



Growing Concerns About Future U.S. Competitiveness

Quarterly U.S. Productivity and Innovation Snapshot

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Introduction

Productivity growth—the rate at which firms raise the quantity and quality of the stuff they make during a given amount of work in, say, an hour along with other given inputs—determines how much our standard of living will increase over time. Productivity growth is also a crucial determinant of U.S. competitiveness in the global marketplace. Higher productivity means U.S. companies are able to sell more globally—producing more and better products than their competitors with their given inputs, workers, factories, office buildings, computers, and so on.

Productivity growth also is closely tied to the pace of business investment in things like commercial construction, such as factories and office buildings; in equipment, such as assembly lines and computers; and in software and other innovations. All of these types of investments lead to productivity growth, and productivity growth leads to increases in our standard of living in the long run.

As the U.S. economy climbs out of the Great Recession, several economic trends raise concerns about the future outlook for U.S. productivity growth. First, productivity growth is already below the average rate of growth that has historically been recorded 39 months after a business cycle started. It is much harder to accelerate productivity growth than to maintain a significant growth rate, so the current below-average performance poses a challenge for businesses and policymakers alike.

Second, business investment, especially in factories and other commercial real estate, continues at a slow pace, unlike other business cycles when business investment surges after the end of the recession drove strong economic and labor market recoveries. The rate of business investment in this business cycle, from December 2007 to March 2011, barely keeps pace with the depreciation of existing capital. Businesses are spending most of their investment dollars just to replace obsolete equipment and rebuild outdated factories and office buildings. The capital base of U.S. industries is hence barely growing, which makes it harder to increase productivity growth in the future.

And the data clearly indicate that businesses have sufficient funds to finance more investment but would rather use those funds for other purposes. Nonfinancial corporations are sitting on large piles of cash, with many using all of their profits and more to support the price of their shares through dividend payouts and share repurchases.

Third, the poor performance of business investment raises questions about the effectiveness of banks and other financial institutions to channel financial resources from savers into economically productive uses, as opposed to speculation and executive compensation. The financial system as a whole is not providing incentives for real investment, and the venture capital industry is directing fewer resources to early-stage startup companies.

The consequences of these developments are plain to see. The U.S. high-tech trade deficit is widening once again, which suggests that the U.S. high-tech manufacturers are losing ground in the global marketplace despite the increasing international competitiveness of the dollar that helps make U.S. exports cheaper than would otherwise be the case. And although our economy continues generating new intellectual properties, U.S. entities are falling behind the pace of patent grants.

This and other data point to substantial challenges ahead to U.S. economic productivity growth and thus long-term prosperity. Policymakers must pay more attention to buttressing these weakening factors to ensure robust future productivity growth and rising living standards while making sure that those that are doing well right now don't fall behind. This snapshot of U.S. productivity makes that case.

The numbers tell the tale

Productivity growth lags behind previous business cycles

Productivity growth typically increases during a recession and early in a recovery. Inefficient businesses are the first ones to fail when sales falter, and businesses face greater pressures to find new ways to stretch their resources when finances are tight. Productivity growth slowed to 1.6 percent in the first quarter of 2011. For the first 13 quarters of this business cycle, from December 2007 to March 2011, productivity growth totaled 8.5 percent, below the average of 9.7 percent for the previous eight business cycles lasting at least three years.

Investment drives productivity growth

There is a systematic relationship between business investment and productivity growth over the long run. Productivity growth follows business investment with a lag of almost two decades. Figure 1 shows this long-run relationship between investment and productivity growth in the U.S. economy.

The red line plots the five-year rolling average productivity growth rate to eliminate spikes that are caused by temporary factors. The blue line shows a five-year rolling average investment rate as a share of gross domestic product but it is lagged by 17 years. That is, any point on the horizontal axis shows the contemporary productivity growth and the investment rate from 17 years before. The relationship is clear: Past investment leads to higher productivity growth in the future over the long run.

Investment is at lowest level in four decades, barely outpacing depreciation

Business investment has averaged 10.3 percent of gross domestic product in this business cycle, from December 2007 to March 2011. This is the lowest average for any business cycle since the 1970s.

What's more, investment is barely keeping pace with capital depreciation. Net investment (investment minus depreciation) has averaged 1.5 percent of GDP in this business cycle, between December 2007 and March 2011. This is the lowest level since the 1940s and a little more than half of the next lowest average, 2.5 percent, that was recorded from March 2001 to December 2007.

Low investment is not due to the cost or availability of capital. Interest rates on corporate AAA bonds stand at just more than 5 percent, the lowest persistent interest rates since 1966. And the nonfinancial business sector held almost \$1.9 trillion in cash at the end of 2010, totaling 7 percent of total corporate assets—the highest level since the fourth quarter of 1963.

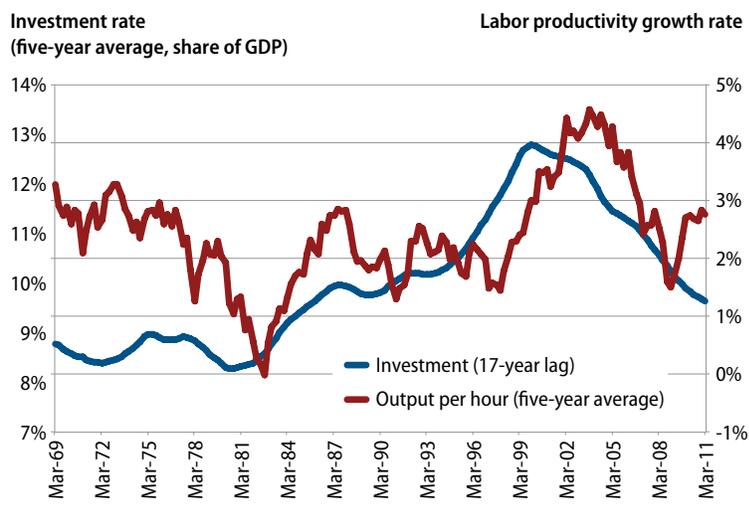
Rather, a recent [Federal Reserve survey](#) indicates that demand for bank loans from businesses remains weak. New loan demand in fact seems more focused on financing mergers and acquisitions rather than productive investment in factories or equipment.

Businesses prioritize financial over nonfinancial activities

The concentration of the financial sector in our economy is more pronounced today as the nonfinancial keeps investment and hiring at comparatively low levels, again highlighting that slow investment is not a result of credit constraints for most large businesses. The financial sector of our economy expanded from 16 percent of gross domestic product in 1980 to 21 percent in 2007 and 22 percent today. And financial-

FIGURE 1
Productivity growth falling short

Past investment to gross domestic product, with a 17-year time lag, and current productivity growth



Source: Author's calculations of BEA and BLS data.

sector profits in the first quarter of 2011 are up an estimated 56 percent since the start of the Great Recession in December 2007, while nonfinancial business investment is lagging behind other business cycles.

The imbalance between the financial and the nonfinancial sectors' performance coincides with an increasing transfer of profits from the nonfinancial corporations to financial investors. Nonfinancial corporations spent an average of 28 percent of after-tax profits to pay out dividends and repurchase stock shares—activities that help boost the value of shareholders' assets—in the 1970s business cycle expansion. Today, nonfinancial corporations are spending 119 percent of profits on dividends and share buybacks in the current business cycle, in many cases borrowing money to increase the rate of return to shareholders rather than to invest in office buildings, factories, machinery, computers, and software, among other items.

Venture capital flatlines, remains well below pre-recession levels

The level of venture capital funding—which plays a key role financing the development and expansion of innovative new businesses—stood at \$24.9 billion over the four quarters through March 2011—basically flat for the past year. VC funding levels are nearly \$10 billion off their recent peak in the first quarter of 2008 as the U.S. economy slipped into recession, and 28 percent below pre-recession levels despite rapidly rising financial-sector profits. At the same time, the number of VC investment deals closed slowed to 736 in the four quarters through March 2011, down from a recent peak of 4,246 in June 2010.

Slackening VC funding is hitting hardest the development of emerging companies. While the pace of VC funding is not expanding with the growing U.S. economy, the share of VC funding allocated to seed- and early-stage investments is declining slightly, too, from one-third of total VC funding to 31.6 percent.

VC appetite for clean-tech investment bucks trend

Despite slackening venture capital funding overall, investor appetite for clean-technology investments expanded apace. After dipping to \$2.3 billion in the four quarters through December 2009, VC funding to the clean-technology sector expanded to \$4.1 billion in the four quarters through March 2011, up 33 percent over pre-recession levels.

High-tech trade balance deteriorates sharply

The U.S. trade deficit in advanced technology goods worsened sharply in 2010 despite a lower dollar and increased overseas economic growth. Export growth of high-tech goods continued to be strong, up 7.2 percent in inflation-adjusted terms for the

12 months ending in November 2010. U.S. high-tech imports—already larger—were up 15.9 percent at the same time. Yet the advanced technology trade deficit worsened to \$82 billion in 2010. This was the largest noninflation-adjusted deficit on record, an increase of 46 percent from 2009 and 32 percent above the deficit in 2007—the last year before the Great Recession.

What's more, the advanced technology deficit continued at a high level in 2011 with a total of \$13 billion, reflecting a similar deficit pace as in 2010. The high-tech trade deficit amounted to 20 percent of the total U.S. trade deficit in the fourth quarter of 2010, indicating that the high-tech trade imbalance contributed more to the total U.S. imbalance than any earlier time on record, dating back to 1989. The high-tech trade deficit also amounted to 0.7 percent of GDP in the fourth quarter of 2010, the largest-such share on record.

Domestic innovation rebounds but foreign innovation leads

Utility patent grants in the United States—those granted for the invention of “new and useful” or material improvements of processes, machines, or materials—rebounded strongly in 2010. The U.S. Patent and Trademark Office granted 219,614 patents in 2010, a jump of 40 percent from recession-year lows in 2008.

Both Americans and foreigners can apply for patent rights under U.S. law, and those top line numbers mask the fact that foreign entities are outpacing U.S. patent awards. In 2010 the share of patents granted to U.S. entities fell to 49.1 percent—its lowest share in nearly 50 years of recorded data—continuing a 15-year-long slide.

Data sources

“Labor Productivity and Costs,” available at <http://bls.gov/lpc/>.

Bureau of Economic Analysis, *National Income and Product Accounts* (Department of Commerce, 2011), Table 1.1.1. Interest rates from: “Federal Reserve Statistical Release H.15 - Selected Interest Rates; Historical Data,” available at <http://www.federalreserve.gov/releases/h15/data.htm>. Cash holdings from: “Federal Reserve Statistical Release Z.1 - Flow of Funds Accounts of the United States,” available at <http://federalreserve.gov/releases/z1/Current/accessible/default.htm>.

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