



IMPORTANCE OF PRODUCTIVITY

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About the author:

Mike Halloran serves as an Equity Strategist in Janney's Investment Strategy Group. Bringing over 25 years of financial service experience to Janney's established team of professionals, Mike analyzes all asset classes with particular emphasis on equity research.

Productivity is critical for economic growth, corporate performance, and higher living standards. We see several key factors that could sustainably boost U.S. productivity in the coming years. We discuss these factors, their impact on major sectors of the economy, and the resulting investment implications in this piece.

Higher productivity is critical for sustainable economic growth and is directly linked to higher living standards—a highly productive workforce is well positioned for higher compensation, and ultimately better living standards.

The potential growth rate of an economy is governed by two major factors:

- 1) **Labor force growth**—how many workers are available to produce goods and services, and
- 2) **Productivity**—how much output can the labor force generate from the economy's assets?

Productivity-induced higher wages and living standards are important drivers of future demand for goods and services. Consequently, higher productivity is critical for both the supply and demand side of an economy.

Higher productivity puts downward pressure on unit labor costs (compensation gains minus productivity growth), which ultimately results in lower inflationary pressures.

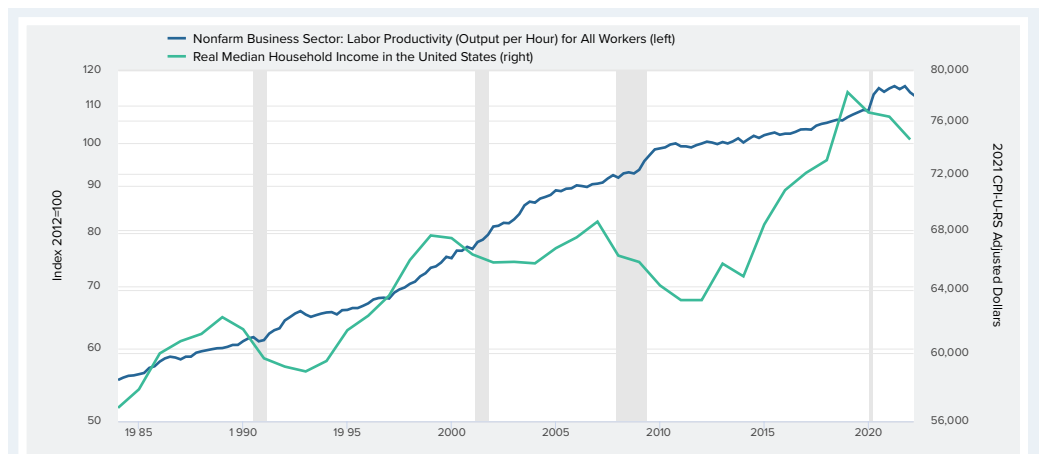
This gives the Federal Reserve flexibility on interest rates and is a major driver of prolonged economic expansions.

Studies also show high-productivity firms' stock prices outperform low-productivity firms (more on this below).

FUTURE ECONOMIC GROWTH FACES CHALLENGES

The Congressional Budget Office economic projections show the economy's potential output is projected to grow much more slowly, on average, over the next decade than it did in the second half of the 20th century, mainly because of an ongoing, long-term slowdown in the growth of the labor force as well as slower growth of productivity as shown in Figure 2. With little ability to control the effects of an aging population on the growth of the labor force, increasing productivity becomes the main driver for future economic growth.

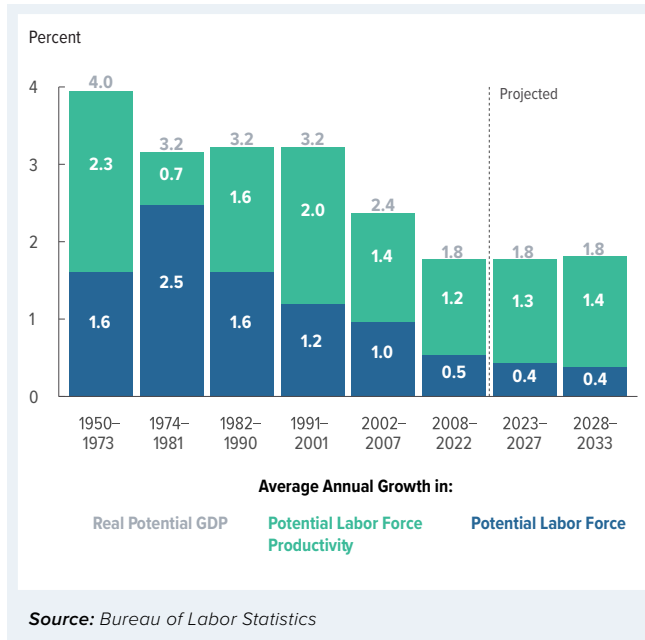
Figure 1: Household Income Ultimately Follows Productivity



Source: U.S. Bureau of Labor Statistics; U.S. Census Bureau

With a current unemployment rate below 4%, over nine million job openings, and significant numbers of baby boomers retiring every day, productivity improvement is all the more needed to offset tight labor market conditions.

Figure 2: Growth of Real Potential GDP and Its Components



RECENT PRODUCTIVITY TRENDS

Since World War II, productivity has added 2.2% annually to economic growth, significantly contributing to the 1.7% annual gain in real incomes.

Ever since the recovery from the 2008 financial crisis, productivity has been persistently low, averaging just 1.4% over the past 15 years, even as incredible advances in digital technology put a supercomputer in everyone’s hands. The recovery from the pandemic has also brought productivity challenges, including supply chain problems and workers leaving the labor force.

Challenges going forward include developing the required skilled labor, broadening technology adoption, and increasing investment in a higher interest rate environment. Shifting geopolitical dynamics and the energy net-zero transition introduce new complications that make productivity growth more important than ever.

Returning U.S. productivity to its long-term trend of 2.2% annual growth would add an estimated \$10 trillion in cumulative GDP over the next 10 years. This is equivalent to every U.S. household seeing a cumulative income gain of \$15,000 over that period.

Fortunately, the U.S. remains an innovation leader, and we see digitization, robotics, and artificial intelligence (AI) as major factors that can result in sustainably higher productivity in the coming years, to the benefit of the U.S. economy and its workforce.

TAX REFORM HAS IMPORTANT PRODUCTIVITY IMPLICATIONS

Business investment is a key driver of future productivity growth. The last productivity boom coincided with significant increases in business investment. The primary focus of the Tax Cuts and Jobs Act, which passed into law in late 2017, was structural changes to the business side of the tax code.

The corporate tax rate, which was the highest in the industrialized world, decreased from 35% to 21%. This provision makes the U.S. much more competitive in attracting global investment and keeping existing investment— incentivizing investment in the U.S. and taking away the incentive for moving corporate headquarters and research facilities to lower-tax countries.

DIGITIZATION — A DRIVER OF FUTURE PRODUCTIVITY GAINS

The last period of high productivity occurred in the late 1990s to early 2000s timeframe. It was driven by the personal computer, software, and the database system information technology (IT) revolution. The IT revolution enabled the efficient restructuring of domestic corporate operations and global supply chains and resulted in significant productivity gains.

The past 15 years of low productivity included the aftermath of the financial crisis and pandemic. Productivity suffered from weak demand, uncertainty, excess capacity, and a bust in finance, real estate, and construction—in addition to the waning of the IT revolution—in the aftermath of the financial crisis. The aftermath of the pandemic included supply chain problems and workers leaving the workforce. Fortunately, we see many of these productivity drags fading and see digitization as a key enabler of higher productivity in the coming years.

Mobile computing, automation, robotics, big data, and the ability to analyze data using AI and machine learning are all important aspects of digitization. McKinsey Global Institute, a leading think tank for corporate America, estimates that overall productivity could sustainably reach over 2%, with more than half the gains coming from digital opportunities.

McKinsey estimates that the U.S. operates at only a fraction of digital potential, with large sectors lagging—suggesting significant future opportunities for improvement.



MAJOR DIGITIZATION ENABLERS:



AI • CLOUD COMPUTING • 5G • INTERNET OF THINGS



Artificial Intelligence:

AI is the development of computer systems that are able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. AI is different from traditional software programs in that it extracts knowledge from data and can alter its behavior (or learns) without specifically being programmed, i.e. machine learning.

Advanced data analytics and AI have demonstrated significant potential for transforming business models and disrupting industries. This has significant investment implications. While every sector of the economy is being impacted, we see the benefits far outweighing the disruptions. Advanced data analytics and AI are critically important for future productivity gains.



Cloud Computing:

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale. Users (corporations, governments, or individuals) typically pay only for cloud services they use, helping lower operating costs, run infrastructure more efficiently, and scale as business needs change.

The secular shift to cloud computing is occurring because of the many demonstrated benefits. It is reducing the cost of buying hardware and software and maintaining on-site data centers. Users have the ability to quickly scale up operations and operate in diverse geographic regions. Cloud service providers offer improved performance, regularly upgrading to the latest generation of computing hardware. Service is also offered on demand; vast amounts of computing resources can be provisioned in minutes, giving businesses increased flexibility and taking the pressure off capacity planning.

Major cloud providers offer a broad set of policies, technologies, and controls that strengthen security, helping protect data, apps, and infrastructure from potential threats. Reliability is enhanced because data can be mirrored at multiple redundant sites on the cloud provider’s network. Cloud computing removes the need for many routine IT tasks, so IT teams can spend time on achieving more important business goals.



5G:

The fifth generation of mobile communication networks, or 5G, is bringing faster, more reliable cellular and internet connections—similar to previous generations. Data transfer speeds are projected to be about 10 times faster with 5G than is possible with 4G. That means significantly faster transmission of images and videos. With 4G/LTE, downloading a high-definition movie might take about 10 minutes. With 5G, it can take less than a second.

Latency time, the brief lag in time from when data is sent to when it is received, is being reduced with 5G. While this helps watching high-speed virtual reality video with no delays or glitches, this real-time connection has important implications for industrial automation. 5G cell towers will also have greater capacity that will enable more devices to communicate at the same time.

The combination of speed, responsiveness, ultra-reliability, and greater connectivity will help unlock the full capabilities of other important productivity-enhancing technologies, offering benefits to self-driving cars, drones, robotics, the Internet of Things ecosystem, and virtual reality health care (including remote surgery).



Internet of Things:

Companies in manufacturing, energy, and many other industries are investing in digitizing their extensive physical assets, resulting in smart factories and buildings, connected cars, and intelligent oil fields.

CORRELATION BETWEEN PRODUCTIVITY AND DIGITIZATION

McKinsey Global Institute research shows a strong correlation between digital adoption and productivity growth, with a 70% correlation between a sector's productivity growth and their level of digitization over the previous 30 years.

Sectors with leading productivity growth, including information technology, communication services, and finance, are also among the most digitized sectors in the U.S. economy. Sectors with lagging productivity growth, including health care, construction, transportation and warehousing, and hospitality, tend to adopt technology more slowly than the highly productive sectors.

There are also wide gaps between the most and least productive firms within each sector. The most productive firms tend to be larger, more connected to global value chains, and focus on technology-intensive aspects of their sectors. Research suggests these leading firms invest over 2.5 times more in technology and other intangibles such as research and intellectual property and attract and invest in more skilled talent. Fortunately, there are many future productivity-enhancing opportunities for all sectors (discussed below).

CORRELATION BETWEEN STOCK PERFORMANCE AND PRODUCTIVITY

Research by Cornerstone Macro, an economic and investment research firm, shows firms with high productivity growth outperform low productivity firms. This study proxied productivity with value-added per employee, with value-added defined by sales minus cost of goods sold (a profitability measure). High-productivity firms outperformed both across industries and within them. The high-productivity firms (measured by the top quintile of the S&P 1500 stock index) generated an average return of 17%, while low-productivity firms (measured by the bottom quintile) returned only 9%. This clearly demonstrates the need for and importance of improving firm productivity.

We see many industries that have opportunities to increase productivity. The table below summarizes the productivity-enhancing opportunities across industries using digitization and other techniques. Firms that are digital leaders have experienced much success and should remain well positioned for future success. While many industries can benefit from greater efficiencies due to digitization, many internet, software, IT services, and semiconductor firms benefit as digitization enablers and remain well positioned for future success.

Please contact your Janney Financial Advisor for additional details and specific investment ideas.

Figure 3: Industries Benefitting from Productivity Enhancing Opportunities

Industry	Productivity Enhancing Opportunities
Internet	Internet companies, as pure digital entities, have taken the lead in both generating big data and utilizing AI to analyze it. They are also leaders in cloud computing and are benefitting from 5G development.
Software & Information Technology Services	Many of these firms are well positioned to capture future technology spending that needs to take place by all industries. Software and semiconductors provide the building blocks for digitization.
Banking & Finance	AI will enable automated trading & investment, trading strategies, robo-advisors, voice-based commerce, customer behavior analysis, chatbots for customer services, identity verification, and fraud detection. Opportunities also exist for compliance, branch consolidation, digital wallets, and mobile and online banking. Blockchain is also a promising technology for this industry.
Insurance	Claims management and fraud detection, analyzing customer behavior and reducing revenue churn, automated underwriting, pricing, conversational platforms for customer services, complying with regulations, and trading strategies.
Health Care	Digitization is enabling many opportunities: diagnostics, image analytics for early disease detection, drug discovery, patient monitoring (pre-emptive warning systems), personalized medicine and treatment. Robotics is also improving surgical outcomes.
Media & Communications	Customer analytics, forecasting and customer demand trends, video analytics, computer vision interactivity (e.g. in video games and other immersive media).
Manufacturing, Mining, Oil & Gas Extraction	Advanced robotics, 3D printing, predictive maintenance, machine learning driven insights for yield improvement, and optimization are all promising opportunities. Oil & Gas industry has been a major beneficiary of digitization and other advanced technologies with significant productivity gains.
Retailing & E-Commerce Retailers	Digitization is enhancing: Customer analytics, forecasting, anticipating demand trends, reducing revenue churn, supply chain management, warehouse automation, chatbots for customer services, conversational commerce. Goods handling with robotics/drones. Secular shift to online retailing is driving many productivity opportunities.
Supply Chain Management	Warehouse automation including robotics, inventory management based on insights gleaned from demand analytics, autonomous delivery.
Transportation	Connected cars, self-driving vehicles, advanced driver assistance systems, personalized content delivery / productivity enhancement tools used by providers of transportation services represent promising opportunities.
Utilities	Enhanced supply-demand management based on AI-driven analytics, predictive maintenance, dynamic pricing based on consumption analytics (provided by smart meters, for example), chatbots for customer service. Drones for inspection. Energy storage using advanced battery technology.
Government	Smart surveillance, threat detection, smart cities and utilities, AI-enhanced and personalized education and training, chatbots for information distribution and citizen engagement.

Source: Janney ISG, Gartner, Capgemini, McKinsey Global Institute.

DISCLAIMER

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