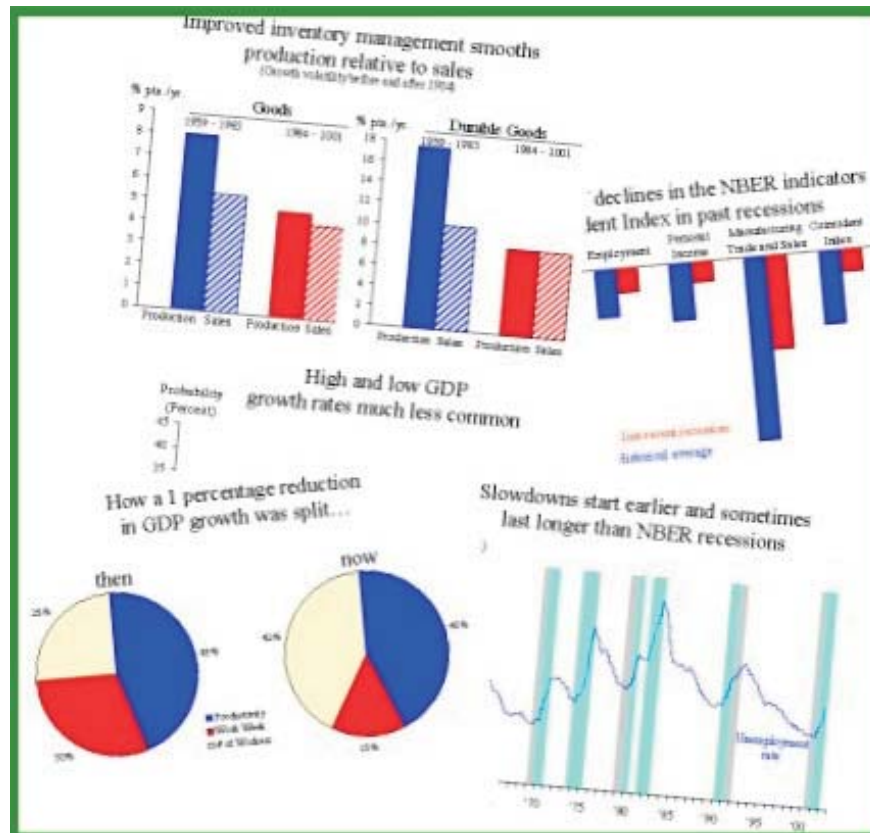


New Economy, New Recession?



Based on a presentation by Evan F. Koenig, Vice President, Thomas F. Siems, Senior Economist and Policy Advisor, and Mark A. Wynne, Assistant Vice President, Research Department, Federal Reserve Bank of Dallas

March 2002

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Last November, the Business Cycle Dating Committee of the National Bureau of Economic Research made an official declaration that the U.S. economy was in recession, establishing March 2001 as the month when economic activity peaked. With the Dating Committee's pronouncement, the longest economic expansion in a chronology that dates to the mid-1800s came to an end.

During the 10-year expansion, many economists recognized a New Economy characterized by a higher sustained level of productivity growth brought on by new information-sharing technologies. So what does the New Economy's "new recession" look like?

Outline

In this presentation, we first define a recession and examine major indicators of economic activity used to detect turning points in the business cycle. Then, we look at longer-term trends and investigate whether an added degree of resilience and flexibility is evident in the economy today. We argue that the most recent slowdown reflects many fundamental changes in the economy and has been tempered by the productive use of information technologies that provide decision-makers real-time access to critical information.

What is a recession?

The media's rule of thumb is that a recession occurs when GDP falls for at least two consecutive quarters. By this definition, our economy has not been in recession since the 1990-91 downturn. But this is not how recessions are officially defined.

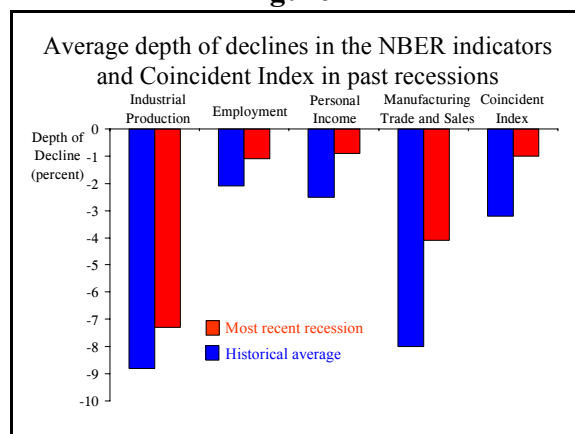
The Business Cycle Dating Committee of the National Bureau of Economic Research, or NBER, is the official arbiter of the dates that mark the onset of expansions and contractions. And they define a recession as "a significant decline in activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale-retail trade."

This definition makes it clear that the depth, breadth, and duration of a downturn are key to determining whether it will be classified as a recession.

Depth of declines

The blue bars in **Figure 1** show the average depth of decline in each NBER series from its peak to its trough over the six recessions prior to the most recent downturn. On the far right of the chart, we also show the average decline in the Conference Board's composite Coincident Index, which is a summary measure of economic activity. The red bars show declines registered during the current business cycle.

Figure 1

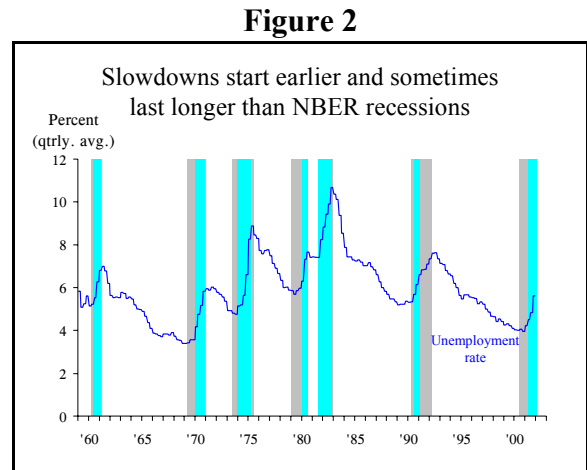


For each series, the recent decline is smaller than the historical average decline. In fact, for each series but one, the recent decline is smaller than every previous cyclical decline. The exception is industrial production. Much has been made of the fact that the recent decline in industrial production is the longest since the Great Depression. Less remarked upon is the fact that even for this series, the decline to date is one of the shallowest on record. So, by any measure, the most recent recession has been mild.

Especially during an era of rapid productivity growth, it may be more useful to look at cyclical slowdowns in the economy rather than outright declines in economic activity. We define an economic slowdown as a period of weak output growth associated with a rising unemployment rate. Intuitively, a rising unemployment rate indicates output growth that is too sluggish to absorb new entrants into the labor force. It corresponds well to people’s “gut feel” that the economy is deteriorating.

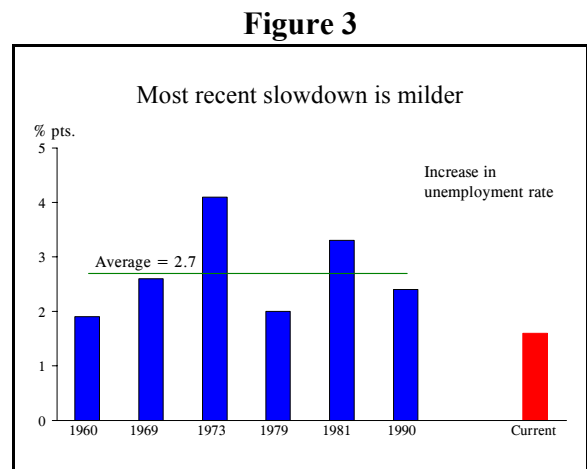
Slowdowns vs. recessions

As shown in **Figure 2**, the unemployment rate often starts rising before the start of NBER recessions (the blue shaded bars), and sometimes continues to rise after their end. Hence slowdowns start earlier and sometimes last longer than NBER recessions. (See the gray shaded bars on either side of the blue NBER recession bars.) Note that every NBER recession is accompanied by a significant increase in the unemployment rate, and every significant increase in the unemployment rate has been associated with an NBER recession.



The most recent slowdown unusually mild

Judging by the unemployment-rate increase we’ve seen to date, the most recent slowdown is much milder than previous slowdowns. **Figure 3** shows the overall increase in the quarterly average unemployment rate from its lowest point to its highest for each slowdown since 1960. The 1990 slowdown was milder than average, too.



So, what’s different? There have been only two economic slowdowns over the last 20 years, down from four slowdowns during the prior 20 years. Moreover, both of the two most recent slowdown have been milder than average.

The mildness of recent slowdown reflects fundamental changes

As indicated above, our view is that the mildness of the recent slowdown reflects a more general shift toward a less-volatile economy. The application of new information technologies has contributed to the economy's greater stability, and financial deregulation and innovation have also played roles. While both output volatility and employment volatility have fallen, employment volatility has fallen less. That's because firms are more willing to hire and fire than before. People have become more flexible, too, in their willingness to move into and out of the labor force.

A less volatile economy

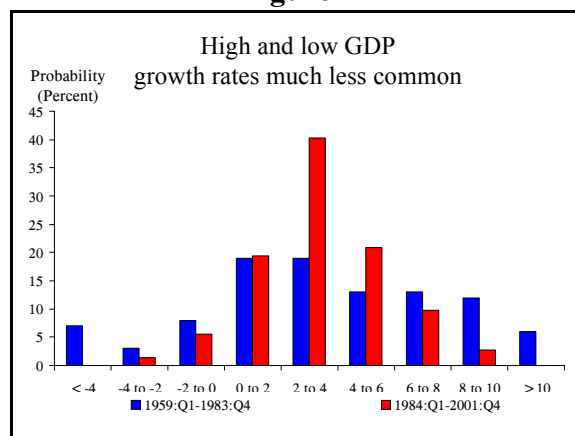
The blue bars in **Figure 4** show the distribution of quarterly GDP growth rates from 1959 through 1983. For example, the height of the middle bar indicates that GDP grew at between 2 and 4 percent per year about 20 percent of the time during the 1960s, 1970s, and early 1980s. The height of the bar on the extreme right indicates that GDP grew at a rate in excess of 10 percent just over 5 percent of the time.

As shown by the red bars, the distribution of GDP growth rates becomes much more concentrated after 1983. For example, growth rates between 2 and 4 percent are more than twice as common as before. (The middle red bar is more than twice as high as the middle blue bar.) In contrast, chances of seeing a *decline* in GDP—a growth rate below 0—are less than half what they once were. More generally, the standard deviation of GDP growth has fallen by half. Which sectors are responsible for this reduction in volatility?

The impact of any particular sector of the economy on GDP volatility depends on three factors. First, it obviously depends on volatility within the sector. The demand for toothpaste is more stable than the demand for machine tools, so the toothpaste-producing sector contributes less to GDP volatility than does the machine-tool sector. Second, sector size matters. Variation in the demand for cars is more important than is variation in the demand for bicycles because the auto sector accounts for a much larger share of GDP than does the bicycle sector. Finally, the impact of a sector on the volatility of GDP depends on the correlation between sector growth and GDP growth. A sector that is strong when the rest of the economy is weak will tend to smooth out fluctuations in the aggregate economy. The more variable is growth in this sector, the better. On the other hand, variable growth in a sector where growth is highly *positively* correlated with growth in the rest of the economy is strongly *destabilizing*.

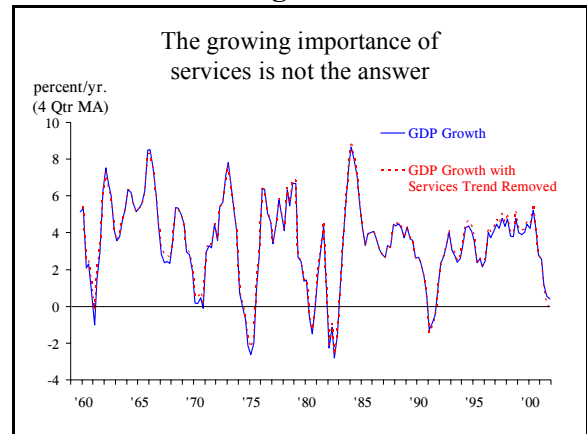
We can dispose of one popular explanation for the economy's greater stability right off the bat. Greater stability is often attributed to the fact that the service-producing sector has been increasing in size relative to the volatile goods and construction sectors. It's a nice story. It's consistent with the general principles we've just laid out. Unfortunately, the shift toward services just hasn't been large enough to be of much practical significance for GDP growth.

Figure 4



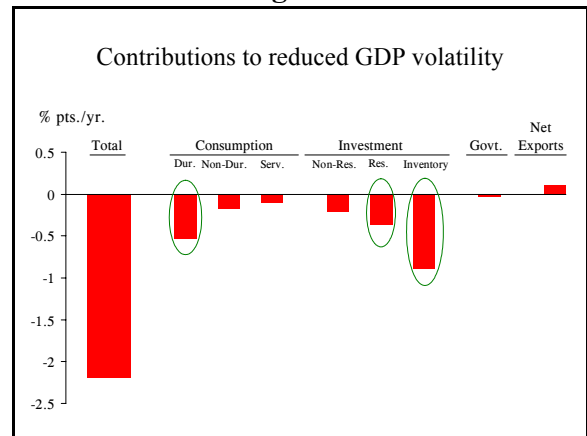
The blue line in **Figure 5** shows a plot of the actual rate of GDP growth from 1960 through 2001. The reduction in volatility beginning around 1984 is obvious. The dashed red line shows what the growth rate of GDP would have been without a trend toward services. The differences between the two lines are tiny. The fact is that almost all of the economy's increased stability is due to a sharp reduction in the magnitude of fluctuations *within* the goods and construction sectors, and not to a shift toward the production of services.

Figure 5



Where, precisely, has the GDP volatility reduction come from? In **Figure 6**, the bar on the far left shows the total reduction in GDP-growth volatility in percentage points. The bars on the right show how much of this overall reduction can be attributed to various components of GDP. Three GDP components stand out: inventory investment, consumer durables, and residential investment. Together, these sectors account for more than 80 percent of the total reduction in the volatility of GDP growth, with just over 40 percent coming from inventory investment alone.

Figure 6



Underlying sources of improvement

That the residential-investment, consumer-durables, and inventory-investment sectors account for most of the economy's greater stability provides clues about the likely underlying sources of improvement.

It is widely acknowledged that the deregulation of deposit interest rates—a process that was not completed until the early 1980s—reduced the sensitivity of residential construction and consumer lending to swings in market rates.

Credit-card usage, home-equity lending, and low-cost home refinancing have exploded over the past 20 years. Mortgages and auto loans are increasingly bundled and turned into marketable securities. Credit-scoring allows banks to make lending decisions quickly, accurately and cheaply. These and similar financial innovations have dramatically improved households' and businesses' access to credit, making it easier for them to maintain spending in the face of job loss or an unanticipated fall-off in demand.

Finally, firms have adopted improved inventory control and management systems which have lowered and stabilized inventory/sales ratios.

With better inventory management, we ought to have seen goods *production* become smoother relative to goods *sales*. As shown in the left panel of **Figure 7**, that's exactly what's happened. Before 1984, production growth was much more volatile than sales growth. Since 1984, both volatilities have fallen, but the volatility of production growth has fallen more (indeed, twice as much).

The impact of better inventory management is especially striking in the durable-goods sector (Figure 7, right panel). Prior to 1984, production growth was nearly twice as volatile as sales growth. Since 1984, production and sales volatilities have been about equal. Again, both volatilities have fallen, but the volatility of production growth has fallen by three times as much as sales volatility.

Do these stabilizing changes in the economy have anything to do with the spread of new technologies? Many of the financial innovations of the 1980s and 1990s would not have been possible without the large-scale data-management and information-processing capabilities of the computer. Computers and computer software are critical components of modern inventory management as well. Thus, it is probably no coincidence that the move to a more stable economy in the mid 1980s was preceded by a wave of IT investment, as shown in **Figure 8**.

The rest of the story

Financial deregulation and technology-enabled innovations in finance and inventory control are important parts of the story, but they are not all of the story. For one thing, food and energy prices have been less variable since the early 1980s than they were previously. Sudden changes in these prices disrupt the economy, so the reduction in their variability may well have contributed to the economy's better performance. Work done here at the Dallas Fed suggests that the economy has become less sensitive to oil prices than it once was.

Monetary policy was conducted differently in the 1980s and 1990s, too, with greater emphasis placed on controlling inflation. As long as food and energy shocks are small, vigorous inflation fighting makes for more stable output growth. So the policies pursued by Paul Volcker and Alan Greenspan have been well suited to the post-1984 economic environment.

Figure 7

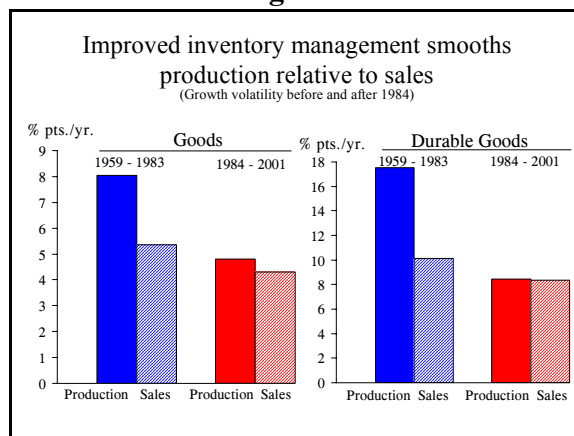
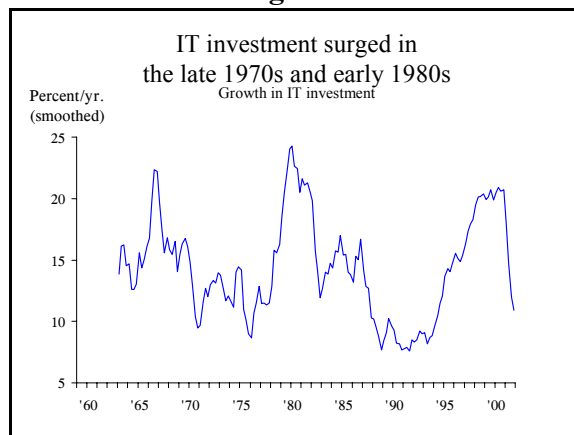


Figure 8



What else is different?

Not only has output growth become less volatile, how firms *respond* to a given change in demand is different from before. Specifically, firms have become much readier to hire and fire as demand rises and falls. At the same time, people are showing a greater tendency to move into or out of the labor force in response to changes in demand. Hence, one of the distinguishing characteristics of the U.S. economy—the flexibility of its labor market—has been enhanced.

When a firm reduces production, it can cut back on employee workloads by trimming hours per worker or output per hour, or it can lay people off. The left panel of **Figure 9** shows how a 1-percentage-point reduction in GDP growth was typically split between cutbacks in growth in productivity, the work week, and numbers of workers during the years from 1959 through 1983. It says that about 45% of the slowdown in output growth could be attributed to weaker-than-normal growth in productivity, about 30% to cuts in the work week, and only about 25% to weak growth in the number of workers.

As shown in the right panel of Figure 9, since 1984 firms have relied much more heavily on changes in the number of workers, and much less heavily on changes in the work week, to accomplish reductions in the growth rate of output. Growth in productivity is neither more nor less closely tied to changes in output growth than previously. It's important to note that this figure does *not* say that employment growth has become more variable in recent years, only that employment-growth variability has declined less than output-growth variability, because of more flexible hiring and firing.

There's been a similarly dramatic change in how households respond to fluctuations in the economy. As shown in **Figure 10**, changes in labor-force growth are much more highly correlated with output growth since 1984 than they were previously. The correlation coefficient between movements in these two variables has risen from below 0 to almost +0.6. This higher correlation means that when times are bad, a larger fraction of laid-off workers don't look for alternative employment. When times are good, an expanding labor force allows above-trend employment growth to continue longer before the symptoms of a tight labor market emerge.

We don't know the whys and wherefores of this change in household behavior. Growth in the number of two-earner families, or in the number of workers close to retirement age, might be partly responsible.

Figure 9

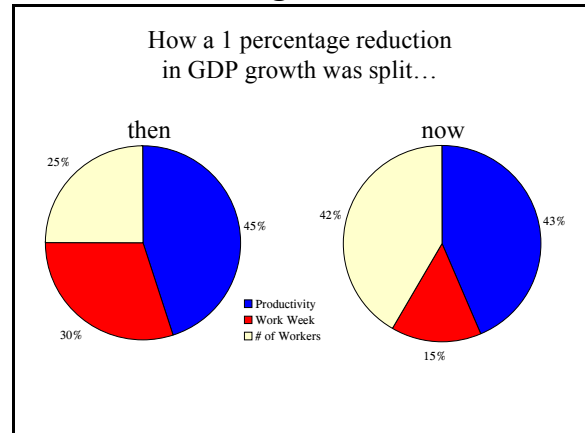
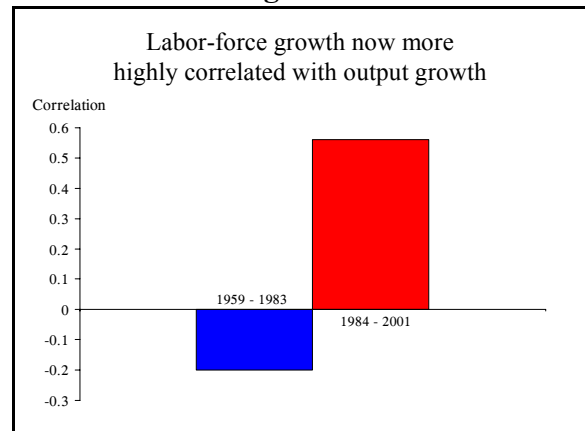


Figure 10



Does the most recent slowdown measure up?

We've established that the economy changed in important ways beginning in the mid 1980s. Now, we'll look at how well the most recent economic slowdown matches the new patterns. Recall that for us a "slowdown" is a period of below-trend output growth as signaled by a rising unemployment rate.¹ Every significant slowdown has been associated with an outright NBER recession, but slowdowns often start a little earlier and sometimes last substantially longer than recessions.

Pattern matching

If the economy is really less volatile than before, the recent slowdown ought to have been relatively mild. Was it? The answer to this question is "yes" judging by the small increase in the unemployment rate that we've seen to date. GDP growth has held up unusually well, too.

Did firms shed workers rapidly during the slowdown? "Yes" again. Employment growth has been weaker than was typical during past slowdowns.

Did worker productivity hold up well? Yes. GDP per worker has increased faster during this slowdown than during any other since 1959.

Did growth in labor-force participation weaken? Yes, it not only weakened, it dropped, and dropped by more than during any previous economic slowdown.

Did consumer durables purchases and residential investment hold up well? "Yes" and "yes" again. Both performed better than during any previous slowdown.

Finally, what of inventory investment? Is there any evidence of better inventory controls during the recent slowdown? Here we have a "yes, but." Yes, the drag on the economy from inventory investment was less than the average drag during the slowdowns of the 1960s, 70s, and 80s. Nevertheless, inventory draw downs were a major source of weakness—much more so than during 1990.

¹Specifically, we identify cyclical growth slowdowns as follows. First, the final slowdown quarter is defined to be the earliest quarter in which the unemployment rate is within 0.2 percentage points of its cyclical peak (the highest quarterly value between two NBER peaks). The 0.2-percentage-point cut-off makes allowance for the historical tendency for output growth to pick up slightly before peaks in the unemployment rate. Second, the final quarter of growth expansions is required to have an unemployment rate within 0.2 percentage points of unemployment's cyclical trough (the lowest quarterly value between two NBER troughs). From among these quarters, we choose the earliest quarter such that GDP growth remains consistently at or below its sample mean (3.4%) through the subsequent NBER peak. Using these criteria, cyclical growth trough dates are 1961:Q1, 1970:Q4, 1975:Q2, 1980:Q3, 1982:Q4, 1992:Q1 and (tentatively) 2001:Q4. Cyclical growth peak dates are 1960:Q1, 1969:Q1, 1973:Q2, 1978:Q4, 1981:Q3, 1990:Q1, and 2000:Q2.

Other sources of weakness in the recent slowdown

Besides inventory investment, the major drag on the economy during the recent slowdown came from investment in equipment and software. As shown in **Figure 11**, this type of investment subtracted 8 tenths of a percentage point from GDP growth during 2001—one of the larger negative contributions ever made by this sector.

Within equipment and software investment, IT investment had an especially large impact on GDP growth during the recent slowdown. Thus, as shown by the blue line in **Figure 12**, IT investment added almost a full percentage point to GDP growth during 2000 only to subtract half a percentage point from GDP growth during 2001. The 1½ -percentage-point swing in IT's growth contribution accounts for over half of the slowdown in GDP growth.

The red line in Figure 12 shows what IT's growth contribution would have been, had the IT sector remained constant in size. Note that according to the red line, the recent IT downturn was not much worse than a similar downturn in 1975. The reason that IT has had a five-times-larger effect on GDP growth this time around is simply because the IT sector is five times larger now than then.

Conclusions

The evidence demonstrates that the U.S. economy has behaved differently since the mid 1980s than it did before. GDP growth has become less volatile. Large increases and large decreases in GDP are both less frequent than before. At the same time, the U.S. labor market has become more flexible. Firms are quicker to hire and fire. Movements into and out of the labor force are more sensitive to economic conditions.

Improved access to credit markets and more sophisticated inventory management—made possible by financial deregulation and IT innovation—have made important contributions to the economy's increased stability.

The relative mildness of the recent economic slowdown and recession reflect these underlying changes, as do movements in employment and productivity growth, and the labor-force participation rate.

Figure 11

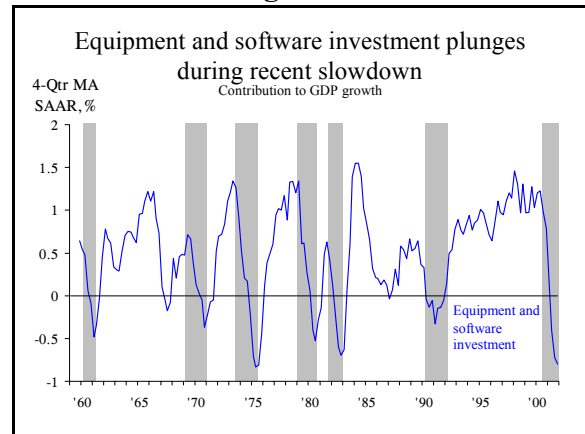
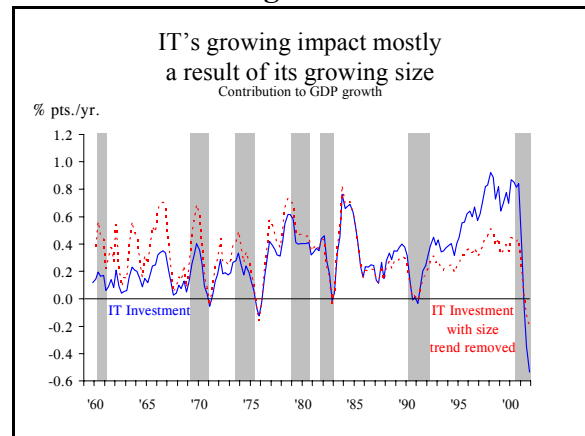


Figure 12



The IT-investment sector itself has had a major direct impact on the economy over the past few years. Partly this strong impact reflects the severity of the recent IT downturn. Partly it reflects the growing size of the IT sector in the economy.

Looking forward, a continuation of the strong trend productivity growth of the late 1990s will help protect the economy from outright declines in output (and, so, from NBER-defined recessions) but not from periods of rising unemployment associated with slowdowns. In this sense, the business-cycle implications of a key element of the New Economy are limited. Fortunately, as we have seen, there is more to the New Economy than faster productivity growth.

Evan F. Koenig, Vice President
Thomas F. Siems, Economist
Mark A. Wynne, Assistant Vice President

March 2002