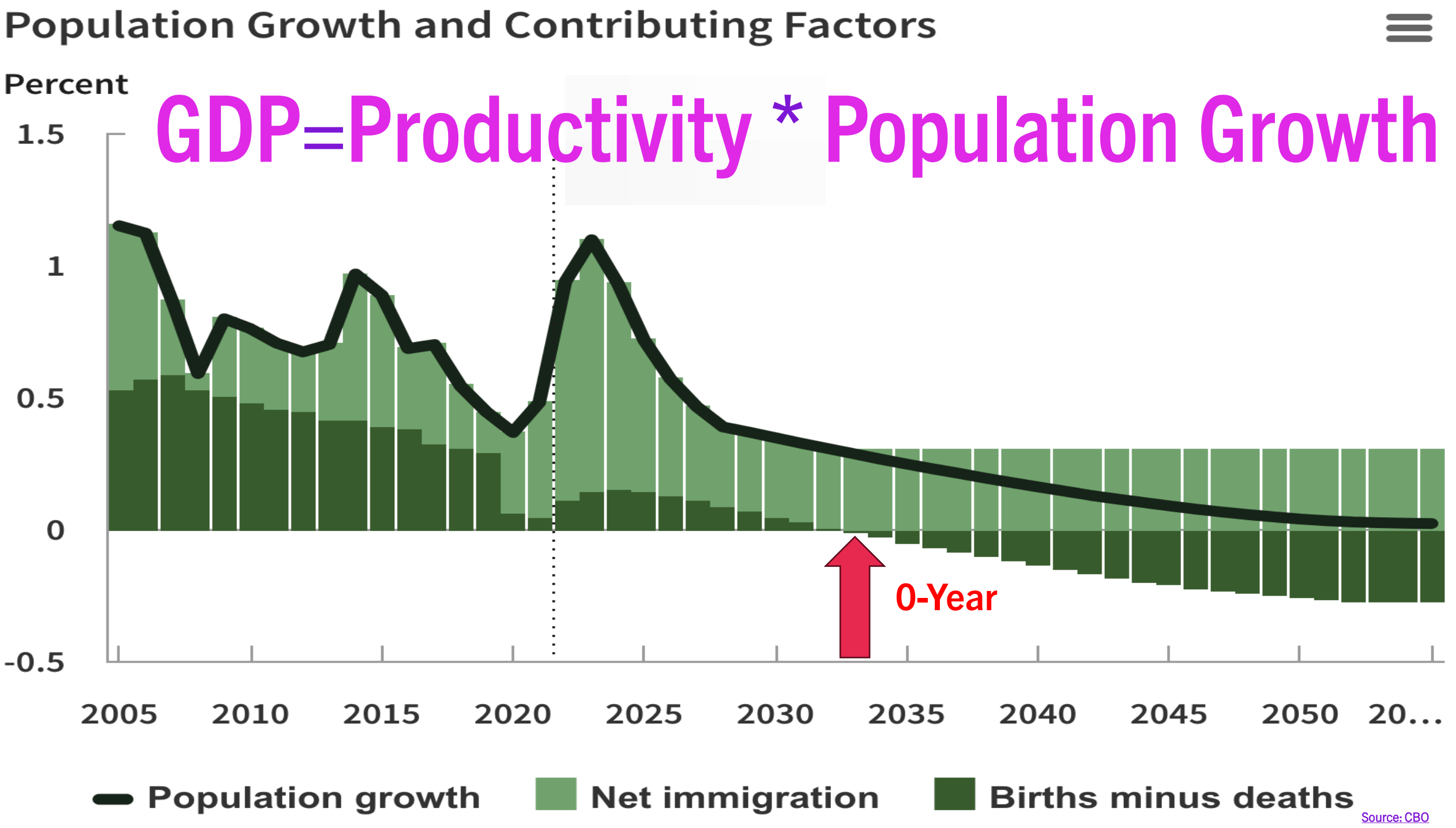
| Positive Impacts | Negative Impacts |
| --- | --- |
| Accelerated expensing/ROI | Compliance complexity for SMEs |
| Domestic manufacturing demand | Labor competition from subsidized sectors |
| Defense/energy downstream pull | Financing costs can offset benefits |
| R&D and modernization incentives | Sourcing constraints during reshoring |
| Infrastructure materials demand | Allocation/audit complexity for mixed-use assets |

# OBBB Depreciation

| OBBB Provision | Industry Impact |
| --- | --- |
| Immediate/accelerated expensing | Improves cash flow for modernization capex |
| Qualified production property | Supports plant expansion economics |
| Automation & controls upgrades | Shortens payback; raises uptime and safety |
| Emissions-control investments | Improves ROI on compliance projects |
| Capital planning certainty | Enables multi-year investment roadmaps |
| Digital plant systems | Speeds adoption of analytics and reliability programs |

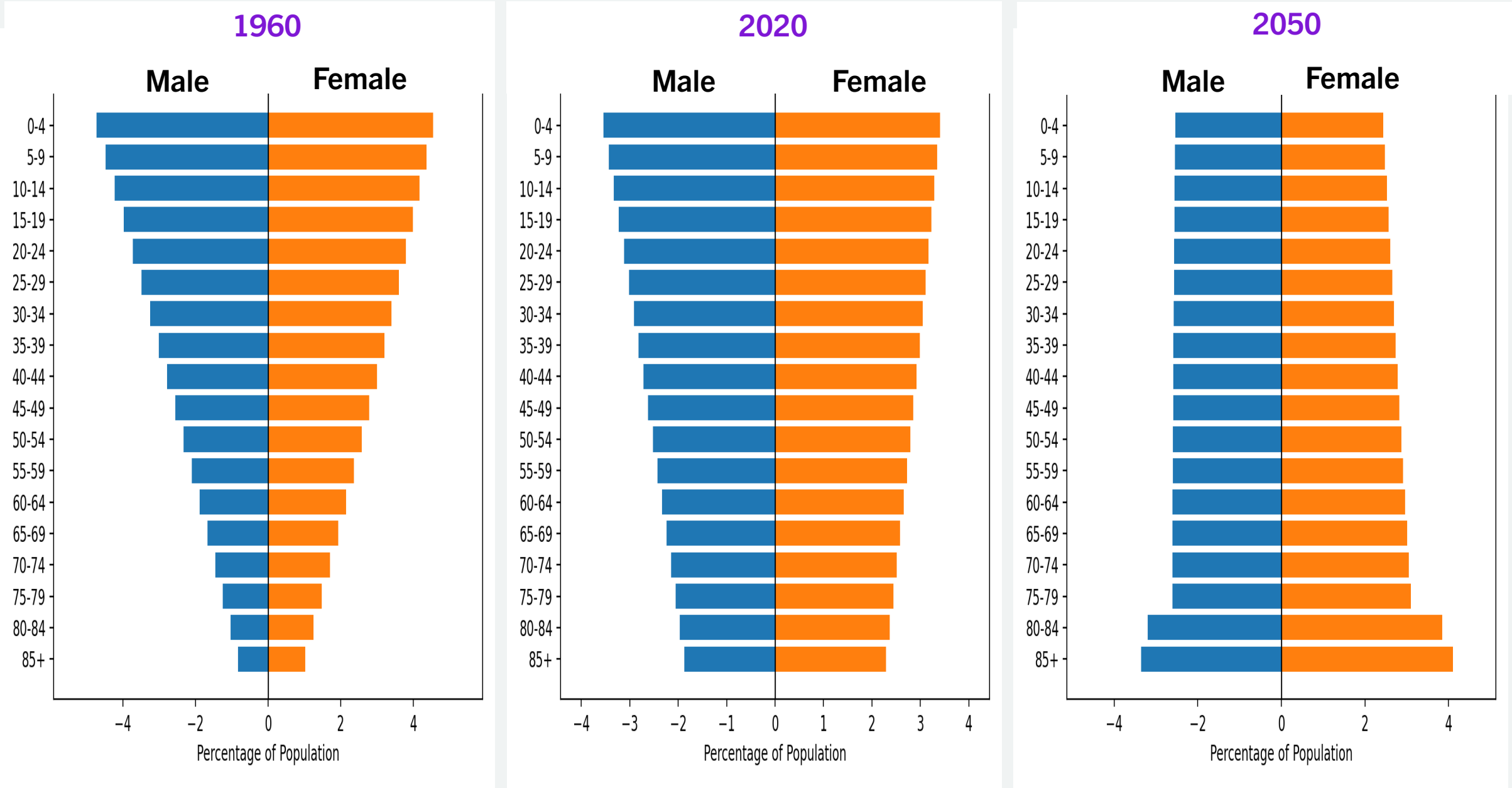
# TRENDS

## *Speeding Up*


Population Growth and Contributing Factors
Percent
GDP=Productivity * Population Growth
1.5
1
0.5
0
-0.5
0-Year
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
20...
Population growth
Net immigration
Births minus deaths
Source: CBO

# U.S. Population Pyramids

Source: UN



# Weather Volatility

## Helene's cost could be 600 lives, $160B in damages

*AccuWeather recorded more than 30 inches of rain in two locations and estimated damage between $145 billion to $160 billion, up from weekend estimates by others of $95 billion to $110 billion. (@NCAviation / X)*

## California wildfires: What we know about L.A.-area fires, maps, what caused them, who is affected and more

Fueled by powerful winds and dry conditions, a series of ferocious wildfires erupted last week and roared across the Los Angeles area.

# CHALLENGES MET=

# *GROWTH ACHIEVED*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Since 1300
Razzouk

# Get a Tattoo!

| Opportunity | Actionable Strategies |
| --- | --- |
| Massive FDI Into U.S. | Position as local supplier for CHIPS/EV/pharma builds; expand qualified capacity |
| Domestic Industrial Restructuring | Shift mix to higher-value “made-in-America” intermediates; invest in flexible batch lines |
| Supply Chain Resilience | Dual-source critical precursors; add buffers; strengthen supplier cyber/QA audits |
| Regional & Demographic Shifts | Site/expand near growth corridors; deepen workforce partnerships; optimize hazmat logistics |
| Agentic AI Adoption | Deploy agents for batch optimization, predictive maintenance, compliance automation, risk sensing |

# $9.0+ Trillion!

## Whale $

*(if true)*

Source: WH

| Specialty Segment | Supply Chain Challenge | Strategies / Actions |
|---|---|---|
| Electronic chemicals | Qualification friction; China intermediates | Localize precursors; co-develop w/ chip fabs |
| Battery materials | Electrolyte salt/solvent concentration | Allied sourcing; safety stock; long-term offtakes |
| Pharma/biomanufacturing | GMP input traceability | Digital QA; validated suppliers; redundancy |
| Agrochemicals | Seasonal spikes; import exposure | Forward buys; hedging; diversify intermediates |
| Advanced materials | Specialty catalysts/minerals | Substitution R&D; recycle/reclaim; strategic inventory |

# Supply Chain Vendors To Check Out

- Logistics Visibility & Predictive Analytics: Descartes Macropoint, project 44, Fourkites
- Planning & Logistic Orchestration: SAP IBP, FarEye, GoComet, Shipsy
- Risk Profiling & Supplier Health: Bendi, RapidRatings
- AI Supply Chain Network Optimization & Insights: Altana, Throughput, Ameba
- Decentralized Data Eco. & Traceability: apheris AI, Flock, TrusTrace

# Internal US Population Migration

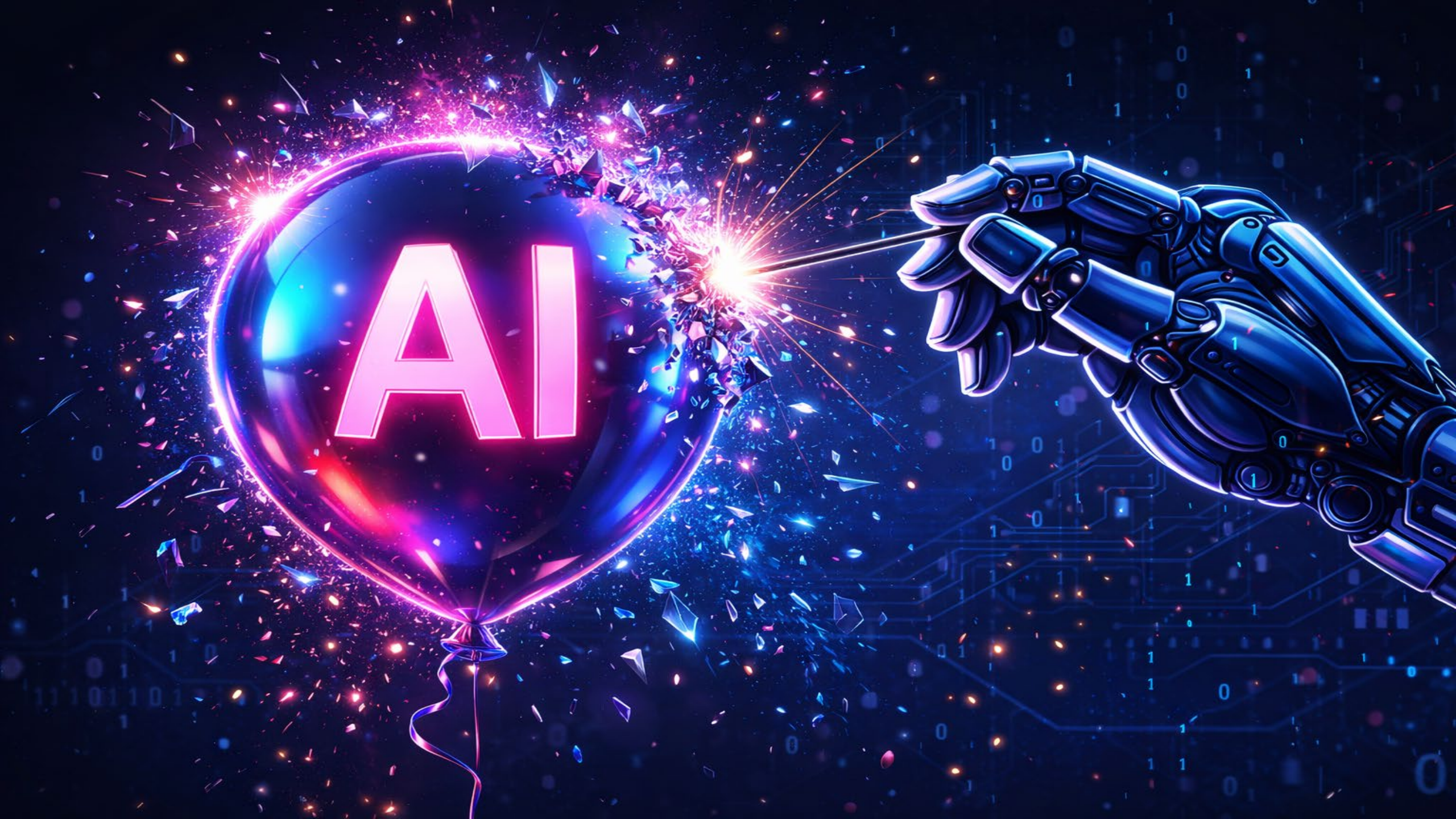
Source: US Census

| Rank | Geographic Area | April 1, 2020 (Estimates Base) | July 1, 2024 | July 1, 2025 |
|---|---|---|---|---|
| 1 -200k | California | 39,555,703 | 39,364,774 | 39,355,309 |
| 2 +2.6M | Texas | 29,149,498 | 31,318,578 | 31,709,821 |
| 3 +1.9M | Florida | 21,538,207 | 23,265,838 | 23,462,518 |
| 4 -201k | New York | 20,203,696 | 20,001,419 | 20,002,427 |
| 5 +57k | Pennsylvania | 13,002,753 | 13,045,848 | 13,059,432 |
| 6 -102k | Illinois | 12,821,741 | 12,703,033 | 12,719,141 |
| 7 +101k | Ohio | 11,799,445 | 11,860,621 | 11,900,510 |
| 8 +571k | Georgia | 10,713,861 | 11,204,208 | 11,302,748 |
| 9 +756k | North Carolina | 10,441,392 | 11,052,061 | 11,197,968 |
| 10 +48k | Michigan | 10,079,362 | 10,099,962 | 10,127,884 |

# 🇺🇸 Economic Implications of the Boomer Retirement Wave (2024–2035)

| Category | Impact | Future Economy Insight |
|---|---|---|
| **1. Labor Force Shrinkage** | Workforce participation drops as 25 M experienced workers retire. Industries most affected: healthcare, manufacturing, logistics, and education. | Talent scarcity accelerates adoption of **automation, robotics, and AI agents** to offset lost labor. |
| **2. Wage & Inflation Pressure** | Tight labor markets push up wages for skilled trades and knowledge workers. | Structural inflation risk—especially in service sectors—may persist even if Fed cuts rates. |
| **3. Productivity & AI Adoption** | Loss of institutional knowledge could reduce productivity short-term. | AI copilots, **agentic AI systems**, and RaaS (Robotics-as-a-Service) become essential productivity multipliers. |
| **4. Fiscal & Entitlement Strain** | Boomers begin drawing full Social Security & Medicare benefits. Combined outlays rise > $2.5 T annually by 2030. | Forces a policy reckoning: entitlement reform, higher payroll caps, or deficit expansion. |
| **5. Consumption Shift** | Spending transitions from housing & durable goods → healthcare, travel, and services. | Growth in **"Silver Economy"** markets: wellness tech, senior housing, pharmaceuticals, and leisure travel. |
| **6. Housing Market Dynamics** | Boomers selling larger homes increase inventory in 2030s. | Potential downward pressure on single-family home prices in some markets, offset by demand for smaller, accessible units. |
| **7. Capital Markets Impact** | Rising retiree withdrawals from 401(k)s and IRAs shift savings behavior. | Increased demand for **income-producing assets** (bonds, annuities, dividend equities). |
| **8. Regional Shifts** | Migration to low-tax, warm states (FL, TX, AZ, NC). | Strengthens **Sun Belt economies**, strains healthcare & infrastructure capacity. |


AI
AI
GenAI
Agentic AI


AI

# Top 10 U.S. AI Spending Commitments

| Rank | Company / Consortium | AI-Related Spend | Timeframe |
|---|---|---|---|
| 1 | Stargate (OpenAI/SoftBank/Oracle/ MGX | Up to $500B | Late 2020s |
| 2 | Meta Platforms | ~$600B | Next ~3 years |
| 3 | Apple | $500B | Next 4 years |
| 4 | Micron Technology | ~$200B | Multi-year |
| 5 | TSMC (U.S. expansion) | ~$100B | Multi-year |
| 6 | Amazon (AWS GovCloud) | Up to $50B | Begins 2026 |
| 7 | Alphabet (Google) | ~$75B | 2025–late 2020s |
| 8 | Microsoft | ~$80B | FY2025+ |
| 9 | xAI | ~$20B | 2026 |
| 10 | JPMorgan Chase | ~$18B | Annual / ongoing |
| | **TOTAL (Top 10)** | **≈ $2.1T+** | |

## How much has AI increased your revenue?


## How much has AI reduced your annual costs?


Source: NVIDIA

# Think of GenAI (LLMs) as....

A Person

A Creative

A Coworker

A Tutor

A Coach

A Researcher

# Think of Agentic AI (SLMs) as:

Connected Specialized AIs

Small Language Models

Specific Tasks

Communicate w/Each Other

Multi-Step Workflows

Autonomous!

# Agentic AI Use Cases

| Area | Agentic AI Firms | Impact |
|---|---|---|
| Operations optimization | AspenTech, Seeq, Fero Labs | Higher yield; fewer deviations; faster troubleshooting |
| Predictive maintenance | Siemens, Schneider Electric, AVEVA | Lower downtime; fewer unplanned shutdowns |
| Regulatory documentation | Honeywell, Emerson Rockwell Automation | Faster audits; lower admin burden |
| Supply-chain risk sensing | C3 AI, Palantir, DataRobot | Earlier disruption signals; better inventory decisions |
| R&D acceleration | Citrine Informatics,Uptake Microsoft (Industrial AI) | Faster formulation cycles; improved performance |

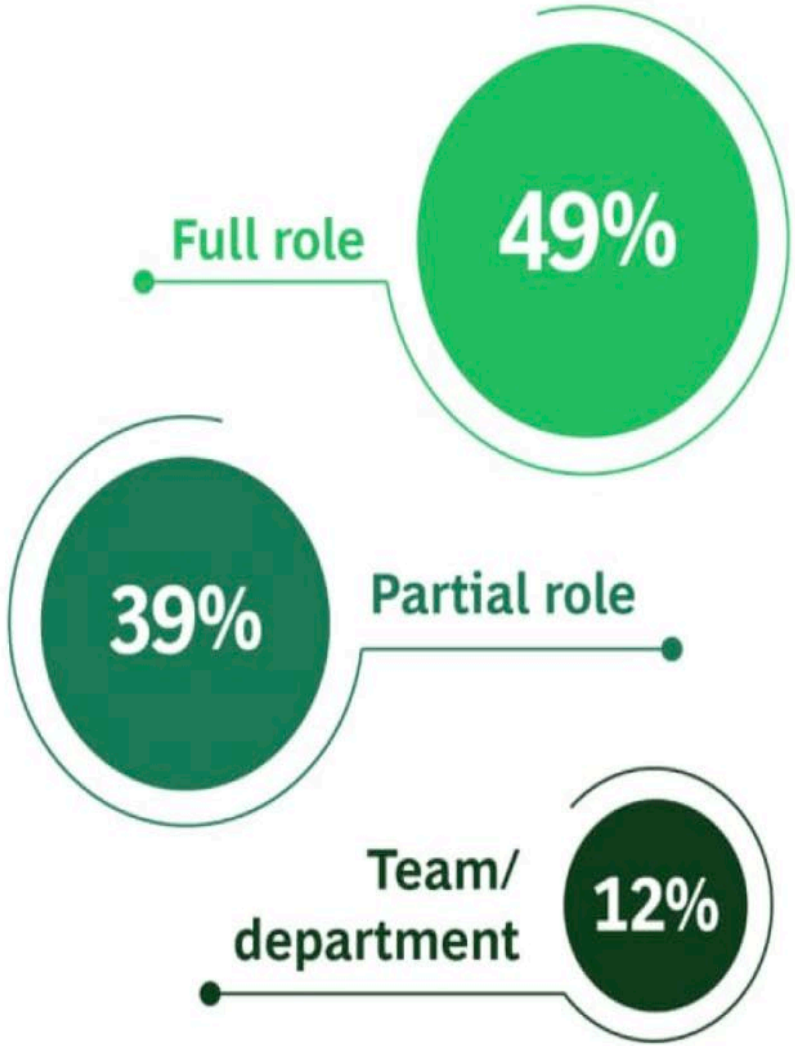
## Autonomous startups on the rise

**100+** Autonomous AI startups[1] (founded since 2022)

**$41M** Average total funding[2]

**120+** Different lead investors[2]

## Nearly half of autonomous startups target full-role replacement[3]




## About 3/4 of autonomous startups target functional automation


**Horizontal functional focus**
(on the same business function across industries)

**Vertical industry focus**
(on multiple functions in specific industry)

Source: BCG

# LT Question To Be Answered:

# How Will You Compete With An *AI-Only* Firm?

# Claude Code Eats SaaS

# Future Economy