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BY WILLIAM P. STERLING, PH.D.

Global Strategist

AMERICA'S PRODUCTIVITY RENAISSANCE: AI AND TIGHT LABOR MARKETS FUEL ECONOMIC TRANSFORMATION

- ▶ US productivity growth has surged to 2.4% annually over the past two years, with potential to accelerate further to match the 3% pace of the 1990s tech boom — a shift that could add \$7 trillion to GDP by 2034.
- ▶ Manufacturing investment has doubled recently, driven by semiconductor and battery production, while generative AI is being adopted twice as fast as previous technological revolutions like PCs and the internet.
- ▶ Persistent labor shortages are forcing companies to invest in automation and technology, with historical patterns suggesting this could sustain productivity growth at 2.7% annually over the next five years.
- ▶ Policy decisions on trade and immigration could significantly impact this productivity trajectory, particularly given the importance of global supply chains and high-skilled STEM workers for technological innovation.

HIGHLIGHTS

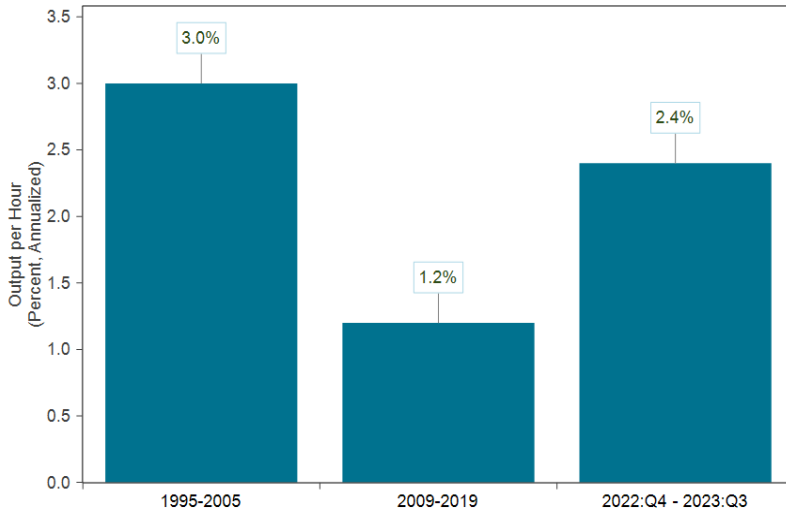
LABOR PRODUCTIVITY HAS SURGED

American productivity growth has quietly staged a remarkable comeback. After years of sluggish gains that puzzled economists and frustrated policymakers, US worker output is now expanding at its fastest pace since the dotcom boom, setting the stage for what could become a transformative period for the world’s largest economy.

Labor productivity has surged at a 2.4% annual rate over the past two years, according to the Bureau of Labor Statistics, with the potential to soon match the powerful gains seen during the internet revolution of the late 1990s (**Figure 1**). This renaissance comes at a crucial moment, as businesses grapple with persistent worker shortages and rapidly advancing artificial intelligence technologies.

FIGURE 1

Historical Perspective on the Recent Revival in Labor Productivity Growth



Source: GW&K Investment Management, BLS, and Macrobond

Despite the recent surge in productivity growth, it has still not caught up to the impressive 3.0% growth rate posted during the internet boom of the late 1990s and early 2000s.

The resurgence marks a sharp departure from the past decade, when productivity growth averaged just 1.2% annually — less than half the pace seen during the transformative 1995 – 2005 period that reshaped the American economy. The acceleration has profound implications for everything from inflation and wages to corporate profits and economic growth.

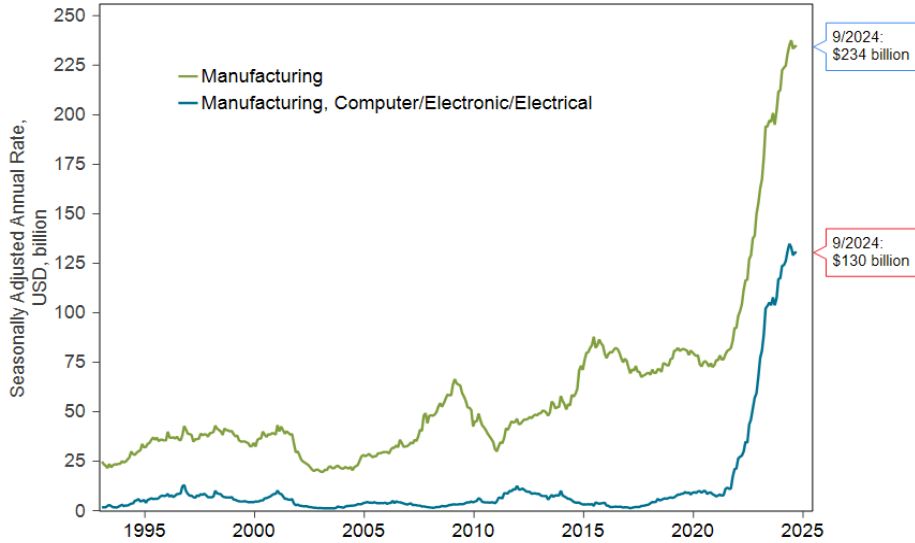
MANUFACTURING’S HIGH-TECH MAKEOVER

Behind the numbers lies a dramatic shift in business investment patterns. Manufacturing investment has doubled recently, with spending concentrated on electronics and electrical equipment production (**Figure 2**). Much of this surge has been catalyzed by federal legislation like the CHIPS Act and Inflation Reduction Act, which have incentivized domestic semiconductor and battery production.¹

¹Skanda Amarnath, “Breaking Out of Stagnation: US Productivity Growth Is Clearly Beating Pre-Pandemic Trends Right Now”, Employ America Blog, October 30, 2024

FIGURE 2

A Surge in Manufacturing Construction Continues: Private Nonresidential Construction



Sources: GW&K Investment Management, US Census Bureau, and Macrobond

US manufacturing investment has doubled recently, concentrated in electronics and electrical equipment production, supported by the Creating Helpful Incentives to Produce Semiconductors (CHIPS) Act and Inflation Reduction Act (IRA) legislation.

This surge, focused mainly on semiconductors, batteries, and related components, has largely offset the economic drag from housing market weakness.

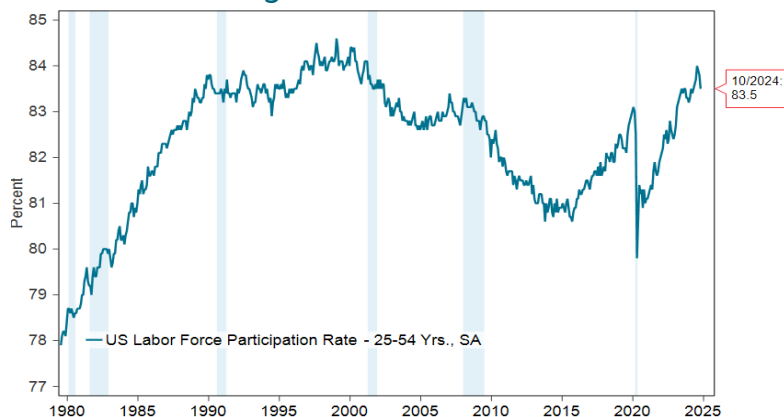
This investment boom has proven remarkably resilient even in the face of the Federal Reserve’s aggressive interest rate hikes, helping to offset weakness in the housing market. The focus on high-tech manufacturing suggests companies are betting big on automation and advanced technologies to boost output.

LABOR SHORTAGES DRIVE INNOVATION

The tight US labor market, reflected in historically high prime-age workforce participation, has become an unexpected catalyst for productivity gains (Figure 3). With workers scarce and wages rising, companies are increasingly turning to labor-saving technologies and processes.

FIGURE 3

Prime-Age Labor Force Participation Rate Remains Near a Multi-Decade High



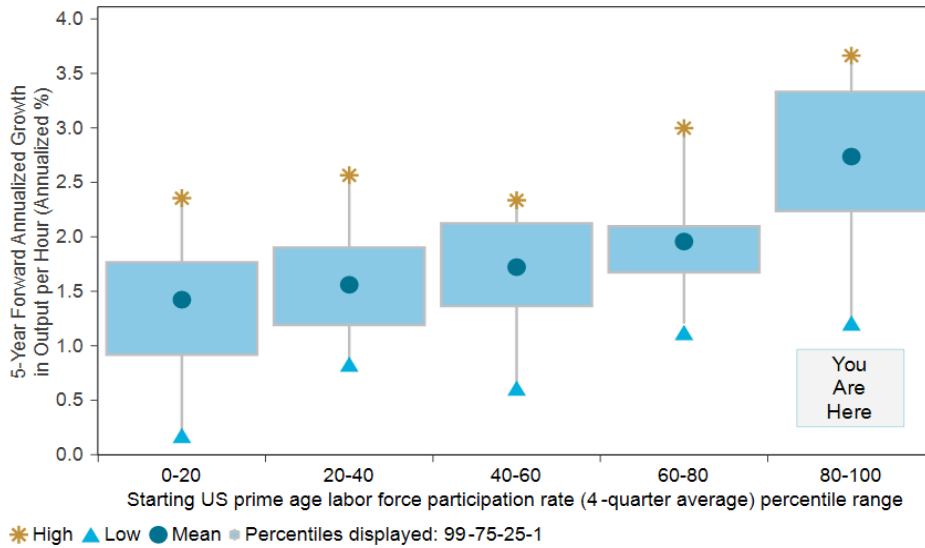
Note: Shaded areas denote NBER recession periods.
Sources: GW&K Investment Management, BLS, and Macrobond

The tight US labor market — reflected in a historically high prime-age labor force participation rate — has created incentives for firms to invest in labor-saving equipment and technology.

History suggests this could be the beginning of a sustained productivity boom. Previous periods of labor market tightness have typically been followed by robust productivity growth. Current conditions would be consistent with productivity growth averaging 2.7% over the next five years if historical patterns continue (**Figure 4**).

FIGURE 4

**High Prime-Age Employment => Higher Productivity Growth:
LFPR* vs Future 5-Year Productivity Growth (%)**



If history is any guide, the current high degree of labor market tightness would be consistent with future 5-year productivity growth averaging 2.7%.

THE AI ACCELERANT

While traditional investment and labor market dynamics are important, the rapid emergence of artificial intelligence technologies could supercharge productivity gains in ways previous technological revolutions haven't.

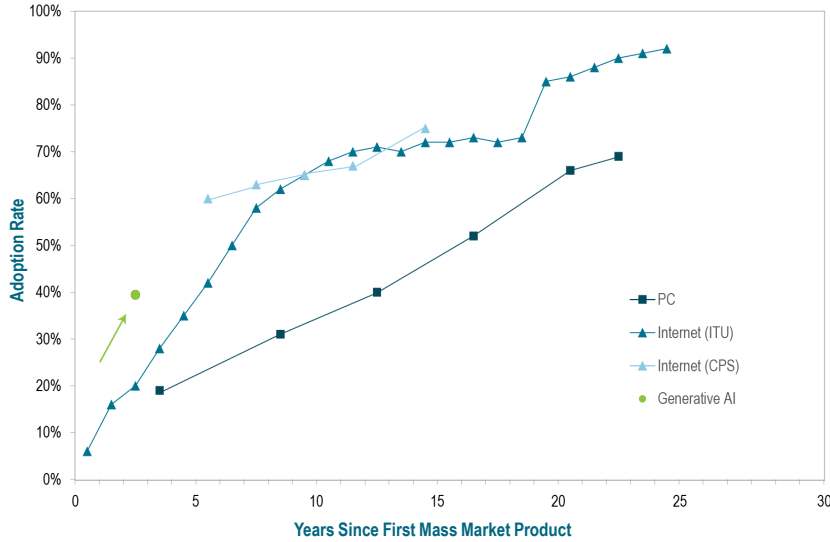
According to research from the Federal Reserve Bank of St. Louis, generative AI has achieved an adoption rate of nearly 40% within just two years of ChatGPT's introduction — far outpacing the adoption rates for revolutionary technologies like personal computers and the internet, which took years longer to reach similar penetration (**Figure 5**).²

Goldman Sachs estimates that widespread AI adoption could boost productivity growth in developed markets by about 1.5 percentage points, with measurable effects on GDP beginning to appear by 2027 (**Figure 6**).³ Their analysis suggests AI could ultimately automate about 25% of labor tasks in advanced economies.

²Alexander Bick, Adam Blandin, and David Deming, "The Rapid Adoption of Generative AI," On the Economy Blog, Federal Reserve Bank of St. Louis, September 23, 2024.
³Goldman Sachs Research, "AI Is Showing 'Very Positive' Signs of Eventually Boosting GDP and Productivity," Goldman Sachs Insights, May 13, 2024.

FIGURE 5

Adoption Rate of Generative AI at Work and Home vs the Rate for Other Technologies



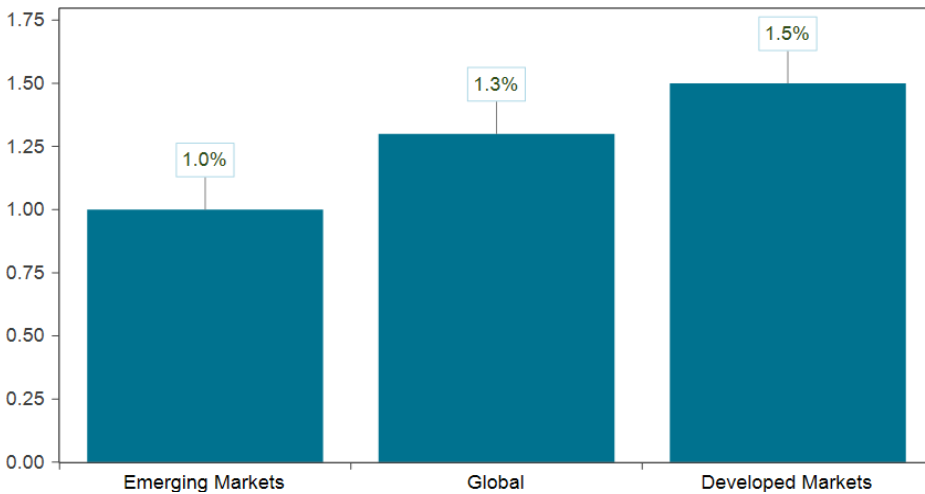
Source: Federal Reserve Bank of St. Louis

Generative AI has been adopted at a much faster pace than PCs or the internet, with an adoption rate of nearly 40% within two years of the introduction of ChatGPT.

Adoption of the PC three years after its mass introduction was only at 20%, about the same value as for adoption of the internet after two years.

FIGURE 6

Goldman Sachs’s Estimated Incremental Effects of Widespread AI Adoption on Annual Productivity Growth



Notes: Composites based on market FX GDP country weights. Estimates are not forecasts and represent stylized scenarios in which AI productivity gains are realized over a 10-year period following widespread adoption.
Source: Goldman Sachs Research

Goldman Sachs has estimated that widespread AI adoption could boost productivity growth in developed markets by about 1.5 percentage points, with measurable effects of GDP beginning to appear by 2027.

KEY RISKS TO THE PRODUCTIVITY RENAISSANCE

While the convergence of technological advancement and economic conditions has created fertile ground for a productivity boom, two significant policy risks could impede this transformation: trade restrictions and immigration constraints.

TRADE POLICY RISKS

Proposals for broad-based tariffs of 10% to 20% on America's trading partners, with higher rates for China, could significantly impact productivity growth. Economic research suggests that trade barriers often impede the reallocation of resources to more productive uses — a crucial mechanism for productivity growth.⁴ While targeted tariffs might have limited effects, widespread trade restrictions could disrupt the supply chains that support technological advancement and manufacturing investment.

IMMIGRATION AND INNOVATION

Immigration policy presents perhaps an even more direct challenge to productivity growth. Research indicates that high-skilled foreign workers, particularly in science, technology, engineering, and mathematics (STEM) fields, have been crucial drivers of US productivity gains. Studies show that foreign STEM workers accounted for 30% to 50% of aggregate US productivity growth between 1990 and 2010.⁵ Historical precedent from the 1920s immigration restrictions demonstrates how reduced immigration can constrain both labor and capital growth, ultimately dampening productivity gains.⁶

Particularly concerning would be policies affecting high-skilled immigration channels like H-1B visas, which have historically supported innovation in key technology sectors. While labor shortages might accelerate automation in some sectors, the net effect of severely restricted immigration could be negative for overall productivity growth.

ECONOMIC IMPLICATIONS

The interplay between these risks and opportunities will likely define the trajectory of US productivity growth. Under optimal conditions — with continued technological adoption and measured policy approaches — productivity growth could match the 3% rate seen during the last tech boom. This would generate profound economic benefits:

1. US GDP could approach \$50 trillion by 2034, approximately \$7 trillion above current projections (**Figure 7**).
2. Higher productivity growth could help reconcile robust wage gains with controlled inflation, promoting a lengthy business cycle expansion (**Figure 8**).
3. Increased tax revenues could help address fiscal sustainability concerns.
4. Market valuations could be supported by higher expected corporate profits.

Financial markets may play a stabilizing role in policy formation, as significant market reactions to restrictive trade or immigration policies could encourage more moderate approaches. However, the ultimate outcome will depend on how policymakers balance competing priorities.

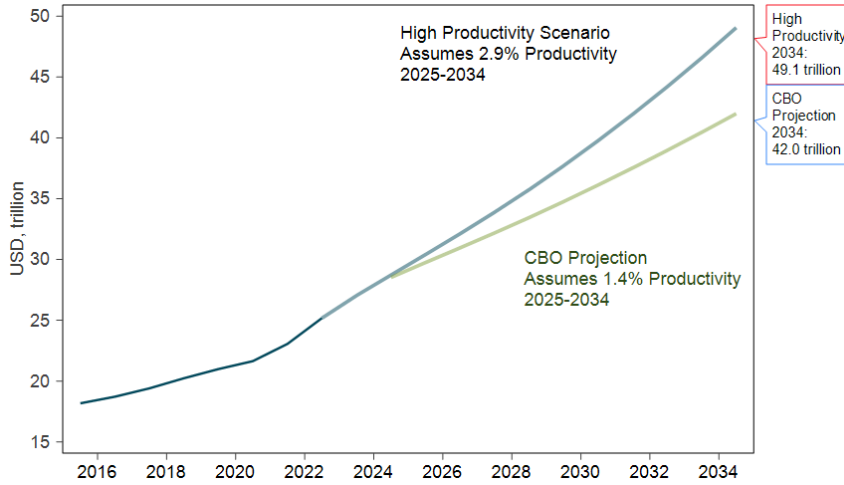
⁴Era Dabla-Norris and Romain Duval, "How Lowering Trade Barriers Can Revive Global Productivity and Growth," IMF Blog, June 20, 2016.

⁵Giovanni Peri, Kevin Shih, and Chad Sparber, "STEM Workers, H-1B Visas, and Productivity in US Cities," Journal of Labor Economics, Vol. 33, July 2015.

⁶Ran Abramitzky, et al., "The Effects of Immigration on the Economy: Lessons from the 1920s Border Closure," National Bureau of Economic Research, Working Paper 26536, December 2019.

FIGURE 7

High Productivity Scenario Generates \$7 Trillion Larger US Economy by 2034



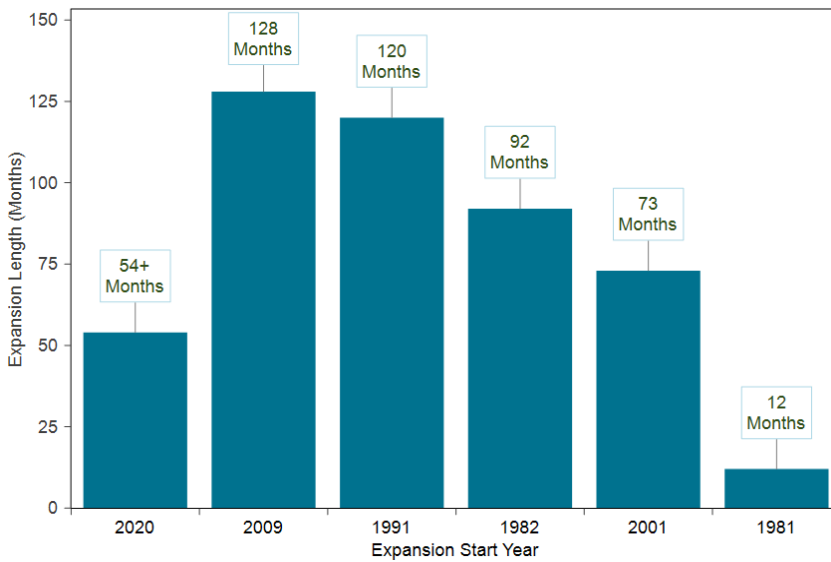
Note: The CBO's projection of potential US GDP is based on CBO, "The Budget and Economic Outlook: 2024 to 2034, February 2024."
Sources: GW&K Investment Management, CBO, and Macrobond

An additional 1.5 percentage points of productivity growth over the next decade could generate annual US GDP of nearly \$50 trillion by 2034, more than \$7 trillion larger than the Congressional Budget Office anticipates.

The high-productivity scenario, which basically replicates what the US experienced from 1995 to 2005, would cumulatively generate roughly \$100,000 extra GDP per person over that period.

FIGURE 8

Length of Expansions



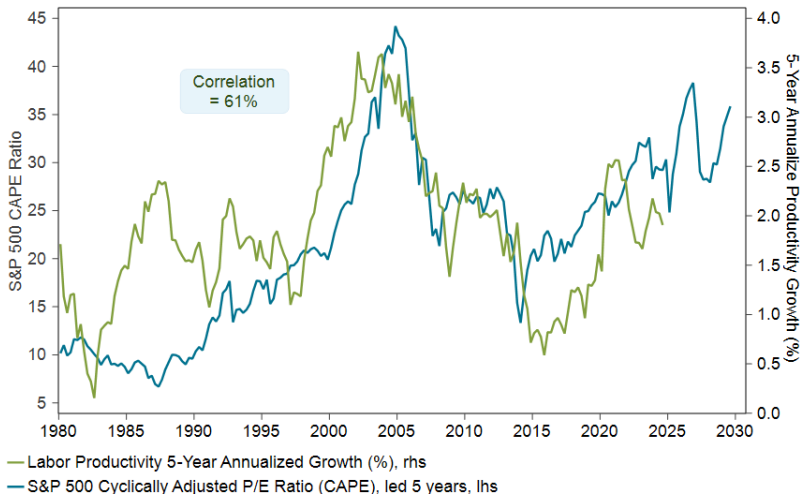
Sources: GW&K Investment Management, NBER, San Francisco Federal Reserve, and Macrobond

The current economic expansion, which began in April 2024, is still short relative to many of the expansions the US economy has experienced since 1980.

High stock market valuations have historically preceded periods of accelerated productivity growth (Figures 9 and 10). This relationship suggests that market valuations may serve as a leading indicator of productivity trends — and conversely, that policies which dampen market valuations could foreshadow weaker productivity growth. This historical pattern reinforces the potential feedback loop between policy decisions and economic outcomes.

FIGURE 9

S&P 500 Cyclically Adjusted P/E Ratio (CAPE) vs Future Trend Labor Productivity Growth

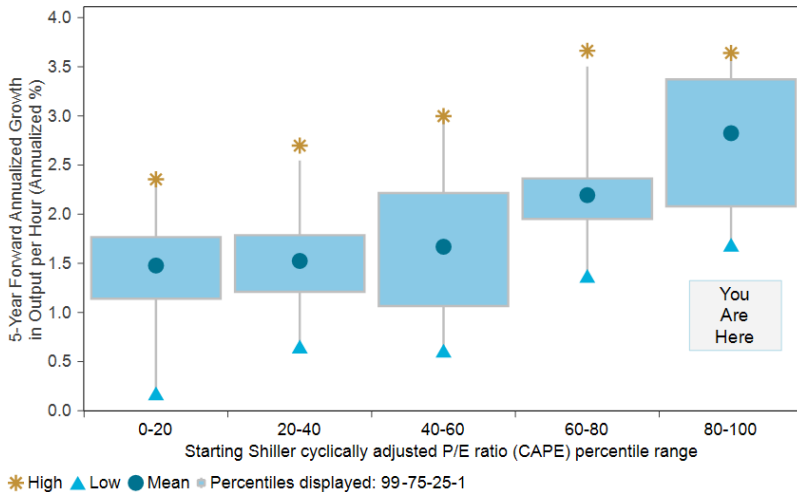


Sources: GW&K Investment Management, BLS, S&P Global, and Macrobond

High stock market valuations, as reflected in the Shiller P/E ratio, have historically tended to be followed by higher rates of labor productivity growth.

FIGURE 10

High S&P 500 CAPE Ratio => Higher Productivity Growth: Shiller P/E vs Future 5-Year Productivity Growth (%)



Note: Analysis is based on data from 1975-2024.

Sources: GW&K Investment Management, BLS, and Macrobond

If history is any guide, the current high level of US stock market valuations would be consistent with future 5-year productivity growth averaging 2.8%.

CONCLUSION

The current productivity renaissance represents a rare confluence of technological advancement, business investment, and economic conditions. While potential policy headwinds exist, the fundamental drivers — particularly AI adoption and manufacturing modernization — remain powerful. The key to sustaining this productivity boom will likely lie in maintaining an economic environment that supports innovation while managing policy transitions carefully to preserve productivity-enhancing forces.



William P. Sterling, Ph.D.
Global Strategist

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www.gwkinvest.com



Boston Headquarters
222 Berkeley Street
Boston, Massachusetts 02116
617.236.8900

Other Locations
New York, New York
Winter Park, Florida