

U.S. Labor Productivity and Costs, Third Quarter, 2002

Michael Youssef¹
myoussef@usitc.gov
202-205-3269

The surge in U.S. labor productivity has been a major driving force of the “New Economy” boom years of the late 1990s. Sustainable rates of economic growth, low inflation, reduced rates of unemployment, advances in computing and telecommunications technologies, and increased competitiveness due to globalization of economic production and sourcing have also characterized this so-called New Economy.

Labor productivity—as measured by output per hour of all persons—increased in the third quarter of 2002 in both business and non-farm business sector, according to the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor. Productivity growth in the third quarter was 5.4 percent in the business sector and 5.1 percent in the non-farm business sector, at seasonally adjusted annual rates. All data following are seasonally adjusted annual rates from a year ago.

Productivity increased by 5.4 percent in the business sector (which includes farms), as output grew by 5.2 percent but hours worked declined by 0.2 percent. The 5.1 percent increase in non-farm business productivity also reflected a 5.1 percent growth in output, but no change in non-farm business hours (table 1 and 2). In manufacturing, productivity increases in the third quarter were (table 3, 4, and 5):

- 5.5 percent in manufacturing,
- 8.8 percent in durable goods manufacturing,
- 1.3 percent in nondurable goods manufacturing.

BLS data show that the 5.5 percent increase in manufacturing productivity in the third quarter follows a 4.2-percent rise in the previous quarter. Output and

hours worked in manufacturing, which include about 16 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. Third-quarter measures are summarized in table 6.

BLS advises that 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, and these measures are not directly comparable. That is because output measures for business and non-farm business are based on measures of gross domestic product (GDP) prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce, whereas, quarterly output measures for manufacturing reflect indexes of industrial production independently prepared by the Board of Governors of the Federal Reserve System.

Business Sector

In the business sector (which includes farms), BLS reported that productivity increased by 5.4 percent (annual rate) in the third quarter from the second quarter of 2002. Output increased by 5.2 percent, while hours of all persons engaged in the sector declined by 0.2 percent. In the second quarter, productivity in the business sector rose by 1.8 percent, reflecting a 0.6-percent rise in output and a 1.2-percent decline in hours.

Hourly compensation increased at an annual rate of 5.3 percent in the third quarter of 2002. In the second quarter, hourly compensation increased by 4.2 percent, and in the first quarter hourly compensation increased by 3.0 percent. This measure includes wages and salaries, supplements, employer contributions to employee benefit plans, and taxes. Real hourly compensation increased by 3.4 percent in the third quarter of 2002.

¹ Michael Youssef is an international economist in the USITC Office of Economics, Country and Regional Analysis Division. The views expressed in this article are those of the author. They are not the views of the U.S. International Trade Commission (USITC) as a whole or of any individual Commissioner.

Table 1**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 output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
<i>Indexes 1992=100</i>								
2000:Q1	115.3	138.4	120.1	131.4	110.5	114.0	110.7	112.8
2000:Q2	117.2	140.3	119.7	132.4	110.5	113.0	114.1	113.4
2000:Q3	117.3	140.4	119.7	135.0	111.7	115.1	111.2	113.7
2000:Q4	117.9	140.7	119.4	136.3	111.9	115.6	112.0	114.3
2000:Annual	116.9	140.0	119.7	133.8	111.2	114.4	112.0	113.5
2001:Q1	117.5	140.4	119.5	137.3	111.8	116.9	112.3	115.2
2001:Q2	117.4	139.4	118.7	137.5	111.0	117.1	113.6	115.8
2001:Q3	117.9	139.1	117.9	137.8	111.1	116.8	115.5	116.4
2001:Q4	120.1	140.3	116.8	138.3	111.6	115.1	117.2	115.9
2001:Annual	118.2	139.8	118.2	137.7	111.4	116.5	114.7	115.8
2002:Q1	122.5	142.3	116.1	139.3	112.0	113.7	119.9	116.0
2002:Q2	123.1	142.5	115.8	140.8	112.2	114.4	119.3	116.2
2002:Q3	124.7	144.3	115.7	142.6	113.2	114.3	119.7	116.3
<i>Percent change from previous quarter at annual rate</i>								
2000:Q1	0.3	2.2	1.9	14.7	10.3	14.4	-15.1	2.4
2000:Q2	6.7	5.4	-1.2	3.0	0.0	-3.5	12.9	2.2
2000:Q3	0.4	0.4	0.0	8.3	4.6	7.8	-9.6	1.1
2000:Q4	2.1	0.9	-1.2	3.7	0.7	1.6	2.6	1.9
2000:Annual	3.0	4.1	1.0	6.8	3.4	3.7	-1.7	1.7
2001:Q1	-1.5	-1.0	0.4	3.1	-0.6	4.7	1.1	3.4
2001:Q2	-0.2	-2.8	-2.6	0.5	-2.6	0.7	4.9	2.2
2001:Q3	1.8	-0.9	-2.6	0.9	0.2	-0.9	6.8	1.8
2001:Q4	7.6	3.5	-3.9	1.4	1.7	-5.8	6.1	-1.6
2001:Annual	1.1	-0.2	-1.3	2.9	0.2	1.8	2.4	2.0
2002:Q1	8.3	5.9	-2.2	3.0	1.6	-4.9	9.6	0.3
2002:Q2	1.8	0.6	-1.2	4.2	0.8	2.4	-2.0	0.7
2002:Q3	5.4	5.2	-0.2	5.3	3.4	-0.1	1.3	0.4

Table 1—Continued

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 output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
<i>Percent change from corresponding quarter of preceding year</i>								
2000:Q1	2.3	4.6	2.3	5.9	2.5	3.5	-2.0	1.4
2000:Q2	4.1	5.4	1.3	6.5	3.1	2.3	0.8	1.7
2000:Q3	3.3	4.1	0.7	7.7	4.1	4.3	-2.5	1.7
2000:Q4	2.4	2.2	-0.1	7.3	3.8	4.9	-2.9	1.9
2000:Annual	3.0	4.1	1.0	6.8	3.4	3.7	-1.7	1.7
2001:Q1	1.9	1.4	-0.5	4.5	1.2	2.6	1.4	2.2
2001:Q2	0.2	-0.7	-0.9	3.9	0.5	3.6	-0.4	2.1
2001:Q3	0.5	-1.0	-1.5	2.0	-0.6	1.5	3.8	2.3
2001:Q4	1.9	-0.3	-2.2	1.5	-0.3	-0.4	4.7	1.4
2001:Annual	1.1	-0.2	-1.3	2.9	0.2	1.8	2.4	2.0
2002:Q1	4.3	1.4	-2.8	1.4	0.2	-2.8	6.8	0.7
2002:Q2	4.8	2.3	-2.5	2.4	1.1	-2.4	5.0	0.3
2002:Q3	5.8	3.8	-1.9	3.5	1.9	-2.2	3.6	0.0

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 output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
<i>Indexes 1992=100</i>								
2000:Q1	114.7	138.7	120.9	130.8	110.0	114.0	112.3	113.4
2000:Q2	116.4	140.5	120.7	131.5	109.8	113.0	115.6	113.9
2000:Q3	116.6	140.6	120.6	134.3	111.1	115.2	112.8	114.3
2000:Q4	117.1	141.0	120.4	135.3	111.2	115.6	113.4	114.8
2000:Annual	116.2	140.2	120.6	133.0	110.6	114.4	113.5	114.1
2001:Q1	116.7	140.7	120.6	136.3	110.9	116.8	113.8	115.7
2001:Q2	116.6	139.7	119.8	136.3	110.1	116.9	115.3	116.3
2001:Q3	117.2	139.4	118.9	136.7	110.2	116.6	117.2	116.8
2001:Q4	119.3	140.4	117.7	137.2	110.7	115.0	119.2	116.5
2001:Annual	117.5	140.1	119.2	136.6	110.5	116.3	116.4	116.3
2002:Q1	121.8	142.5	117.0	138.2	111.1	113.4	121.7	116.4
2002:Q2	122.3	142.9	116.8	139.5	111.2	114.0	121.7	116.8
2002:Q3	123.8	144.7	116.8	141.2	112.0	114.0	121.9	116.9
<i>Percent change from previous quarter at annual rate</i>								
2000:Q1	0.2	1.9	1.7	15.2	10.7	14.9	-15.3	2.7
2000:Q2	6.0	5.4	-0.6	2.2	-0.7	-3.6	12.2	1.9
2000:Q3	0.6	0.2	-0.4	8.7	4.9	8.0	-9.1	1.4
2000:Q4	1.7	1.1	-0.6	3.1	0.2	1.4	2.1	1.6
2000:Annual	2.9	4.0	1.0	7.0	3.5	3.9	-1.7	1.8
2001:Q1	-1.5	-0.9	0.5	2.8	-0.9	4.3	1.5	3.3
2001:Q2	-0.1	-2.7	-2.6	0.1	-2.9	0.3	5.1	2.0
2001:Q3	2.1	-0.8	-2.9	1.0	0.3	-1.1	6.8	1.7
2001:Q4	7.3	2.9	-4.1	1.5	1.8	-5.4	6.9	-1.0
2001:Annual	1.1	-0.1	-1.2	2.7	-0.1	1.6	2.5	1.9
2002:Q1	8.6	6.2	-2.2	2.9	1.4	-5.3	8.8	-0.2
2002:Q2	1.7	0.9	-0.7	3.9	0.5	2.2	0.1	1.4
2002:Q3	5.1	5.1	0.0	4.9	3.0	-0.2	0.4	0.1

Table 2—Continued

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 output	Compensation per hour	Real compensation per hour	Unit labor costs	Unit non-labor payments	Implicit price deflator
<i>Percent change from corresponding quarter of preceding year</i>								
2000:Q1	2.3	4.5	2.1	6.2	2.8	3.7	-1.8	1.7
2000:Q2	4.0	5.4	1.3	6.6	3.2	2.5	0.7	1.8
2000:Q3	3.3	3.9	0.6	7.9	4.3	4.5	-2.6	1.8
2000:Q4	2.1	2.2	0.0	7.2	3.7	4.9	-3.1	1.9
2000:Annual	2.9	4.0	1.0	7.0	3.5	3.9	-1.7	1.8
2001:Q1	1.7	1.4	-0.3	4.2	0.9	2.4	1.4	2.1
2001:Q2	0.2	-0.6	-0.8	3.6	0.3	3.5	-0.3	2.1
2001:Q3	0.5	-0.8	-1.4	1.8	-0.8	1.2	3.9	2.2
2001:Q4	1.9	-0.4	-2.3	1.4	-0.4	-0.5	5.1	1.5
2001:Annual	1.1	-0.1	-1.2	2.7	-0.1	1.6	2.5	1.9
2002:Q1	4.4	1.3	-2.9	1.4	0.1	-2.9	6.9	0.6
2002:Q2	4.9	2.3	-2.5	2.3	1.0	-2.4	5.6	0.5
2002:Q3	5.6	3.8	-1.8	3.3	1.7	-2.2	4.0	0.1

Table 3
Manufacturing sector: Productivity, hourly compensation, and unit labor costs, 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
<i>Indexes 1992=100</i>						
2000:Q1	133.6	138.3	103.5	131.4	110.5	98.4
2000:Q2	134.9	139.8	103.6	129.3	107.9	95.9
2000:Q3	135.4	139.3	102.9	132.2	109.4	97.7
2000:Q4	135.9	137.6	101.3	131.5	108.0	96.7
2000:Annual	134.9	138.7	102.8	131.1	109.0	97.2
2001:Q1	135.4	135.1	99.8	132.0	107.4	97.5
2001:Q2	135.4	133.0	98.2	133.0	107.4	98.2
2001:Q3	136.4	131.3	96.3	133.3	107.5	97.8
2001:Q4	137.6	129.2	93.9	134.3	108.3	97.6
2001:Annual	136.2	132.1	97.1	133.1	107.7	97.8
2002:Q1	140.9	130.2	92.4	135.6	109.0	96.2
2002:Q2	142.3	131.3	92.3	136.6	108.9	96.0
2002:Q3	144.2	132.3	91.8	138.1	109.6	95.8
<i>Percent change from previous quarter at annual rate</i>						
2000:Q1	4.5	2.7	-1.7	25.3	20.5	19.9
2000:Q2	3.8	4.4	0.5	-6.3	-9.0	-9.7
2000:Q3	1.6	-1.3	-2.8	9.5	5.8	7.8
2000:Q4	1.6	-4.8	-6.3	-2.3	-5.1	-3.8
2000:Annual	4.1	2.5	-1.5	7.4	3.9	3.2
2001:Q1	-1.5	-7.1	-5.6	1.6	-2.1	3.1
2001:Q2	0.0	-6.2	-6.2	3.1	-0.1	3.1
2001:Q3	2.9	-4.9	-7.6	1.0	0.3	-1.9
2001:Q4	3.8	-6.3	-9.7	2.9	3.2	-0.9
2001:Annual	0.9	-4.8	-5.6	1.5	-1.2	0.6
2002:Q1	9.7	3.0	-6.1	3.8	2.4	-5.3
2002:Q2	4.2	3.5	-0.7	3.2	-0.2	-1.0
2002:Q3	5.5	3.2	-2.2	4.4	2.5	-1.0

Table 3—Continued

Manufacturing sector: Productivity, hourly compensation, and unit labor costs, 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
<i>Percent change from corresponding quarter of preceding year</i>						
2000:Q1	4.4	3.6	-0.8	8.9	5.5	4.3
2000:Q2	4.7	3.8	-0.8	6.9	3.5	2.1
2000:Q3	4.3	2.6	-1.7	7.9	4.3	3.4
2000:Q4	2.9	0.2	-2.6	5.9	2.4	2.9
2000:Annual	4.1	2.5	-1.5	7.4	3.9	3.2
2001:Q1	1.3	-2.3	-3.6	0.5	-2.7	-0.9
2001:Q2	0.4	-4.9	-5.2	2.9	-0.5	2.5
2001:Q3	0.7	-5.7	-6.4	0.8	-1.8	0.1
2001:Q4	1.3	-6.1	-7.3	2.1	0.3	0.8
2001:Annual	0.9	-4.8	-5.6	1.5	-1.2	0.6
2002:Q1	4.0	-3.7	-7.4	2.7	1.4	-1.3
2002:Q2	5.1	-1.3	-6.1	2.7	1.4	-2.3
2002:Q3	5.8	0.8	-4.7	3.6	2.0	-2.1

Table 4
Durable manufacturing sector: Productivity, hourly compensation, and unit labor costs, 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
<i>Indexes 1992=100</i>						
2000:Q1	148.6	162.9	109.7	130.8	109.9	88.0
2000:Q2	150.0	165.2	110.2	127.5	106.4	85.0
2000:Q3	150.3	164.6	109.5	130.6	108.0	86.9
2000:Q4	150.1	162.0	107.9	128.4	105.5	85.5
2000:Annual	149.7	163.7	109.3	129.3	107.5	86.4
2001:Q1	149.0	157.9	106.0	129.4	105.3	86.8
2001:Q2	149.1	155.3	104.1	130.5	105.4	87.5
2001:Q3	150.1	152.2	101.4	130.2	105.0	86.7
2001:Q4	150.9	148.6	98.5	131.8	106.3	87.3
2001:Annual	149.8	153.5	102.5	130.4	105.5	87.1
2002:Q1	155.7	150.3	96.5	132.7	106.7	85.2
2002:Q2	158.0	152.3	96.4	133.6	106.5	84.6
2002:Q3	161.3	154.2	95.5	135.0	107.1	83.7
<i>Percent change from previous quarter at annual rate</i>						
2000:Q1	7.6	6.3	-1.2	29.7	24.6	20.5
2000:Q2	3.9	5.8	1.8	-9.6	-12.1	-13.0
2000:Q3	0.8	-1.6	-2.3	9.9	6.1	9.1
2000:Q4	-0.6	-6.2	-5.7	-6.5	-9.2	-6.0
2000:Annual	4.4	3.6	-0.7	7.7	4.2	3.2
2001:Q1	-3.0	-9.7	-6.9	3.1	-0.6	6.2
2001:Q2	0.4	-6.5	-6.9	3.6	0.4	3.2
2001:Q3	2.7	-7.6	-10.0	-1.0	-1.7	-3.6
2001:Q4	2.3	-9.2	-11.2	5.0	5.4	2.7
2001:Annual	0.0	-6.2	-6.2	0.9	-1.9	0.8
2002:Q1	13.2	4.7	-7.5	2.8	1.3	-9.2
2002:Q2	6.0	5.4	-0.5	2.8	-0.6	-3.0
2002:Q3	8.8	4.9	-3.5	4.3	2.3	-4.2

Table 4—Continued

Durable manufacturing sector: Productivity, hourly compensation, and unit labor costs, 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
<i>Percent change from corresponding quarter of preceding year</i>						
2000:Q1	5.2	5.1	-0.1	10.5	7.0	5.0
2000:Q2	5.1	5.3	0.2	7.4	4.0	2.2
2000:Q3	4.3	3.2	-1.1	8.1	4.5	3.6
2000:Q4	2.9	1.0	-1.9	4.8	1.4	1.8
2000:Annual	4.4	3.6	-0.7	7.7	4.2	3.2
2001:Q1	0.3	-3.1	-3.3	-1.1	-4.2	-1.3
2001:Q2	-0.6	-6.0	-5.5	2.3	-1.0	3.0
2001:Q3	-0.1	-7.5	-7.4	-0.3	-2.8	-0.2
2001:Q4	0.6	-8.2	-8.8	2.6	0.8	2.1
2001:Annual	0.0	-6.2	-6.2	0.9	-1.9	0.8
2002:Q1	4.5	-4.8	-8.9	2.6	1.3	-1.9
2002:Q2	5.9	-1.9	-7.4	2.4	1.1	-3.4
2002:Q3	7.5	1.3	-5.8	3.7	2.1	-3.5

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

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensa- tion per hour	Real compensa- tion per hour	Unit labor costs
<i>Indexes 1992=100</i>						
2000:Q1	120.6	114.9	95.3	130.6	109.8	108.3
2000:Q2	121.8	115.6	95.0	130.4	108.9	107.1
2000:Q3	122.6	115.4	94.1	133.2	110.2	108.7
2000:Q4	123.9	114.5	92.4	135.0	110.9	108.9
2000:Annual	122.2	115.1	94.2	132.3	110.0	108.3
2001:Q1	123.9	113.4	91.6	134.7	109.7	108.7
2001:Q2	123.6	111.7	90.4	135.5	109.4	109.6
2001:Q3	124.4	111.3	89.5	137.2	110.6	110.3
2001:Q4	125.9	110.5	87.8	137.1	110.6	108.9
2001:Annual	124.4	111.7	89.8	136.1	110.1	109.4
2002:Q1	127.5	110.8	86.9	139.1	111.8	109.1
2002:Q2	128.3	111.2	86.7	140.4	112.0	109.5
2002:Q3	128.7	111.6	86.7	142.1	112.8	110.4
<i>Percent change from previous quarter at annual rate</i>						
2000:Q1	0.8	-1.8	-2.5	17.8	13.3	17.0
2000:Q2	3.8	2.4	-1.4	-0.5	-3.4	-4.2
2000:Q3	2.6	-0.9	-3.5	8.7	4.9	5.9
2000:Q4	4.6	-3.0	-7.2	5.6	2.5	0.9
2000:Annual	3.8	1.1	-2.6	6.7	3.3	2.9
2001:Q1	-0.1	-3.7	-3.6	-0.8	-4.4	-0.7
2001:Q2	-0.9	-5.9	-5.0	2.3	-0.8	3.2
2001:Q3	2.5	-1.5	-3.8	5.1	4.4	2.5
2001:Q4	4.9	-2.9	-7.4	-0.3	0.0	-5.0
2001:Annual	1.8	-2.9	-4.7	2.9	0.1	1.0
2002:Q1	5.3	1.2	-3.9	6.0	4.5	0.6
2002:Q2	2.4	1.5	-0.9	3.9	0.5	1.5
2002:Q3	1.3	1.2	-0.1	4.9	3.0	3.5

Table 5—Continued

Nondurable manufacturing sector: Productivity, hourly compensation, and unit labor costs, 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
<i>Percent change from corresponding quarter of preceding year</i>						
2000:Q1	3.4	1.6	-1.8	6.1	2.8	2.6
2000:Q2	4.4	1.8	-2.5	5.8	2.5	1.4
2000:Q3	4.4	1.7	-2.5	7.4	3.8	2.9
2000:Q4	2.9	-0.8	-3.7	7.7	4.2	4.6
2000:Annual	3.8	1.1	-2.6	6.7	3.3	2.9
2001:Q1	2.7	-1.3	-3.9	3.1	-0.1	0.4
2001:Q2	1.5	-3.4	-4.8	3.9	0.5	2.3
2001:Q3	1.5	-3.5	-4.9	3.0	0.4	1.5
2001:Q4	1.6	-3.5	-5.0	1.5	-0.3	0.0
2001:Annual	1.8	-2.9	-4.7	2.9	0.1	1.0
2002:Q1	2.9	-2.3	-5.0	3.2	2.0	0.3
2002:Q2	3.7	-0.4	-4.0	3.6	2.3	-0.1
2002:Q3	3.4	0.2	-3.1	3.6	2.0	0.1

Table 6
Productivity and costs: Revised third-quarter 2002 measures (Seasonally adjusted annual rates)

Sector	Productivity	Output	Hours	Hourly compensation	Real hourly compensation	Unit labor costs
<i>Percent change from preceding quarter</i>						
Business	5.4	5.2	-0.2	5.3	3.4	-0.1
Non-farm						
business	5.1	5.1	0.0	4.9	3.0	-0.2
Manufacturing	5.5	3.2	-2.2	4.4	2.5	-1.0
Durable	8.8	4.9	-3.5	4.3	2.3	-4.2
Nondurable	1.3	1.2	-0.1	4.9	3.0	3.5
<i>Percent change from same quarter a year ago</i>						
Business	5.8	3.8	-1.9	3.5	1.9	-2.2
Non-farm						
business	5.6	3.8	-1.8	3.3	1.7	-2.2
Manufacturing	5.8	0.8	-4.7	3.6	2.0	-2.1
Durable	7.5	1.3	-5.8	3.7	2.1	-3.5
Nondurable	3.4	0.2	-3.1	3.6	2.0	0.1

Unit labor costs, which reflect changes in both hourly compensation and productivity, decreased by 0.1 percent during the third quarter. In the second quarter, unit labor costs had increased by 2.4 percent, following a decrease of 4.9 percent in the first quarter of 2002. The implicit price deflator for the business sector increased by 0.4 percent during the third quarter of 2002, down from the 0.7 percent increase in the second quarter.

Non-farm Business Sector

In the non-farm business sector, BLS reported that productivity grew by 5.1 percent during the third quarter of 2002, as output also increased by 5.1 percent and hours worked of all persons showed no change. Hours worked reflects a 0.6 percent increase in employment combined with a 0.5 percent decline in average weekly hours at work. In the second quarter of 2002 non-farm business productivity rose by 1.7 percent, as output rose by 0.9 percent and hours decreased by 0.7 percent (table 2).

Hourly compensation increased by 4.9 percent annual rate in the third quarter of 2002. Real hourly compensation rose at a 3.0 percent annual rate during the third quarter. In the second quarter of 2002, real hourly compensation rose by 0.5 percent.

Unit labor costs decreased 0.2 percent during the third quarter of 2002. In the second quarter, unit labor costs in the non-farm business sector had increased by 2.2 percent. The implicit price deflator for non-farm business output rose by 0.1 percent in the third quarter of 2002.

Manufacturing Sector

In the manufacturing sector BLS reported that productivity increased by 5.5 percent in the third quarter of 2002, as output grew by 3.2 percent and hours of all persons fell by 2.2 percent. In the second quarter, labor productivity increased by 4.2 percent, reflecting a 3.5 percent increase in output and 0.7 percent decline in hours worked. Total manufacturing output has increased in each of the last three quarters, after having fallen in each of the six previous quarters.

In durable goods, productivity grew by 8.8 percent in the third quarter as output increased by 4.9 percent and hours worked of all persons fell by 3.5 percent. In nondurable goods productivity increased by 1.3 percent, as output rose by 1.2 percent and hours worked of all persons decreased by 0.1 percent (tables 3, 4, and 5).

Hourly compensation of manufacturing workers increased by an average of 4.4 percent during the third quarter, the largest increase in this series since the third quarter of 2000, when it grew by 9.5 percent. Hourly compensation grew by 4.3 percent in durable goods and by 4.9 percent in nondurable goods in the third quarter of 2002. Real hourly compensation in total manufacturing rose by 2.5 percent in the third quarter.

Unit labor costs in manufacturing decreased by 1.0 percent in the third quarter of 2002, the fifth consecutive quarterly decline in these costs. In the durable goods sector, unit labor costs in the third quarter fell by 4.2 percent, and in nondurable goods sector, unit labor costs rose by 3.5 percent.

Definitions and Sources

Labor Hours

BLS noted that hours worked data used for accounting for labor productivity and cost measures include hours worked for all persons working in the sector—wage and salary workers, the self-employed, and unpaid family workers. The primary source of hours worked 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 average weekly paid hours of production and non-supervisory workers in these establishments.

The Office of Productivity and Technology estimates average weekly paid hours of non-production and supervisory workers. Weekly paid hours are adjusted to hours at work using the BLS Hours at Work survey, conducted for this purpose.

Data from the BLS Current Population Survey (CPS) are used for farm labor. In the non-farm sector, both the National Income and Product Accounts (NIPA) prepared by the Bureau of Economic Analysis (BEA) of the Department of Commerce and the CPS, are used to measure labor input for government enterprises, proprietors, and unpaid family workers.

Output

Business sector output is calculated as an annual-weighted index constructed after excluding from gross domestic product (GDP) the following outputs: General government, non-profit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Corresponding exclusions also are made in labor inputs. According to BLS business sector output accounted for about 77 percent of the value of GDP in 1996. Non-farm business output, which 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 the BLS by deflating current-dollar industry value of production data from the U.S. Bureau of the Census with deflators from the Bureau of Economic Analysis (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 transactions 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. BLS defines durables as to 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. Nondurables 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.

Non-financial corporate output is an annual-weighted index calculated by the BLS on the basis of the costs incurred and the incomes earned from production. The output measure excludes the following outputs from GDP: general government; non-profit institutions; employees of private households; the rental value of owner-occupied dwellings; unincorporated business; and those corporations which are depository institutions, non-depository institutions, security and commodity brokers, insurance carriers, regulated investment offices, small business investment offices, and real estate investment trusts. Non-financial corporations accounted for about 53 percent of the value of GDP in 1996.

Productivity

Productivity measures describe the relationship between real output and the labor time involved in its production. These measures 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.