

U.S. productivity growth since 1982: the post-recession experience

Gains in productivity during recoveries typically are greater than the long-term trend; increases for the current upturn are more modest than those recorded for similar postwar periods, although the manufacturing sector is performing well

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Productivity in the business sector has grown at an average annual rate of 2.3 percent since 1947.¹ Growth was more rapid before 1973 (3.0 percent) than after (0.9 percent), but throughout the postwar period, the business cycle has had pronounced effects on the rate of change in productivity. Table 1 shows these effects on productivity growth in the business, nonfarm business, and manufacturing sectors.

There have been eight business cycle troughs since the end of World War II, the most recent of which occurred in the fourth quarter of 1982.² (See exhibit 1.) The business cycle exerts an accelerating influence on productivity growth during recoveries and retards it during contractions. Since the 1982 trough, the BLS has analyzed movements in labor productivity—output per hour of all persons—for purposes of comparing this recovery with similar periods in the past.

The cycle's effect on productivity is often explained in terms of the fixed nature of some inputs in the short run. Because the stocks of capital plant and equipment and the number of available skilled employees are not instantaneously adjustable, they remain to some extent fixed over the course of the cycle. Thus, when product demand increases after a trough, firms are able to increase output more rapidly than capital and labor inputs, thereby inducing a swift rise in productivity. During a contraction the opposite occurs, giving rise to a procyclical pattern in productivity.

Productivity in the business sector³ has risen more rapidly during postwar recoveries (2.6 percent per year) than over the entire 1947–85 period (2.3 percent). The same is true for the more narrowly defined nonfarm business and manufacturing sectors. However, since the beginning of the productivity slowdown in 1973, the contrast between productivity advances during recoveries and the long-term trend in productivity increase has become greater. Since 1973, the growth rate during recoveries has been more than 0.6 percent higher than the long-term rate for business and nonfarm business, and 1.1 percent higher for manufacturing. In manufacturing, the post-1973 slowdown has been smaller than in the more comprehensive business and nonfarm business sectors. (Manufacturing accounts for about one-fourth of the business sector output.)

The current recovery

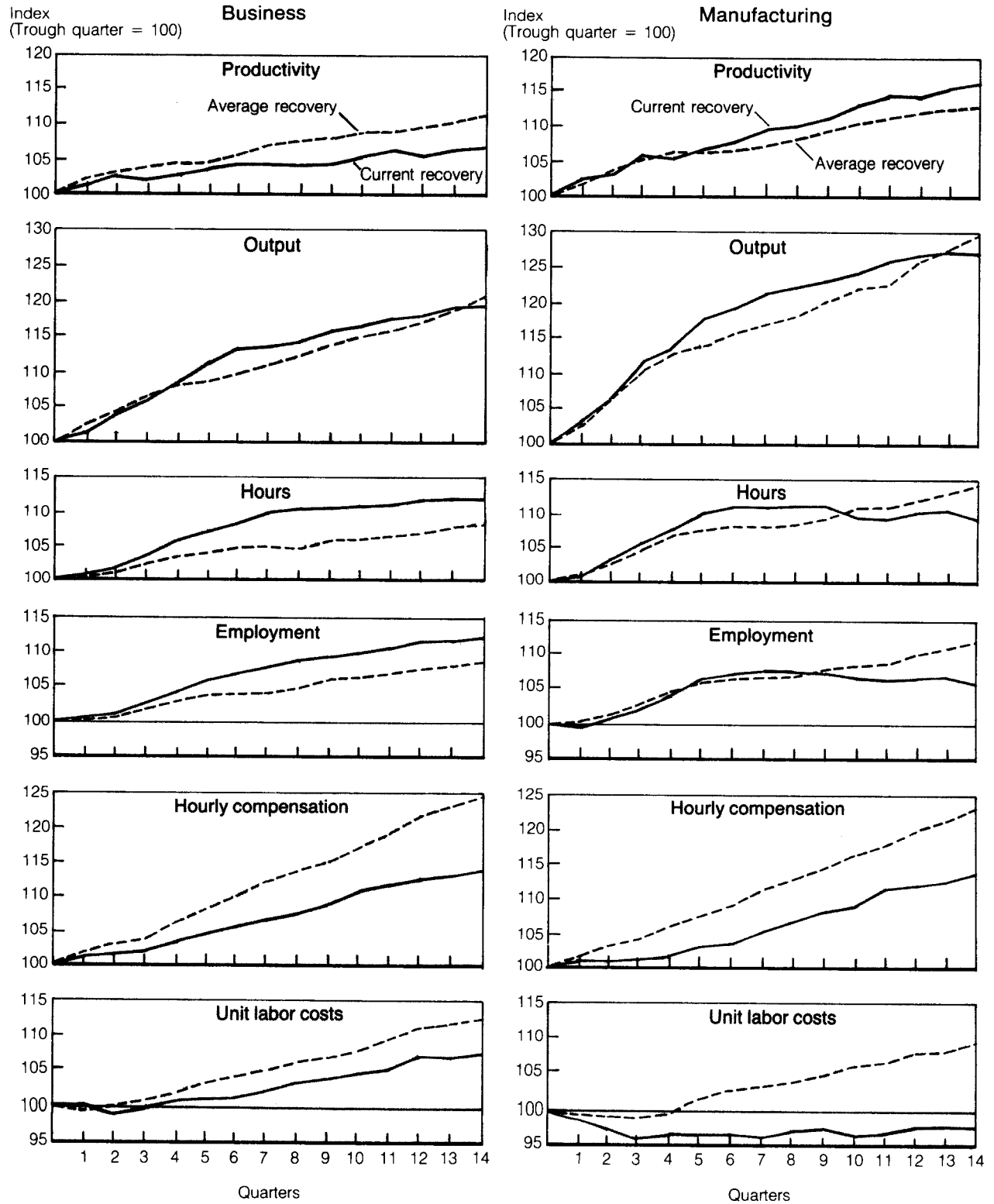
The eight postwar recoveries are dissimilar, ranging in length from 4 to 35 quarters, trough to peak:

<i>Trough</i>	<i>Quarters, trough to peak</i>
October 1949	15
May 1954	13
April 1958	8
February 1961	35
November 1970	12
March 1975	20
July 1980	4
Mean	15

By the second quarter of 1986, the current recovery had lasted 14 quarters, longer than all but three of the others.

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Chart 1. Productivity and related measures 14 quarters after the trough of the business cycle in the business and manufacturing sectors, current recovery versus average postwar recovery



Because recoveries have differed so widely, it is not possible to draw any conclusions regarding the underlying growth rate of productivity based on experience during this part of the cycle. (For similar reasons, projections of the future course of productivity change are quite unreliable.) However, a comparison of the ongoing recovery with others which have also lasted at least 14 quarters reveals the following:

- Productivity gains in the business sector have been the lowest of any similar recovery period.
- In manufacturing, productivity gains have been much better than in the total business sector and higher than previous experience.
- Increases in hourly compensation have lagged considerably behind past gains.
- As a result, unit labor costs (compensation per unit of output) have grown quite slowly by historical standards.

For the other recoveries, the average annual rate of business productivity growth for the first 14 quarters was 3.1 percent; during the current recovery, productivity increased at only a 1.8-percent annual rate over the same time span. In manufacturing, the average 14-quarter recovery showed a 3.6-percent annual rate of growth; during this recovery, the rate of increase has been 4.4 percent. Chart 1 compares productivity and related measures for the average recovery and for the current upturn in business and manufacturing.

Hourly compensation gains have been modest during the current upturn in all major sectors of the economy, and among both union and nonunion employees. Givebacks, smaller benefits packages, and two-tier pay plans, combined with slower growth in consumer prices, have been reflected in current-dollar hourly compensation growth of less than 4 percent during the last 14 quarters; the average annual increase for previous recoveries was about 6.5 percent in both business and manufacturing.

Taken together, these trends have resulted in slow gains in compensation per unit of output during the current upturn. In fact, unit labor costs in manufacturing were actually somewhat lower in the second quarter of 1986 than in the third quarter of 1980.

Second-quarter results

During the second quarter of 1986, productivity in the business and nonfarm business sectors showed slight in-

Exhibit 1. Troughs and peaks of the eight postwar business cycles

Trough		Peak	
—		November 1948	
October 1949		July 1953	
May 1954		August 1957	
April 1958		April 1960	
February 1961		December 1969	
November 1970		November 1973	
March 1975		January 1980	
July 1980		July 1981	
November 1982		—	

creases, while manufacturing productivity rose more rapidly. The following tabulation presents annualized percent changes in productivity, output, and hours in the second quarter for major divisions of the economy. (Additional information appears in tables 42-44 of the Current Labor Statistics section of this issue.)

Sector	Productivity	Output	Hours
Business	0.5	0.3	-0.2
Nonfarm business5	.6	.1
Manufacturing	3.2	-.4	-3.5
Durable goods	1.0	-3.8	-4.8
Nondurable goods	7.0	5.3	-1.6
Nonfinancial corporations ...	-.3	-1.1	-.8

Business sector. Business sector productivity rose at a 0.5-percent annual rate during the second quarter of 1986, and hours declined for the first time since the recovery-expansion phase of the business cycle began 14 quarters earlier. The business sector is the broadest sector for which productivity is measured, accounting for about four-fifths of gross national product (GNP).

Hourly compensation rose moderately during the second quarter, but after adjustment for changes in the Consumer Price Index for All Urban Consumers (CPI-U),⁴ a strong increase occurred. With this increase, real hourly compensation stood at its highest level since 1979. Real hourly compensation had advanced in every year but one from 1947 to 1978, but three consecutive years of declines occurred beginning with 1979. Growth resumed in 1982, but even so, real hourly compensation in the second quarter of 1986 remained somewhat lower than in 1978. Hourly compensa-

Table 1. Compound annual rates of change in productivity for selected sectors, trend versus recovery and contraction phases, 1947-85

Period	Number of cycles	Trend			Contraction			Recovery		
		Business	Nonfarm business	Manufacturing	Business	Nonfarm business	Manufacturing	Business	Nonfarm business	Manufacturing
1947-1985	8	2.3	1.9	2.7	.6	.4	-.1	2.6	2.1	3.3
1947-1973	5	3.0	2.5	2.9	1.3	1.1	-.2	3.1	2.6	3.3
1973-1985	3	.9	.7	2.2	-.7	-.7	.0	1.7	1.3	3.3

tion includes wages and salaries, supplements, and employer payments to employee benefit plans, and measures employer costs rather than employee income. Adjustment with the CPI-U translates these costs into real terms, by taking into account changes in the prices of consumption goods. The decline in the CPI-U was quite unusual in itself; over the past 25 years, there has only been one other quarter during which the CPI-U fell—the second quarter of 1961, for which a 0.1-percent drop was recorded.

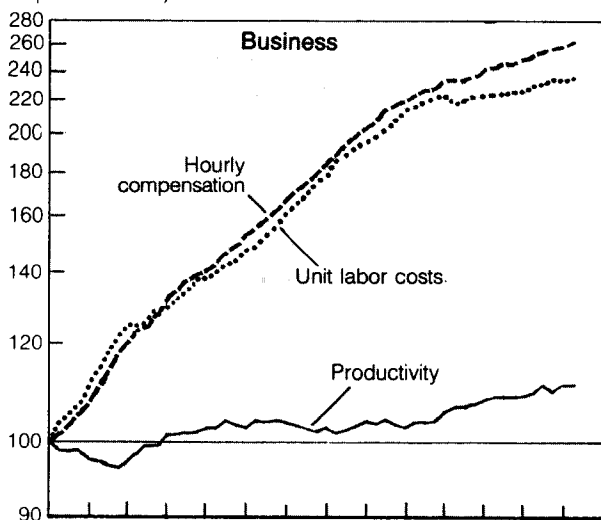
Unit labor costs are compensation expenses per unit of output, and thus are influenced by changes in both hourly compensation and productivity. In the second quarter of

1986, these important costs rose at an annual rate of only 2.3 percent. This small increase reflects the slow gains in hourly compensation which have characterized the entire recovery period and the small productivity gain in the second quarter, as shown in chart 2.

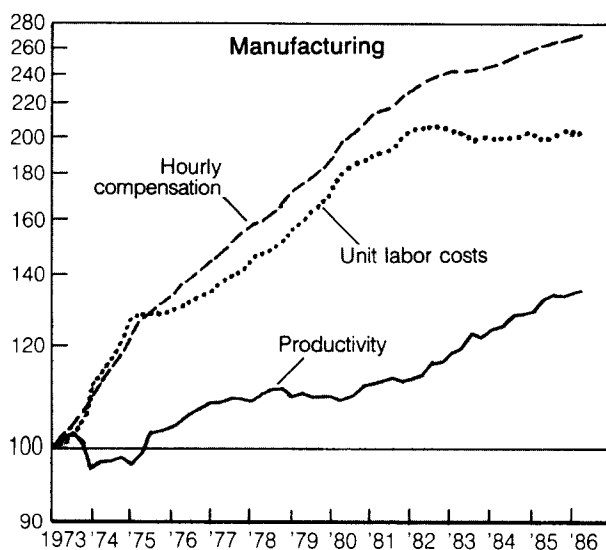
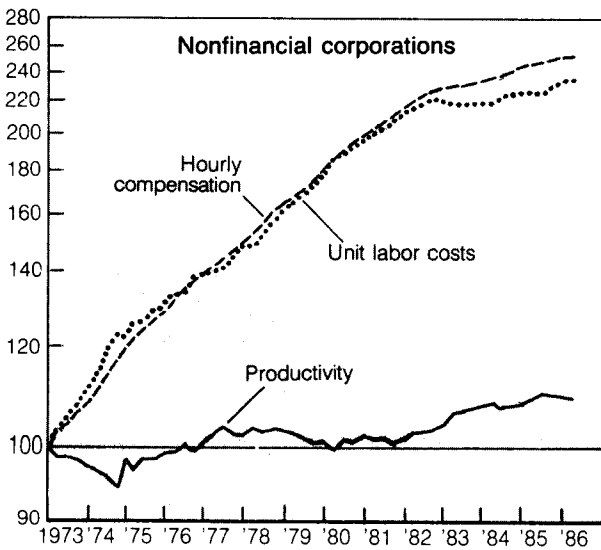
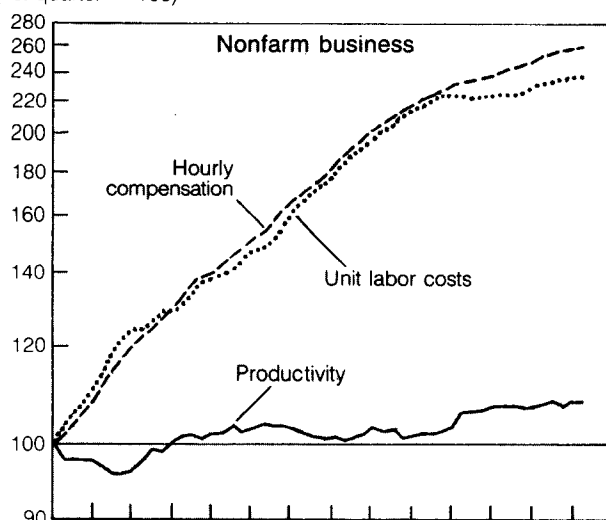
Business employment continued to grow during the second quarter of 1986, but the pace was slower than was typical for earlier quarters of the recovery. In all, over 9.5 million jobs have been added to business payrolls since the expansion phase of the business cycle began early in 1983. At 88.4 million, the business sector accounts for about 77 percent of U.S. employment.

Chart 2. Productivity and related measures in four major sectors of the economy, 1973–second quarter 1986

Ratio scale
(1st quarter = 100)



Ratio scale
(1st quarter = 100)



Nonfarm business. Productivity movements in nonfarm business are, of course, not affected by developments on farms, which are included in the more comprehensive business measure. Nonfarm productivity showed the same increase as the business measure in the second quarter. Output rose more than in the business sector, and hours posted a small rise. These were the smallest increases in nonfarm output and hours during the current expansion.

Hourly compensation increases in nonfarm business were modest in the second quarter, but the declining CPI-U resulted in the largest quarterly gain in real hourly compensation since 1983. Unit labor costs rose 1.8 percent, reflecting the small rise in productivity and moderate increase in hourly compensation.

Manufacturing. Although discussions of productivity often conjure up images of assembly-line production, manufacturing has long accounted for a small part of all business hours. Manufacturing hours—employment times average weekly hours—have declined from about one-third of business hours in the late 1960's to less than one-fourth presently. Over the same period, manufacturing output has fallen relatively little as a portion of business output—from 29 percent in 1969 to 27 percent in 1986—reflecting the relatively faster rate of productivity growth in manufacturing industries.

During the second quarter of 1986, the productivity advance that occurred in manufacturing resulted mainly from a decrease in hours. Paid hours of all persons engaged in both durable and nondurable goods manufacturing declined. Output was cut back by a smaller amount overall, so productivity rose. This was the first time that both manufacturing output and hours have declined since the recovery began.

Hourly compensation in manufacturing increased at a very modest 2.7-percent annual rate during second-quarter 1986. However, the decline in the CPI-U resulted in an increase in real hourly compensation that was larger than any

since 1982. Unit labor costs declined 0.5 percent in the second quarter.

The decline in manufacturing hours was accomplished through cutbacks in both employment and average weekly hours. Employment, which stood at 19.5 million in the second quarter, had grown by about 1.3 million jobs in the first eight quarters of the recovery, but then declined by about 300,000 over the next six quarters.

Nonfinancial corporations. Nonfinancial corporations experienced the third consecutive quarterly decrease in output per hour of all employees during the second quarter of 1986. This was also the first period since the fourth quarter of 1982 during which both output and hours declined. Hourly compensation increased only 1.6 percent, and this is reflected in the moderate 1.9-percent rise in unit labor costs during the period. Unit nonlabor costs—capital consumption allowances, interest, rental income of persons, and indirect business taxes—fell 2.7 percent, and unit profits rose at a 2.0-percent annual rate. The implicit price deflator, which reflects price movements in these costs and profits, rose 0.7 percent in the second quarter, the smallest increase since 1972.

The nonfinancial corporate sector includes all corporations doing business in the United States with the exception of banks, insurance companies, stock and commodities brokers, and finance and credit agencies. About 62 million jobs were provided by these corporations during the second quarter of 1986, 7.7 million more than at the start of the recovery.

Labor input trends. Payroll hours in the business sector have increased at a surprisingly rapid pace during the present recovery. But in manufacturing, growth in paid hours during the last 14 quarters has been slower than during previous long recoveries. This implies that nonmanufacturing firms have experienced very large hours increases during the period. □

—FOOTNOTES—

¹ The BLS labor productivity measures use labor input statistics derived primarily from two monthly BLS surveys, the Current Employment Statistics survey and the Current Population Survey. Output and compensation measures are based on quarterly data prepared by the Bureau of Economic Analysis, U.S. Department of Commerce, as part of the National Income and Product Accounts. For the most recent quarters, the manufacturing output measure reflects movements in the monthly index of industrial production for durable and nondurable manufactures prepared by the Board of Governors of the Federal Reserve System. Further information on the computation of BLS productivity and cost measures can be found in Chapter 13 of the *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982).

² Business cycles are designated by the National Bureau of Economic

Research, a private economic research organization based in Cambridge, MA.

³ The business sector excludes only those components of gross national product (GNP) for which independent measures of output and labor input are unavailable and components of GNP for which no corresponding labor input measure is available. These are: general government, nonprofit institutions, paid employees of private households, the rental value of owner-occupied housing, the rest-of-the-world sector, and the statistical discrepancy in preparing the National Income and Product Accounts.

The nonfarm business sector is the business sector less farms. The farm sector currently accounts for about 3 percent of business hours.

⁴ Hourly compensation measures are divided by the seasonally-adjusted quarterly average of the monthly Consumer Price Index for All Urban Consumers.