

The Economic Outlook - Technology on the Horizon

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Introduction

It is a pleasure to be with the New Jersey Technology Council to discuss the economy and the important role technology plays in determining the course of economic activity in the U.S.

Tonight, I would like to address several issues central to this theme. Specifically, I will begin with a quick review of the role business spending has played in the tumultuous past decade, explaining why technology and business spending on technology is so central to this story. Then I will look to the future to argue that this type of business spending is pivotal to both economic growth and our long-term welfare.

Let me begin by looking back

The past decade has been marked by volatility and change. First, surging stock prices and corporate expansion resulted in the greatest bull market in post-war history. Then in 2000, following nearly 10 years of substantial growth, signs of an economic slowdown became apparent. A significant drop in business investment spending was a key ingredient. The subsequent tech contraction, brought about by a precipitous decline in business spending, led to both employment and confidence declines. It left many investors at a loss, both literally and figuratively. It also resulted in the death of the dot-com frenzy and helped drive the economy into recession.

The recession officially started in March 2001 according to the National Bureau of Economic Research, the authority on such measurements. But the economy's weakened condition was made worse by the events surrounding September 11th. This, coupled with recurring reports of corporate corruption, has led to economic growth at sub par levels, and a labor market that has been unacceptably weak. It has also led to an environment filled with uncertainty, leading firms to defer and delay spending that would otherwise spur the economy into a more robust recovery.

Nonetheless, throughout this period, stimulative monetary and fiscal policies have mitigated the impact of the recession, and continued consumer spending has kept the recovery mild continued to increase. As a result, in terms of economic growth, this recession has been one of the shallowest in post-war history.

In fact, through it all, the U.S. economy has proven remarkably resilient. GDP growth has averaged just under three percent for the last four quarters for which we have data, and growth has been positive in every quarter since 9/11.

More recently, however, the economy has hit a soft spot with dampened retail sales, reduced consumer confidence, and continued stagnation in the manufacturing sector. The likely result will be fourth quarter output growth significantly lower than that achieved over the preceding year.

Still, as we look forward, growth seems likely to accelerate. Expansionary monetary and fiscal policies appear well positioned to pave the way. Interest rates are currently at 40-year lows and fiscal policy is decidedly expansionary. Plus, more fiscal stimulus appears to be in the pipeline.

These measures, combined with the normal dynamics of the economic cycle itself --- the exhaustion of excess inventories and a slowdown in layoffs and corporate restructurings that come with recessionary periods --- point to a positive outlook for the economy this year. Many of the conditions necessary for a return to significant growth have begun falling into place: Productivity has remained high, profits are improving, and some surveys suggest businesses may be ready to resume spending. But problems remain.

Manufacturing has yet to rebound to any significant extent, and the growth in employment has thus far been elusive.

On net, I see 2003 as a year of moderate growth, but more important, a year over which the recovery gains real momentum, and the U.S. positions itself for a period of sustained expansion in the years ahead.

Despite these encouraging signs, there are risks. Businesses have not been deploying cash as quickly as we would like, to a large degree because of the uncertainty I referred to a moment ago. Geopolitical risks, such as the threat of war with Iraq, tensions over North Korea, and terrorism, have added to the list of business concerns. These factors continue to leave businesses reluctant to invest, so they may delay further. Yet over time, some of these uncertainties are likely to fade. Others will be taken in stride as businesses begin to accept that they are now part of the economic landscape.

The role of technology in the longer term

As we peer beyond the cyclical recovery into the longer run, it is important to recognize that technology is a crucial part of our future economic outlook.

Throughout this cycle, technology has had and will have a lasting impact on the U.S. economy. One of the salient features of the economy's performance over the past decade is the accelerated growth in overall productivity. Innovations in information and telecommunications technology are widely credited with causing this acceleration. Stated simply, the revolution in information technology has altered the way the American economy works.

Comparisons have been made between the turn of the 20th century and the arrival of the 21st --- suggesting that the digital age, like the industrial age, has allowed for prosperity at a cheaper price. Technological advancements have meant faster, more efficient production and lower costs.

In the boom of the 1990s, assessments of the profitability of high-tech investments were often overly optimistic. The recent experience sobered, even shocked some people. Even now, many industries still have excess production capacity, and therefore, see little incentive to invest in more technology.

Yet, many firms remain under intense pressure to invest in more and better technology to increase efficiency and improve their bottom line. As a result, this year's expected demand growth should lead to some new capital investments. The acceleration in demand for equipment and software will be gradual at first, but will strengthen as the recovery gains traction. As recovery and expansion boost this demand, businesses will invest in new technologies to expand capacity and get into new lines of business.

Firms operating in today's low-inflation, high-competition global economy will see technology as a critical part of virtually every business model.

Will the higher rate of productivity growth be sustained?

As a result of this dynamic, productivity growth will likely remain elevated because the technological innovations that kicked off faster productivity growth have not yet been fully exploited economically.

This is good news for the U.S. economy. Productivity growth is a fundamental determinant of the economy's potential for long-run economic growth. Improving productivity means advances in living standards for the average American.

In the 1990s, the combination of cheaper semiconductors, new networking technologies, and advanced communications software generated rapid growth in information processing power. This boom in tech investment contributed to a surge in productivity. Labor productivity in the U.S., which remained at 1.4 percent in the two decades pre-1995, skyrocketed to 2.4 percent in the five years from 1995 to 2000.

The acceleration in labor productivity after 1995 was driven by the rapid efficiency gains in both the production of IT goods themselves and the use of IT capital goods in other sectors of the economy. Combined, the influences of high-tech investments - use and production - fully account for the acceleration in productivity in the late 1990s.

And despite the cutbacks in spending on new IT investments since 2000, new technology continues to contribute to productivity growth. This is evidenced by the fact that, despite cutbacks in spending on new IT investments, strong productivity growth has continued throughout the recent recession, and thus far in the recovery. In fact, labor productivity grew by 5.5 percent over the year ending in the third quarter of 2002, its fastest rate since 1973.

How can this be? Some of the recent acceleration in productivity growth is cyclical to be sure. Early in recoveries businesses tend to increase output by employing existing workforces more intensively. But eventually, more demanding workloads tire workers and impair their efficiency. Indeed, this is the inducement for firms to hire more workers, which begins generating overall employment gains for the economy. As employment growth starts catching up with output growth, productivity growth will moderate.

But there is something else going on here. Another reason productivity has held up during the recession is that management has shifted its attention from adding new technology to using its current technology more effectively. During the boom, firms boosted productivity by adding new technology and using it to expand output per worker.

Now, firms are boosting productivity by learning new and more efficient uses for existing technology. Essentially, firms are working better and working smarter. By reorganizing workflows, they can use their technology more effectively and cut per unit costs.

There is only so much you can do with the technology you already have. So at some point productivity growth stemming from better use of existing capital will wane. Again, this will be an inducement for firms to buy newer and better equipment, and that will help fuel the rebound in business investment.

So even as employment and investment pick up over the next year or so, we may see productivity growth slow a bit from its current pace. Nonetheless, I believe that much - if not all - of the increased productivity growth is sustainable. Productivity growth in the coming years should stay in the 2 to 2-1/2 percent range.

This faster productivity growth should be sustainable because I believe the economy has a long way to go before it fully exploits the capabilities offered by new technologies. This appears to be the case for three distinct reasons:

1. Capital embodying the latest technology has yet to make it to the shop floor or the office desktop.

The "technological gap" --- that is, the difference between the productivity of leading-edge capital and the productivity embodied in the current capital stock --- is quite wide. This suggests there are still significant opportunities for firms to upgrade their technologies, and thereby, their levels of productivity. And with investment sluggish and technological innovation continuing rapidly, the gap may actually widen for some time.

2. Business practices and processes have yet to take full advantage of technologies' capabilities.

Historically, our nation experienced concentrated bursts of technological innovation. Then once new technologies came on the scene, business gradually figured out how to take full advantage and fold them into their operations. The result was a pickup in measured productivity growth spread over several decades.

Good examples are the productivity gains after the two world wars. The World War I era development of the electric dynamo and internal combustion engine led to productivity surges that lingered long after the war. The same phenomenon occurred in the decades following the Second World War.

As I said, this has been happening with the latest innovations, even during the recession and early recovery. This will likely continue, as there are still untapped opportunities.

3. Finally, the economic and social infrastructure has yet to accommodate the new ways of doing business that new technologies make possible.

It was the favorable economic environment of the mid-1990s in conjunction with the new technologies that allowed the expansion to flourish. Low inflation, moderate interest rates, and the restoration of fiscal discipline at the federal level all worked together to create a growth-ready environment. Industry deregulation increased competition and gave firms more flexibility.

New information processing capabilities have created the need for an enhanced legal infrastructure to deal with issues of privacy and intellectual property rights. A new regulatory framework must be conceived to deal with industry concentration and competition. And globalization will dictate new political, economic, and financial infrastructure to handle global commerce.

This changing landscape leads me to concur with the many economists who have marked up their estimates of how fast the economy is able to grow over time without triggering inflation. I believe an annual growth rate in the 3 to 4 percent range is sustainable.

Of course, all of this is driven by a search for profits. A firm introduces a new technology to reap the rich profits that this opportunity represents. However, this is a dynamic process. Soon other firms adopt the technology, offer it at lower prices, and dissipate these profits. The new technology becomes a cost of doing business, rather than a competitive advantage.

But the benefits of the technology remain, and the economy reaps the higher productivity in some combination of higher profits, lower costs, and higher wage incomes.

For any one firm, a particular tech investment will remain profitable so long as it gives rise to significant business advantages that are not easily replicated, or creates scale economies that keep competitors from entering the business, or gives a leg up on creating the next new advance. It is an endless progression of innovation and struggle for profitability.

The gains may shift from one firm to another. Or from one segment to another, for example, from telecom to biotech. Or from one geographic place to another. Where is the next Silicon Valley?

It's a tumultuous process, but this is the dynamic by which market-driven economies move societies ahead. Undoubtedly, you know of the tumult first hand; indeed many here have lived it.

New Jersey's Local Scene

This process has played out here in the Garden State. In recent years, much of New Jersey's economy revolved around telecom. Now, this part of the technology sector has fallen upon hard times.

Meanwhile, the pharmaceutical and biotech industries, long a significant presence in New Jersey, are on the ascendancy. Today 19 of the world's largest pharmaceutical and medical technology companies have national or global headquarters in New Jersey.

New Jersey is attractive to these firms because it has a superior labor pool, research facilities, major university resources, proximity to both New York's and Philadelphia's superior teaching hospitals, and New York's financial institutions. Also, its location is central to the huge consumer market in the Northeast corridor.

This critical mass gives New Jersey an advantage. In fact, a German drug maker recently opened headquarters in the old Exxon building in Florham Park. Access to the largest possible pool of pharmaceutical workers was the reason cited for choosing New Jersey over Silicon Valley.

New Jersey's economy can look forward to further leveraging this economic shift. As baby boomers age, they will become more medically dependent, bolstering the pharmaceutical and biotech sectors, and with them New Jersey's economy.

But, realistically, to capitalize on its advantages New Jersey has to meet some serious challenges in its economic environment.

New Jersey's business environment is plagued by municipal finance problems and accompanying tax increases. Problems balancing the budget recently prompted the State Treasury to impose spending freezes to offset severe revenue declines and maintain stable state finances.

In addition, the state's high insurance rates for autos and rising medical malpractice have left motorists scrambling for coverage and have forced doctors to cut back on certain procedures.

The challenges are substantial, but so is New Jersey's upside potential if they are met.

Conclusion

On this note let me conclude. As I said a few moments ago, I expect 2003 will be a transition year for the national economy on the path to sustained expansion. Stimulative monetary and fiscal policies have created an environment conducive to growth. Consumers have buoyed the economy throughout the recent recession, and they will continue to provide solid support for recovery. But it is renewed business investment spending --- spending on new equipment and software --- that will be the catalyst to lead the economy to achieve growth at its full potential. As I also noted, there are ample reasons for the return of business investment, and it will come. As we all know, this is neither a smooth nor an easy process. The dynamics of the market economy are often tumultuous.

However, we should not lose sight of the extraordinary progress made over the last decade as a result of new technologies. This difficult period may not yet be over for all of you, and consolidation may persist for some time. But the way businesses operate has been forever changed, and the benefits will be reaped for far longer.