

Kinder, Gentler, Recessions

Red Herring Magazine, November 1, 1997

Lately various magazines have been suggesting that future recessions will be less severe and shorter than past recessions. Are they onto something? Actually, yes, and the information technology revolution deserves some of the credit for the shift.

The optimists say that the IT revolution allows annual economic growth to average 4 to 5 percent, rather than the 2 to 3 percent to which we are accustomed. There is a plausible case for this higher growth: as I argued in my September column, "The Digital Economic Revolution", the current government measures understate the actual growth of the economy. In other words, an apparent growth of 2.5 percent in the gross domestic product may in reality be 1 or 2 points higher. That higher average growth by itself makes recessions less likely. Why? Because a seat-of-the-pants definition of a recession is at least two quarters in a row of negative economic growth. If the economy were growing at a rate of 4 percent, then a recession could occur only if the growth rate declined by more than 4 percentage points. That's a pretty steep, and unusual, drop. To put it in perspective, during the deepest recession of the last 50 years, the period from November 1973 to March 1975, the real gross national product declined by 4.9 percent. In no other recession during those 50 years did it fall by more than 3.3 percent.

Of course, if economic growth, measured year in and year out, exceeds 4 percent, the definition of a recession will probably change and we will come to think of 1 percent growth as indicating recession. But if we keep the same definition, if we measure economic growth correctly, and if that economic growth averages 4 to 5 percent, then recessions will be much less likely.

Derivative art

Even if you discount the increase in long-term economic growth, the IT revolution has made recessions less severe. It has done so in two ways. First, it facilitated financial derivatives. Most of the negative press on financial derivatives is written by people who don't understand the subject. What gets

their attention is the scoundrels in Orange County's government and elsewhere who use derivatives to make risky bets. It might come as a surprise, then, that the vast majority of firms find financial derivatives attractive for one main reason: to reduce risk. Firms typically use derivatives to hedge themselves against adverse changes in monetary and fiscal policy.

The computer revolution helped make financial derivatives easier to manage by reducing transaction and computation costs. Before financial economists Fischer Black and Myron Scholes published their 1972 paper on valuing options, for example, no one had a good idea how to estimate the value of a stock option. Now traders on the floor of the Chicago Board Options Exchange carry calculators with the Black-Scholes model programmed into them.

Shrink to fit

The second way the IT revolution has made recessions less severe is by allowing for the reduction of inventories. For decades, macroeconomists have noted the crucial role of inventories in the business cycle. In 1976, for example, the Harvard economists Martin Feldstein and Alan Auerbach (the latter is now at UC Berkeley) wrote that fully 75 percent of the cyclical downturn in GDP from the peak of a business cycle to its trough could be accounted for by the reduction in business inventories. The explanation: when demand for the goods fell, companies, still sitting on a pile of goods, would lay off workers. Because firms often detected decreases in final demand only after a long lag, the drop in production due to, say, a 10 percent drop in final demand could easily have been 20 percent or more. Firms would then have had to lay off even more workers.

But now, databases produced by Oracle, Informix, and Sybase allow companies to relate salespeople's orders to data on products ready to ship. The correspondence between final demand and production is therefore much tighter, enabling companies to work with lower ratios of inventories to sales. Although a decline in demand for a company with lean inventories could still lead to layoffs, the layoffs would be less severe than when inventories were high. To the extent that companies throughout the economy are holding smaller inventories, recessions caused by declines in demand will be shorter and shallower.

Thinking thin

The IT revolution is not the only cause of today's lower inventories. One other important factor is U.S. manufacturing companies' increasing adoption of the

Toyota production system of "lean thinking." In their book of that name, James P. Womack and Daniel T. Jones define lean thinking as the determination to optimize the whole enterprise to eliminate waste--one major factor of which is inventories. This process sometimes involves increased use of computers, but sometimes doesn't.

A second factor, the government deregulation of transportation in the late '70s and early '80s, made it easier for companies to use just-in-time methods of production, an element of lean thinking, by making the shipping of goods by truck and rail cheaper, more reliable, and more responsive to customers' demands. Between 1981, when deregulation had just begun, and 1987, inventories fell from 14 percent of the GDP to 10.8 percent. Of course, some of this reduction was explained by the fact that 1981 was a recession year and 1987 a boom year. But transportation economists, such as my Hoover colleague Thomas G. Moore, also believe that deregulation allowed companies to pare inventories substantially.

But if IT isn't solely responsible for lean thinking and transportation improvements, it has played a role in implementing both. Sophisticated IT now lets companies reroute trucks while they're on the road so that they can deliver shipments to a higher-valued customer and let a lower-valued customer wait a little longer. And improvements in manufacturing often involve the use of computers. Lumber mills, for example, have changed dramatically. Almost no one works there anymore. Computers instead of human sawyers size up trees and estimate the best cuts to make to minimize waste, then guide lasers in making the cuts.

The increased use of financial derivatives and the decreased use of inventories have made the traditional recession--one caused by unanticipated changes in monetary or fiscal policy--less likely. Traditional recessions featured high cyclical unemployment: firms with excess inventories laid off workers with the intent of rehiring them when business picked up. Recessions now are more likely to be part of what economists call "real" business cycles. Such recessions occur when some factor that's unrelated to monetary policy changes. Examples include the OPEC-engineered increase in the price of oil and, more recently, the decline in defense spending, increasing competition resulting from newly liberated

economies in the Third World and in Eastern Europe, and the computer revolution.

Take the decline in defense spending over the last ten years. Adjusted for inflation, defense spending peaked in 1987 at \$372.3 billion (in 1996 dollars) and fell to \$265.7 billion in 1996, a decline of 29 percent. As a share of the GDP, defense spending declined even more steeply, from a peak of 6.2 percent in 1986 to just 3.5 percent in 1996.

This drop, of course, has reduced the demand for goods produced by defense industries. Although the biblical notion of beating swords into plowshares can work in the long run, experience shows that defense contractors just don't do well at shifting over to civilian production. In the transition, therefore, structural unemployment was high: many specialized workers lost jobs that they never returned to. In fact, the decline in defense spending was a major factor in the last recession, from July 1990 to March 1991.

But such a recession is the healthy outcome of a free economy, not one to be avoided. However painful the transition is for the workers involved, it is a necessary part of a dynamic, growing economy. The government could have prevented a recession only by maintaining the level of defense spending. But then resources spent on defense would not have been available for other uses, uses in which these resources are now more valued. Keeping defense workers in make-work jobs would have been no more justified than subsidizing buggy manufacturers in the face of Henry Ford's awesome productivity. Just as a person is sometimes better off taking a salary cut to retool for higher-paying work later, so too is the economy better off in 1997 because of the 1990-91 recession.

Long-term investment

Another factor that could cause a real, healthy recession is, ironically, the computer revolution itself. That revolution has allowed banks and insurance companies to merge their operations and fire many white-collar workers who have been made redundant by database software. Ford used computers to reduce the number of employees in its accounts payable department by 75 percent. For a while, people put out of work by this improvement in productivity did not find jobs, which drove up the unemployment rate, one of the traditional indicators of

a recession. But it had to be higher--until these people found new work, which they did.

Will there ever be recessions in the future? I guarantee that there will, but they are less likely to be as severe as those in the past. Moreover, those that do occur are more likely to be healthy adjustments to changes inevitable in a dynamic economy. And part of the credit for this belongs to the digital revolution.