

the Southwest ECONOMY

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How Serious Is the Productivity Problem in the United States?

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The phenomenal increase in the U.S. standard of living over the past 100 years, while often taken for granted, was made possible by remarkable growth in the productivity of the basic factors of production, especially in the productivity of labor. On average, U.S. workers today can produce 10 times more in one hour than their counterparts could produce in one hour a century ago.

However, some time around the first oil-price shock in 1973, commentators began to talk about a "productivity slowdown." Productivity growth slowed from an average annual rate of 2.8 percent before 1973 to 1 percent in the period since then.¹ When productivity grows at 2.8 percent a year, it takes about 25 years for workers to double the amount they can produce in one hour. But when productivity grows at 1 percent a year, it takes workers almost three times longer—70 years—to double their hourly output. Because productivity growth is the key to gains in our standard of living, the post-1973 slowdown has caused a lot of concern and attracted much attention during the past 20 years.²

Is the slowdown in productivity as serious a problem as some claim? Two factors suggest that it is not. First, the rapid rates of productivity growth achieved immediately after World War II were exceptional, not

normal.³ Thus, a significant part of the slowdown has essentially been a reversion to historical trends. Second, countries such as Japan achieved extraordinary rates of productivity growth because they were catching up with the United States. These countries have succeeded in closing much of the gap in output and incomes that existed in 1950; yet, the average U.S. worker is still more productive and enjoys a higher standard of living than his or her counterpart abroad. This is not to say that we live in the best of all possible worlds. The United States can and should try to raise the rate of productivity growth, but it is unrealistic to expect a return to the heady days of the 1950s.

The Long-Run Growth Performance of the United States

The recession that began in July 1990 was the ninth since the end of World War II and the 45th in U.S. history. Recessions have always been with us and always will be; it is impossible to smooth out all fluctuations in economic activity.⁴ The very real pain associated with downturns in economic activity often leads to policy initiatives that

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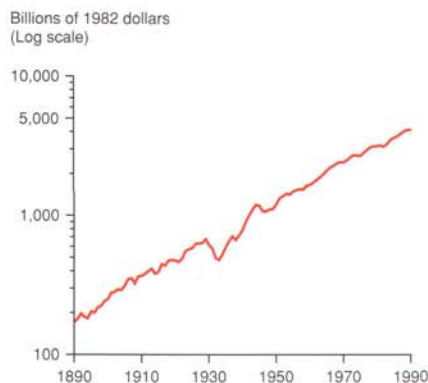
boost the economy in the short run at the expense of longer-run growth potential. Day-to-day discussions about the state of the economy generally focus on the inevitable ups and downs in activity in the short run and neglect the more significant long-run trends.

Chart 1 shows how U.S. gross domestic product has behaved over the past 100 years. Two features warrant comment. First, the GDP movements associated with business cycles are small relative to long-run growth trends. Second, the GDP has grown at a remarkably steady pace, *despite* all the ups and downs in economic activity. There were no fewer than 24 recessions, including the Great Depression, during the period shown in Chart 1. Yet, output grew at a remarkably steady pace over the entire period. Over this 100-year period, real GDP increased 24-fold, while GDP per capita increased more than six-fold. These are *big* numbers, and they naturally lead to the question of what determines the underlying rate of economic growth.

What does cause output to grow over time? Aggregate output is intimately related to the size of the aggregate capital stock and the labor force. The final output obtained from given quantities of these inputs is determined by their *productivity*. Therefore, three sources of output growth can be isolated: growth in the labor force, growth of the capital stock and growth of productivity. Among these sources, growth in the numbers of workers and machines accounts for less than half of all output growth in the United States. This leaves growth in productivity as the single most important determinant of long-run growth. Increases in productivity are crucial to sustained GDP increases and, thus, to improvements in our standard of living over time.

Productivity can be measured in a number of ways. Labor productivity, or output per hour worked, is the most commonly used and, under certain conditions, is representative of

Chart 1
Real Gross Domestic Product



SOURCES: *Economic Report of the President*, February 1991; *National Income and Product Accounts of the United States, 1929-82*; *Statistical Tables*, U.S. Department of Commerce, Bureau of Economic Analysis, September 1986; and John W. Kendrick, *Productivity Trends in the United States*, Table A-III.

broader measures. A variety of factors determines the productivity of labor. The importance of education is obvious: the pervasive concern about the quality of U.S. schools reflects this. The level of experience of the average worker is also important. The longer workers have been doing their particular jobs, the better they are at it. The computer revolution of the past 20 years, and especially the boom of personal computing over the past decade, illustrates how more and better machines can raise productivity. And finally, institutional factors, such as laws and regulations, affect productivity, although in a way that is often hard to quantify.

While influenced by many factors, the growth of labor productivity in the United States has been remarkably stable for a long time. As Chart 2 shows, productivity grew at an average annual rate of about 2 percent a year before the Great Depression. A dramatic decline in productivity growth during the Great Depression was offset by an equally dramatic increase during and immediately after World War II. Productivity declined during the Great Depression as a consequence of the prevailing adverse climate for business innovation and risk-taking. The same explanation works in reverse for the years after World

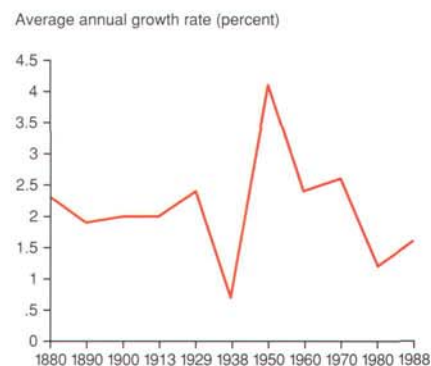
War II. The U.S. economy had been immune from war damage, and the rate of productivity growth soared as American industrialists undertook innovations postponed during the Depression and war years. Growth then slowed to something approaching more normal levels.

Some commentators are concerned about the further decline below the historical norm of 2 percent that occurred in the 1970s. Some of this lost ground was recovered in the 1980s, but not enough to allay fears of impending crisis. But was the United States alone in experiencing this slowdown phenomenon, or was the slowdown more widespread?

In comparing U.S. performance relative to that of the other major capitalist economies over the same period, it is illuminating to distinguish among the four major phases of capitalist development over the past 100 years. Chart 3 shows the productivity performance of the G-5 countries—the United States, the United Kingdom, Japan, Germany and France—since 1870.

The first phase lasted 43 years, from 1870 to 1913, and coincided with the golden age of American capitalism. Productivity grew in the 1-percent to 2-percent range for all the major industrial economies, with the United States leading the pack. During this period, the United States overtook the United Kingdom to become the world's leading

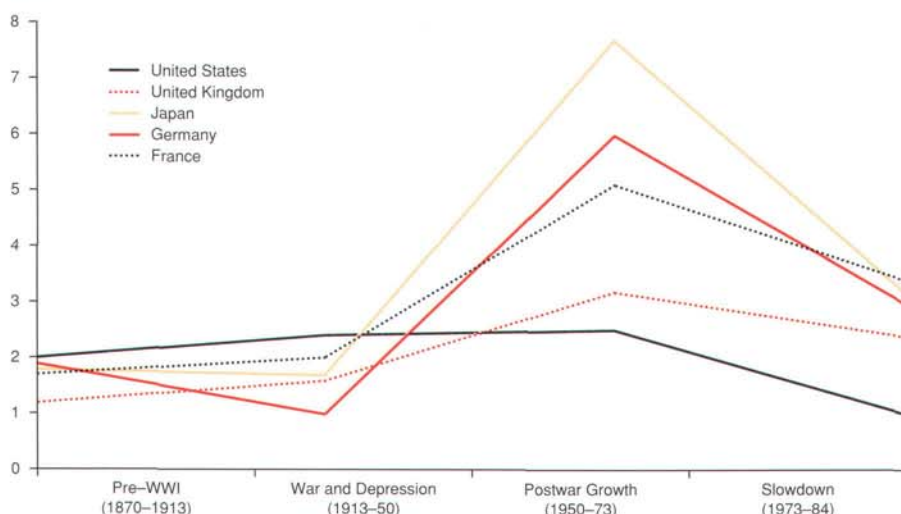
Chart 2
Productivity Growth in the United States



SOURCES: Angus Maddison, *Phases of Capitalist Development*, and author's calculations.

Chart 3
Productivity Growth in the G-5

Average annual growth rate (percent)



NOTE: Data for Germany refer to the former West Germany.

SOURCE: Angus Maddison, "Growth Slowdown in Advanced Capitalist Economies: Techniques of Quantitative Assessment," *Journal of Economic Literature*, June 1987.

industrial power. The United States retained its position of leadership throughout the second phase, during the turbulent period from 1913 to 1950 that included the two World Wars and the Great Depression.

The third phase lasted 23 years, from 1950 to 1973, and saw a remarkable acceleration in productivity growth in all the major industrial economies except the United States. This was the golden age of postwar growth. During this period, Japanese productivity grew at an average annual rate of about 8 percent, while productivity growth in the United States lumbered along at less than 2.5 percent a year. After decades of being the world leader in productivity growth, the United States became the laggard and was outperformed even by the United Kingdom.

The fourth phase, which runs only from 1973 to 1984 because of data availability, brought a slowdown in productivity growth *worldwide*. The global nature of the slowdown suggests that whatever lay behind it was common to all of the industrialized countries, and that looking for an explanation in factors specific to each country would be misleading.

The Convergence Hypothesis

What explains the acceleration and subsequent deceleration in productivity growth in the major industrial economies in the postwar period? A significant part of the difference between the growth rates of the United States and those of Japan and the former West Germany can be explained by the phenomenon of "catch-up" or "convergence." Fundamental economic forces cause "follower" countries (in terms of economic development) to grow faster than the "leader." As a follower, a country can offer a relative abundance of investment opportunities to both domestic and foreign investors and can copy the technical know-how of more advanced countries. This combination of factors produces unusually high levels of investment, which lead to rapid growth. Over time, growth declines to more sustainable rates as the most profitable investment opportunities are exploited, and only projects offering average rewards remain.

However, nothing guarantees that the followers will catch up with the leader. The process of catching up

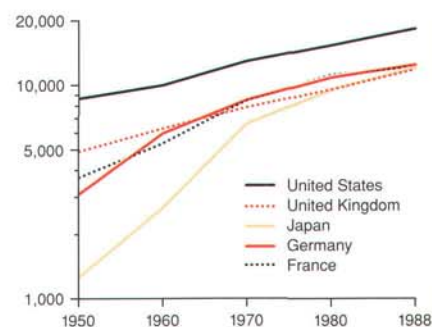
has been confined to a small number of relatively developed countries, and, among these countries, convergence was stronger after World War II than before. Two factors can explain this: the availability of a skilled work force in these countries after the war, and a new, liberal international trading regime that freed access to foreign markets and facilitated the transfer of technology between countries. (It is worth noting that something along these lines is going on in the recently united Germany. Rapid rates of investment in the eastern part of the country reflect both the abundance of investment opportunities there and the scope for transferring technical expertise developed in the West.)

Following World War II, per capita output levels in Germany and Japan were one-third and one-seventh of U.S. levels, respectively (*Chart 4*). To bring their output to U.S. levels while the United States continued to expand, these countries had to grow more rapidly than the United States. The United States could not eliminate the portion of the growth differential attributable to the process of catching up by these countries. The rapid growth rates these countries achieved narrowed the difference between their living

(Continued on page 8)

Chart 4
GDP Per Capita in the G-5

1985 dollars
(Log scale)



NOTE: Data for Germany refer to the former West Germany.

SOURCE: Robert Summers and Alan Heston, "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950-1988," *The Quarterly Journal of Economics*, May 1991.

U.S. Productivity: The Outlook for Growth

(Continued from page 3)

standards and those of the United States, but as shown in Chart 4, the United States has stayed ahead.

Summary and Conclusions

Aggregate output in the United States grew rapidly in the immediate postwar period primarily because of unusual rates of productivity growth. The other major industrial economies grew rapidly in the 1950s and 1960s as they caught up with the United States. While the gap between U.S. and foreign living standards has narrowed, the United States retains its position of leadership by most conventional measures.

The ability of the United States to influence its long-run rate of

growth is somewhat asymmetric. There may be little to do to raise it, but there is a lot that can be done to lower it. Failure to address the problems in our schools and rebuild our infrastructure will have serious long-run consequences. So, too, will misdirected legislation that is designed to stimulate the economy in the short run without any concern for long-run implications. As one commentator said, "It would be ironic indeed if fear of decline leads us to enact protectionist legislation that rejects foreign investment and overly restricts immigration. That would mean turning our backs on the very characteristics that carried us to where we are today. Instead, Americans must maintain their confidence that our country's capacity to reinvent itself will once again prove to be our hidden strength."⁵ The low standard of living endured by the average Japanese worker,

despite the impressive performance of the Japanese economy, is due in no small part to just this kind of protectionist legislation.

— Mark A. Wynne

¹ This slowdown in productivity growth inevitably was accompanied by a slowdown in the growth of gross domestic product (GDP). Average annual rates of GDP growth fell from 3.6 percent from 1950 to 1973 to 2.5 percent since 1973.

² For a recent example see "Shadow of Pessimism Eclipses a Dream" and "Attention, America! Snap Out of It!" *New York Times*, Sunday, Feb. 9, 1992.

³ This point has been made by other economists as well. See, for example, Blinder, Alan S. (1992), "The Days of Ozzie and Harriet are Gone for Good," *Business Week*, Feb. 10. For a more detailed analysis, see Baumol, William J., Sue Anne Batey Blackman and Edward N. Wolff (1989), *Productivity and American Leadership: The Long View*, (Cambridge, Mass.: MIT Press).

⁴ However, there is some evidence that the business cycle has been less severe in the post World War II period, in that recessions have tended to be shorter and expansions longer than before World War II. See Diebold, Francis X., and Glenn D. Rudebusch (1991), "Shorter Recessions and Longer Expansions," *Federal Reserve Bank of Philadelphia Business Review*, November/December.

⁵ Nye, Joseph (1991), "We Can Stay On Top," *Money*, October.

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