

LABOR PRODUCTIVITY AND COSTS IN 2000

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Labor productivity continued to rise rapidly in 2000. Output per hour in the non-farm business sector was up by about 3.5 percent over the year as a whole. Sizable gains in efficiency continued to be evident even as the economy was slowing in the second half of the year. Except for 1999, when output per hour rose about 3.75 percent, the past year's increase was the largest since 1992.

Labor Productivity and Costs

Fourth Quarter and Annual Averages, 2000

The Bureau of Labor Statistics (BLS) of the U.S. Department of Labor reported revised fourth-quarter seasonally adjusted annual rates of labor productivity change—as measured by output per hour of all persons—and revised annual changes for the full year 2000. In the several categories used by BLS to measure labor productivity—business, non-farm business, manufacturing (and the latter's two sub-sets, durable and non-durable manufacturing) and nonfinancial corporations—fourth-quarter productivity increases reflected small gains in output combined with drops in hours worked by all persons. Fourth-quarter productivity and related measures are summarized in table A and appear in detail in tables 1 through 6.

In the manufacturing sector, productivity rose 5.3 percent at a seasonally adjusted annual rate in the fourth quarter of 2000. This increase was higher than originally reported, reflecting an upward revision in output per hour in durable goods, whereas labor productivity was revised down in nondurable goods manufacturing. Annual productivity gains in manufacturing during 2000 was higher, at 7.1 percent. Productivity in durable goods manufacturing rose 10.5 percent, and nondurable rose only 3.2 percent, on an annual basis. Output and hours in manufacturing, which includes about 17 percent of U.S. business-sector employment, tend to vary more from quarter to quarter than data for the more aggregate business and non-farm business sectors. (See Table A.)

The data sources and methods used in the preparation of the manufacturing series differ from those used in preparing the business and non-farm business series. BLS thus cites several—at times seemingly overlapping—categories for labor productivity because these measures are not directly comparable. Output data for business and non-farm business are based on measures of gross domestic product (GDP) prepared by the U.S. Department of Commerce's Bureau of Economic Analysis; quarterly output measures for manufacturing reflect indexes of industrial production are prepared independently by the Board of Governors of the Federal Reserve System.

Third-to-Fourth Quarter 2000 Changes

Business

Business sector productivity rose 3.1 percent at a seasonally adjusted annual rate in the fourth quarter of 2000, as output increased 0.8 percent and hours of all persons engaged in the sector decreased 2.2 percent. (See table 1.) The fourth-quarter decrease in hours was the largest since the first quarter of 1992, when hours fell 2.5 percent. During third-quarter 2000, productivity had increased 2.4 percent as output grew 2.3 percent and hours edged down by 0.1 percent.

Hourly compensation grew at a 7.5-percent annual rate in the fourth quarter, compared with a 5.7-percent rise in the third quarter. This measure includes wages and salaries, supplements, employer contributions to employee-benefit plans, and taxes. Real hourly compensation, which takes into account changes in consumer prices, rose 4.5 percent in the fourth quarter and 2.0 percent in the third quarter.

Unit labor costs, which reflect changes in both hourly compensation and productivity, increased 4.3

¹ The views and conclusions expressed in this article are those of the author. They are not necessarily the views of the U.S. International Trade Commission as a whole or of any individual Commissioner.

Table A
Productivity and costs: Revised fourth-quarter 2000 measures (seasonally adjusted annual rates)

Sector	Productivity	Output	Hours	Hourly compensation	Real hourly compensation	Unit labor costs
Percent change from preceding quarter						
Business	3.1	0.8	-2.2	7.5	4.5	4.3
Non-farm business	2.2	0.8	-1.4	6.6	3.6	4.3
Manufacturing	5.3	-1.8	-6.7	8.4	5.4	3.0
Durable	6.6	-0.5	-6.7	9.4	6.4	2.6
Nondurable	3.8	-3.2	-6.7	6.8	3.8	2.9
Percent change from same quarter a year ago						
Business	3.5	3.7	0.1	6.0	2.5	2.3
Non-farm business	3.4	3.7	0.3	5.7	2.3	2.3
Manufacturing	6.6	4.2	-2.3	6.2	2.7	-0.5
Durable	10.5	8.4	-1.9	5.9	2.4	-4.2
Nondurable	2.1	-0.8	-2.8	6.6	3.1	4.4

Source: U.S. Department of Labor

percent during the fourth quarter, rising faster than the 3.1 percent increase during the third quarter. The implicit price deflator for business output, which reflects changes in unit labor costs and unit non-labor payments, increased 1.6 percent in the fourth quarter. This measure rose 1.2 percent during the third quarter.

Non-farm business

In the non-farm business sector, productivity rose at an annual rate of 2.2 percent in the fourth quarter of 2000, as output grew 0.8 percent and hours of all persons—employees, proprietors, and unpaid family workers—fell 1.4 percent at seasonally adjusted annual rates. During the third quarter, productivity had increased 3.0 percent, output had increased 2.3 percent, and hours had declined 0.7 percent. (See table 2.)

Hourly compensation rose 6.6 percent in the fourth quarter. This was the largest increase in this measure since the first quarter of 1992, when hourly compensation increased 8.8 percent. Real hourly compensation rose 3.6 percent in the fourth quarter of 2000.

Unit labor costs rose 4.3 percent in the fourth quarter and 3.2 percent in the third quarter. The implicit price deflator for non-farm business rose 1.5 percent in the fourth quarter, as a 2.9 percent decline in unit non-labor payments offset much of the rise in unit labor costs. This sector's price deflator rose 1.4 percent, which was largely offset by a 1.5 percent decline in payments, during the third quarter of 2000.

Manufacturing

Manufacturing productivity rose 5.3 percent at seasonally adjusted annual rates in the fourth quarter of 2000, as output fell 1.8 percent and hours dropped by 6.7 percent. (See table 3.) Productivity rose in both of the manufacturing sub-sectors. In durable goods, productivity increased 6.6 percent in the fourth quarter, reflecting declines of 0.5 percent in output and 6.7 percent in hours. In nondurable goods, productivity grew 3.8 percent in the fourth quarter, reflecting a 3.2-percent drop in output and a 6.7-percent decline in hours. (See tables 4 and 5.)

Hourly compensation of all manufacturing workers rose 8.4 percent during the fourth quarter. This was the largest increase in hourly compensation in the sector since a 12.0-percent rise in the second quarter of 1982. Hourly compensation rose in both of the manufacturing sub-sectors in fourth-quarter 2000, rising by 9.4 percent for durable goods manufacturers and by 6.8 percent for nondurable goods manufacturers. Real hourly compensation for all manufacturing workers rose 5.4 percent in the fourth quarter.

Unit labor costs in manufacturing rose 3.0 percent in the fourth quarter of 2000—2.6 percent in durable goods and 2.9 percent in nondurable goods. For durable goods manufacturers, this was the first increase in unit labor costs since the second quarter of 1995, when they rose 0.9 percent, and the largest increase in these costs since the third quarter of 1993, when they rose 5.7 percent.

Table 1
Business sector: Productivity, hourly compensation, unit labor costs, and prices, seasonally adjusted

Year and quarter		Output per hour of all persons		Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
		Output	Output						
Indexes 1992=100									
<i>Percent change from previous quarter at annual rate</i>									
1998	I	4.8	7.9	2.9	6.4	5.7	1.5	-1.5	0.3
	II	1.1	2.9	1.8	5.1	3.5	3.9	-4.2	0.7
	III	1.9	3.7	1.8	4.9	3.4	2.9	-1.9	1.1
	IV	3.5	6.8	3.2	4.3	2.7	0.8	0.3	0.6
	Annual	2.8	5.0	2.2	5.3	3.9	2.5	-1.7	0.8
1999	I	2.7	3.8	1.1	4.5	2.9	1.8	2.0	1.9
	II	0.5	2.6	2.1	4.5	1.3	4.0	-3.4	1.2
	III	4.7	6.6	1.9	5.1	2.4	0.4	0.8	0.5
	IV	7.6	9.9	2.1	3.8	0.9	-3.6	9.0	1.0
	Annual	2.8	4.8	2.0	4.6	2.4	1.8	0.0	1.1
2000	I	1.7	5.3	3.5	3.7	-0.4	1.9	4.8	3.0
	II	7.0	6.3	-0.7	7.1	4.0	0.0	6.1	2.4
	III	2.4	2.3	-0.1	5.7	2.0	3.1	-1.7	1.2
	IV	3.1	0.8	-2.2	7.5	4.5	4.3	-2.7	1.6
	Annual	4.2	5.6	1.3	5.0	1.7	0.8	3.4	1.8
<i>Percent change from corresponding quarter of previous year</i>									
1998	I	3.4	5.8	2.3	4.7	3.3	1.2	0.9	1.1
	II	2.7	4.7	2.0	5.7	4.1	2.9	-2.5	0.8
	III	2.2	4.4	2.2	5.8	4.3	3.5	-3.3	0.8
	IV	2.8	5.3	2.4	5.2	3.8	2.3	-1.8	0.7
	Annual	2.8	5.0	2.2	5.3	3.9	2.5	-1.7	0.8
1999	I	2.3	4.3	2.0	4.7	3.1	2.4	-1.0	1.1
	II	2.1	4.2	2.0	4.6	2.6	2.4	-0.8	1.2
	III	2.8	4.9	2.1	4.6	2.3	1.8	-0.1	1.0
	IV	3.8	5.7	1.8	4.5	1.9	0.6	2.0	1.1
	Annual	2.8	4.8	2.0	4.6	2.4	1.8	0.0	1.1
2000	I	3.6	6.1	2.4	4.3	1.0	0.6	2.7	1.4
	II	5.2	7.0	1.7	4.9	1.7	-0.3	5.1	1.7
	III	4.7	5.9	1.2	5.0	1.6	0.3	4.5	1.9
	IV	3.5	3.7	0.1	6.0	2.5	2.3	1.6	2.0
	Annual	4.2	5.6	1.3	5.0	1.7	0.8	3.4	1.8

Source: Bureau of Labor Statistics

Table 2
Non-farm business sector: Productivity, hourly compensation, unit labor costs, and prices, seasonally adjusted

Year and quarter		Output per hour of all persons	Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator	
		Indexes 1992=100								
		<i>Percent change from previous quarter at annual rate</i>								
1998	I	4.7	8.2	3.3	6.3	5.5	1.6	-1.4	0.4	
	II	1.6	3.1	1.5	5.3	3.7	3.6	-3.8	0.7	
	III	1.6	3.7	2.0	4.9	3.4	3.3	-1.8	1.3	
	IV	3.2	6.8	3.5	4.0	2.4	0.7	0.2	0.6	
	Annual	2.7	5.1	2.4	5.2	3.8	2.5	-1.4	0.9	
1999	I	2.0	3.6	1.6	3.8	2.1	1.8	3.0	2.2	
	II	0.2	2.4	2.2	4.5	1.3	4.3	-3.0	1.5	
	III	5.0	7.0	1.9	5.2	2.6	0.2	1.3	0.6	
	IV	8.0	10.0	1.8	4.2	1.3	-3.5	8.9	1.0	
	Annual	2.6	4.8	2.2	4.4	2.3	1.8	0.5	1.3	
2000	I	2.1	5.2	3.0	4.1	0.0	1.9	5.1	3.2	
	II	6.3	6.5	0.2	6.0	2.9	-0.2	5.7	2.0	
	III	3.0	2.3	-0.7	6.2	2.6	3.2	-1.2	1.4	
	IV	2.2	0.8	-1.4	6.6	3.6	4.3	-2.9	1.5	
	Annual	4.3	5.7	1.3	5.1	1.7	0.7	3.6	1.8	
		<i>Percent change from corresponding quarter of previous year</i>								
1998	I	3.2	5.8	2.5	4.5	3.1	1.2	1.3	1.2	
	II	2.6	4.8	2.1	5.5	4.0	2.8	-2.1	0.9	
	III	2.2	4.6	2.3	5.7	4.2	3.5	-3.1	0.9	
	IV	2.8	5.4	2.6	5.1	3.8	2.3	-1.7	0.8	
	Annual	2.7	5.1	2.4	5.2	3.8	2.5	-1.4	0.9	
1999	I	2.1	4.3	2.1	4.5	2.9	2.4	-0.6	1.2	
	II	1.7	4.1	2.3	4.3	2.3	2.5	-0.4	1.4	
	III	2.6	4.9	2.3	4.4	2.1	1.7	0.3	1.2	
	IV	3.8	5.7	1.9	4.4	1.8	0.6	2.5	1.3	
	Annual	2.6	4.8	2.2	4.4	2.3	1.8	0.5	1.3	
2000	I	3.8	6.1	2.2	4.5	1.3	0.7	3.0	1.6	
	II	5.3	7.2	1.7	4.9	1.7	-0.4	5.2	1.7	
	III	4.8	6.0	1.1	5.1	1.7	0.3	4.6	1.9	
	IV	3.4	3.7	0.3	5.7	2.3	2.3	1.6	2.0	
	Annual	4.3	5.7	1.3	5.1	1.7	0.7	3.6	1.8	

Source: Bureau of Labor Statistics

Table 3
Manufacturing sector: Productivity, hourly compensation, and unit labor costs, seasonally adjusted

Year and quarter		Output	Output	Hours of	Compen-	Unit	Real
		per hour		persons	all	sation per	labor
		of all		persons	hour	costs	sation
		persons					per hour
<i>Indexes 1992=100</i>							
<i>Percent change from previous quarter at annual rate</i>							
1998	I	6.3	6.0	-0.3	7.2	6.4	0.8
	II	5.2	3.6	-1.5	4.9	3.3	-0.3
	III	8.3	4.5	-3.5	4.4	2.9	-3.6
	IV	3.8	5.0	1.2	3.4	1.8	-0.3
	Annual	6.2	5.9	-0.3	5.3	3.9	-0.8
1999	I	6.8	4.1	-2.5	2.8	1.2	-3.7
	II	4.2	5.4	1.1	4.6	1.3	0.4
	III	5.2	6.0	0.7	5.3	2.6	0.1
	IV	9.7	6.8	-2.7	4.5	1.6	-4.8
	Annual	5.8	4.9	-0.8	4.0	1.9	-1.7
2000	I	8.3	7.1	-1.1	5.0	0.9	-3.0
	II	6.3	8.0	1.6	4.3	1.3	-1.9
	III	6.7	3.8	-2.8	6.9	3.3	0.2
	IV	5.3	-1.8	-6.7	8.4	5.4	3.0
	Annual	7.1	6.0	-1.1	5.2	1.9	-1.8
<i>Percent change from corresponding quarter previous year</i>							
1998	I	6.0	6.8	0.7	4.6	3.2	-1.3
	II	6.6	6.4	-0.2	5.8	4.2	-0.8
	III	6.3	5.5	-0.7	5.9	4.4	-0.4
	IV	5.9	4.8	-1.0	5.0	3.6	-0.8
	Annual	6.2	5.9	-0.3	5.3	3.9	-0.8
1999	I	6.0	4.3	-1.6	3.9	2.3	-2.0
	II	5.7	4.7	-0.9	3.8	1.8	-1.8
	III	5.0	5.1	0.1	4.0	1.7	-0.9
	IV	6.5	5.6	-0.8	4.3	1.7	-2.0
	Annual	5.8	4.9	-0.8	4.0	1.9	-1.7
2000	I	6.8	6.3	-0.5	4.8	1.6	-1.9
	II	7.4	7.0	-0.4	4.8	1.6	-2.4
	III	7.7	6.4	-1.2	5.2	1.8	-2.4
	IV	6.6	4.2	-2.3	6.2	2.7	-0.5
	Annual	7.1	6.0	-1.1	5.2	1.9	-1.8

Source: Bureau of Labor Statistics

Table 4
Durable manufacturing sector: Productivity, hourly compensation, and unit labor costs, seasonally adjusted

Year and quarter		Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs	
		per hour of all persons					Output
Indexes 1992=100							
<i>Percent change from previous quarter at annual rate</i>							
1998	I	8.7	10.2	1.3	6.5	5.7	-2.0
	II	7.0	5.8	-1.1	4.1	2.5	-2.7
	III	13.3	9.7	-3.1	4.1	2.6	-8.1
	IV	7.9	10.2	2.1	4.4	2.8	-3.3
	Annual	9.0	9.6	0.5	5.2	3.8	-3.5
1999	I	10.8	6.1	-4.3	4.1	2.5	-6.1
	II	7.9	8.6	0.7	6.0	2.7	-1.8
	III	6.8	10.4	3.4	5.7	3.1	-1.0
	IV	10.7	7.9	-2.6	5.6	2.7	-4.6
	Annual	9.3	8.4	-0.8	4.8	2.7	-4.1
2000	I	13.9	12.7	-1.1	4.2	0.1	-8.6
	II	10.2	13.7	3.2	3.7	0.7	-5.9
	III	11.5	8.1	-3.0	6.3	2.7	-4.6
	IV	6.6	-0.5	-6.7	9.4	6.4	2.6
	Annual	10.5	10.0	-0.5	5.2	1.9	-4.8
<i>Percent change from corresponding quarter of previous year</i>							
1998	I	8.5	10.4	1.7	4.6	3.2	-3.6
	II	9.0	9.7	0.6	5.7	4.1	-3.1
	III	9.4	9.3	-0.1	5.7	4.2	-3.4
	IV	9.2	9.0	-0.2	4.8	3.4	-4.0
	Annual	9.0	9.6	0.5	5.2	3.8	-3.5
1999	I	9.7	7.9	-1.6	4.2	2.6	-5.1
	II	10.0	8.7	-1.2	4.7	2.7	-4.8
	III	8.3	8.8	0.4	5.1	2.8	-3.0
	IV	9.0	8.2	-0.7	5.4	2.7	-3.4
	Annual	9.3	8.4	-0.8	4.8	2.7	-4.1
2000	I	9.8	9.9	0.1	5.4	2.1	-4.0
	II	10.4	11.2	0.7	4.8	1.6	-5.0
	III	11.6	10.6	-0.9	5.0	1.5	-5.9
	IV	10.5	8.4	-1.9	5.9	2.4	-4.2
	Annual	10.5	10.0	-0.5	5.2	1.9	-4.8

Source: Bureau of Labor Statistics

Table 5
Nondurable manufacturing sector: Productivity, hourly compensation, and unit labor costs, seasonally adjusted

Year and quarter		Output	Hours of all persons	Compensation per hour	Real compensation per hour	Unit labor costs	
		per hour of all persons					
Indexes 1992=100							
<i>Percent change from previous quarter at annual rate</i>							
1998	I	3.5	0.8	-2.6	8.1	7.4	4.5
	II	2.8	0.9	-1.9	6.1	4.5	3.2
	III	2.5	-1.6	-4.1	4.8	3.3	2.2
	IV	-0.9	-1.0	-0.2	1.6	0.0	2.4
	Annual	3.0	1.5	-1.5	5.3	3.9	2.3
1999	I	1.7	2.0	0.3	0.9	-0.7	-0.8
	II	-0.1	1.7	1.8	2.3	-0.9	2.4
	III	4.1	0.8	-3.2	4.0	1.4	-0.1
	IV	8.6	5.6	-2.8	2.5	-0.3	-5.6
	Annual	1.8	0.9	-0.8	2.6	0.5	0.8
2000	I	1.6	0.5	-1.1	6.5	2.3	4.8
	II	2.0	1.2	-0.8	5.0	1.9	3.0
	III	0.9	-1.5	-2.4	8.0	4.3	7.0
	IV	3.8	-3.2	-6.7	6.8	3.8	2.9
	Annual	3.2	1.2	-2.0	5.1	1.7	1.8
<i>Percent change from corresponding quarter of previous year</i>							
1998	I	3.5	2.7	-0.7	4.3	2.9	0.8
	II	3.9	2.5	-1.4	5.8	4.2	1.8
	III	2.5	0.9	-1.6	6.0	4.6	3.4
	IV	2.0	-0.3	-2.2	5.1	3.8	3.1
	Annual	3.0	1.5	-1.5	5.3	3.9	2.3
1999	I	1.6	0.1	-1.5	3.3	1.8	1.8
	II	0.8	0.3	-0.6	2.4	0.4	1.6
	III	1.2	0.9	-0.3	2.2	0.0	1.0
	IV	3.6	2.5	-1.0	2.4	-0.1	-1.1
	Annual	1.8	0.9	-0.8	2.6	0.5	0.8
2000	I	3.5	2.1	-1.3	3.8	0.6	0.3
	II	4.1	2.0	-2.0	4.5	1.3	0.4
	III	3.2	1.4	-1.8	5.5	2.0	2.2
	IV	2.1	-0.8	-2.8	6.6	3.1	4.4
	Annual	3.2	1.2	-2.0	5.1	1.7	1.8

Source: Bureau of Labor Statistics

Table 6
Nonfinancial corporations: Productivity, hourly compensation, unit labor costs, unit profits, and prices, seasonally adjusted

Year and quarter		Output per all-employee hour	Output	Employee hours	Hourly compensation	Real hourly compensation	Unit labor costs	Unit non-labor costs	Total unit costs	Unit profits	Implicit price deflator
Indexes 1992=100											
<i>Percent change from previous quarter at annual rate</i>											
1998	I	3.5	5.9	2.3	6.5	5.8	2.9	0.5	2.3	-14.5	0.1
	II	4.2	5.3	1.0	5.5	4.0	1.3	1.9	1.4	-8.0	0.3
	III	4.8	6.9	2.0	5.1	3.5	0.2	-2.1	-0.4	12.4	1.1
	IV	2.4	5.4	2.9	3.9	2.3	1.5	5.9	2.7	-16.6	0.2
	Annual	3.5	6.3	2.6	5.0	3.6	1.4	0.3	1.1	-5.1	0.3
1999	I	3.0	5.4	2.3	4.3	2.6	1.2	-3.2	0.0	15.6	1.7
	II	2.7	5.1	2.4	4.4	1.1	1.6	3.4	2.1	-5.3	1.2
	III	4.4	6.9	2.4	5.0	2.4	0.6	2.9	1.2	-10.8	-0.3
	IV	5.8	8.8	2.8	4.1	1.2	-1.7	2.1	-0.7	7.3	0.2
	Annual	3.5	5.9	2.3	4.5	2.3	1.0	1.3	1.0	-0.9	0.8
2000	I	3.1	6.2	3.0	2.9	-1.1	-0.2	3.0	0.7	14.9	2.3
	II	5.6	6.4	0.7	6.3	3.2	0.7	2.6	1.2	11.4	2.4
	III	4.4	4.4	0.0	6.0	2.4	1.5	2.6	1.8	-8.3	0.5
	IV										
	Annual										
<i>Percent change from corresponding quarter of previous year</i>											
1998	I	2.8	6.6	3.7	3.7	2.3	0.9	0.1	0.7	-2.6	0.3
	II	3.9	6.5	2.5	5.3	3.8	1.4	-0.3	0.9	-5.0	0.2
	III	3.8	6.1	2.2	5.8	4.3	1.9	-0.3	1.3	-5.3	0.5
	IV	3.7	5.9	2.1	5.3	3.9	1.5	1.5	1.5	-7.3	0.4
	Annual	3.5	6.3	2.6	5.0	3.6	1.4	0.3	1.1	-5.1	0.3
1999	I	3.6	5.7	2.0	4.7	3.1	1.0	0.6	0.9	-0.1	0.8
	II	3.2	5.7	2.4	4.4	2.4	1.1	0.9	1.1	0.6	1.0
	III	3.1	5.7	2.5	4.4	2.1	1.2	2.2	1.5	-5.0	0.7
	IV	4.0	6.5	2.5	4.4	1.8	0.4	1.3	0.7	1.2	0.7
	Annual	3.5	5.9	2.3	4.5	2.3	1.0	1.3	1.0	-0.9	0.8
2000	I	4.0	6.8	2.6	4.1	0.9	0.1	2.8	0.8	1.0	0.8
	II	4.7	7.1	2.2	4.6	1.4	-0.2	2.6	0.6	5.2	1.1
	III	4.7	6.4	1.6	4.8	1.4	0.1	2.6	0.7	5.9	1.3
	IV										
	Annual										

Source: Bureau of Labor Statistics

Annual Average Changes, 1999-2000

Business

In calendar year 2000, business sector productivity increased 4.2 percent, after having increased 2.8 percent in both 1998 and 1999. (See table B and table 1.) Output grew 5.6 percent in 2000, 4.8 percent in 1999, and 5.0 percent in 1998. Hours of all persons in the business sector rose by 1.3 percent in 2000, less than the 2.0 percent increase in 1999, and 2.2 percent increase in 1998.

Hourly compensation increased 5.0 percent in 2000, after having increased 4.6 percent in 1999, but less than the 5.3 percent annual increase in 1998. Real hourly compensation increased 1.7 percent in 2000, decelerating from a 2.4 percent rate of increase in 1999, which itself decelerated from a rate of increase of 3.9 percent in 1998. Calendar year 2000 was the fifth consecutive year of positive growth in this series, following three years of actual declines in real hourly compensation during 1993-95.

Unit labor costs increased 0.8 percent in 2000, less than the 1.8-percent increase in 1999, which in turn was less than the 2.5 percent increase in 1998. The implicit price deflator rose 1.8 percent in 2000, compared with a 1.1-percent increase in 1999, and a 0.8 percent increase the previous year.

Non-farm business

Productivity increased 4.3 percent in the non-farm business sector during 2000, more than in any year since 1983, when output per hour increased 4.5 percent. Productivity rose rapidly in 2000 because output grew 5.7 percent while hours of all persons rose by just

1.3 percent. In 1999, productivity rose 2.6 percent as output grew 4.8 percent and hours of all persons rose 2.2 percent. In 1998, productivity grew 2.7 percent, owing to a 5.1 percent increase in output and a 2.4 percent increase in hours worked.

Hourly compensation grew 5.1 percent in 2000, compared with a 4.4-percent increase in 1999, and 5.2 percent in 1998. The increase in real hourly compensation in 2000 by 1.7 percent, was smaller than during the previous year, when it had increased by 2.3 percent, which was yet again smaller than the 3.8 percent increase in 1998.

Unit labor costs in the non-farm business sector rose by 0.7 percent in 2000, less than the 1.8-percent increase posted in 1999, and the 2.5 percent increase in 1998. The implicit price deflator, which reflects non-labor payments as well as labor costs, rose by 1.8 percent in 2000, following a 1.3-percent rise in 1999, and a 0.9 percent increase in 1998.

Manufacturing

Manufacturing productivity grew 7.1 percent in 2000, continuing a trend of annual increases that began in 1980. This 7.1 percent increase in output per hour was the largest recorded over the 51-year history of the measure. Output in the manufacturing sector increased by 6.0 percent in 2000, and hours of all persons fell by 1.1 percent. In 2000, labor productivity increased by 10.5 percent in durable goods manufacturing (also the largest in the history of this measure), reflecting a 10.0-percent output increase and a decline of 0.5 percent in hours worked by all persons. In nondurable goods manufacturing, productivity rose by 3.2 percent in 2000, as output grew 1.2 percent and hours worked by all persons declined 2.0 percent (See tables 3, 4, and 5).

Table B
Productivity and costs: Revised annual 2000 averages (seasonally adjusted annual rates)

Sector	Productivity	Output	Hours	Hourly compensation	Real hourly compensation	Unit labor costs
Percent change from preceding year						
Business	4.2	5.6	1.3	5.0	1.7	0.8
Non-farm business	4.3	5.7	1.3	5.1	1.7	0.7
Manufacturing	7.1	6.0	-1.1	5.2	1.9	-1.8
Durable	10.5	10.0	-0.5	5.2	1.9	-4.8
Nondurable	3.2	1.2	-2.0	5.1	1.7	1.8

Source: U.S. Department of Labor

Hourly compensation of manufacturing workers increased by 5.2 percent in 2000, faster than the 4.0 percent increase a year earlier, but essentially equal to the 5.3 percent increase in 1998. Real hourly compensation rose by 1.9 percent in both 1999 and 2000, both substantially lower than the 3.9 percent rise in 1998 real compensation. In 2000, nominal hourly compensation increases in the two sub-sectors were similar to the manufacturing total, 5.2 percent in durable goods and 5.1 percent in nondurable goods.

Unit labor costs fell by 1.8 percent during 2000 in the manufacturing sector, the seventh consecutive annual decline. This trend of declining unit labor costs was due almost entirely to decreases in durable goods manufacturing, where these costs have fallen for nine consecutive years. In 2000, unit labor costs in durable goods industries fell by 4.8 percent whereas, in contrast, unit labor costs rose by 1.8 percent in nondurable goods industries.

Sources and Definitions

Productivity: These productivity measures describe the relationship between real output and the labor time involved in its production. They show the changes from period to period in the amount of goods and services produced per hour. Although these measures relate output to hours at work of all persons engaged in a sector, they do not measure the specific contribution of labor, capital, or any other factor of production. Rather, they reflect the joint effects of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and effort of the work force.

Output: Business sector output is an annual-weighted index constructed after excluding from GDP the following outputs: general government, nonprofit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Corresponding exclusions also are made in labor inputs. Business output accounted for about 77 percent of the value of GDP in 1996. Non-farm business, which also excludes farming, accounted for about 76 percent of GDP in 1996.

Annual indexes for manufacturing and its durable and nondurable goods components are constructed by deflating the current-dollar value-of-production for an industry, taken from the U.S. Bureau of the Census and using deflators from the BEA. These deflators are based on data from the BLS producer price program and other sources. The industry shipments are aggregated using annual weights, and intra-sector transac-

tions are removed. Quarterly manufacturing output measures are based on the index of industrial production, prepared monthly by the Board of Governors of the Federal Reserve System, adjusted to be consistent with annual indexes of manufacturing sector output prepared by BLS. Durables include the following 2-digit SIC industries: primary metal industries; fabricated metal products; non-electrical machinery; industrial and commercial machinery and computer equipment; electronic and other electrical equipment; transportation equipment; instruments; lumber and lumber products; furniture and fixtures; stone, clay, and glass and concrete products; and miscellaneous manufactures. Non-durables include: Food and kindred products, tobacco products, textile mill products, apparel products, paper and allied products, printing and publishing, chemicals and chemical products, petroleum refining and related industries, rubber and plastic products, and leather and leather products.

Output by nonfinancial corporations is an annual-weighted index constructed by excluding from GDP the following outputs: general government; nonprofit institutions; employees of private households; the rental value of owner-occupied dwellings; unincorporated business; and those corporations which are depository institutions, nondepository institutions, security and commodity brokers, insurance carriers, regulated investment offices, small business investment offices, and real estate investment trusts. Nonfinancial corporations accounted for about 53 percent of the value of GDP in 1996.

Labor Hours: Data for hours worked for the labor productivity and cost measures include hours for all persons working in the sector: wage and salary workers, the self-employed, and unpaid family workers. The primary source of hours and employment data is the BLS *Current Employment Statistics* (CES) program, which provides monthly survey data on the number of jobs held by wage and salary workers in non-farm establishments. The CES also provides data on average weekly paid hours of production and the number of non-supervisory workers in these establishments. The BLS Office of Productivity and Technology estimates the average weekly paid hours of non-production as well as supervisory workers. The measure "weekly paid hours" is adjusted to "hours at work" using the BLS *Hours at Work* survey, conducted for this purpose.

Data from the BLS *Current Population Survey* help measure farm labor; the Department of Commerce's Bureau of Economic Analysis (BEA) provides data from the National Income and Product Accounts used to measure labor input for government enterprises, proprietors, and unpaid family workers to help measure non-farm labor.