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PRODUCTIVITY AND COSTS IN SELECTED SERVICE-PROVIDING AND MINING INDUSTRIES, 2002

The Bureau of Labor Statistics of the U.S. Department of Labor reported today on productivity and costs for selected service-providing and mining industries. Labor productivity—defined as output per hour—rose in 2002 in 24 of the additional 32 industries for which 2002 data are now available. (See box on page 3 for further information.) In almost three-fifths of the industries with productivity gains, there was a decline in hours that was larger than the decline in output. Output increased in only 12 industries, and hours rose in just 7 industries. Unit labor costs (the ratio of total compensation to output) declined in 17 of the 24 industries with productivity gains.

Over the period 1987 to 2002, labor productivity increased in 29 of the 32 industries. Output rose in 29 industries, while hours grew in 18 industries. Unit labor costs fell in 7 of the 29 industries registering productivity growth.

2001-2002 change

Three-fourths of the 32 industries recorded labor productivity gains in 2002. (See table 1.) Output per hour increased 4.3 percent in the mining sector with three of the four separate mining industries registering productivity growth. Metal ore mining posted the largest gain in output per hour at 9.2 percent. The sole decline occurred in coal mining, where labor productivity fell 1.9 percent. Unit labor costs in this industry grew 3.8 percent, the steepest rise in the mining sector. Unit labor costs in metal ore mining, on the other hand, fell 5.6 percent.

Five of the six utilities and transportation industries covered posted gains in output per hour in 2002. The strongest growth occurred in air transportation, where labor productivity grew 12.2 percent. Line-haul railroads and general freight trucking, long

distance also registered strong productivity gains at 8.3 percent and 5.0 percent, respectively. The only industry in this group with a decline was power generation and supply, where labor productivity fell 3.8 percent. Two-thirds of the industries had decreases in unit labor costs. Unit labor costs fell 5.2 percent in natural gas distribution, 3.2 percent in general freight trucking, long distance, and 2.5 percent in air transportation.

Productivity increased in all but one of the information industries in 2002. In the detailed 4- and 5-digit information industries, more than three-fourths of the gains were greater than 4.5 percent. Double-digit productivity growth (11.2 percent) occurred in wireless telecommunications carriers. All but one of the information industries saw reductions in unit labor costs. Unit labor costs fell 16.9 percent in wireless telecommunications carriers and 9.7 percent in software publishers.

Among all other service providers (which include industries in the following sectors: finance and insurance; real estate and rental and leasing; professional and technical services; accommodation and food services; and other services), labor productivity rose in 2002 in 6 of the 11 industries for which BLS maintains measures. The strongest growth occurred in tax preparation services and photofinishing, at 17.8 percent and 16.1 percent, respectively. Two of the three largest industries, those with more than 1,000,000 employees, posted gains in labor productivity. Output per hour increased 2.1 percent in traveler accommodations and 2.2 percent in commercial banking, but decreased 5.2 percent in automotive repair and maintenance. Only two of these industries had declines in unit labor costs—advertising agencies (8.4 percent) and photofinishing (6.7 percent).

Long-term trends

From 1987 to 2002, nearly all the industries presented here recorded productivity gains. In the mining sector, productivity increased 1.8 percent per year while unit labor costs grew 2.4 percent per year. Output per hour rose in all mining industries. The largest increases in labor productivity were 4.8 percent per year in metal ore mining and 4.4 percent per year in coal mining. These were the only industries in the mining sector with decreases in unit labor costs. Unit labor costs fell 2.1 percent per year in coal mining and 0.7 percent per year in metal ore mining.

Output per hour increased in all six of the utilities and transportation industries over the long-term. The increases ranged from 1.0 percent per year in the postal service to 5.5 percent per year in line-haul railroads. Line-haul railroads was the only industry in utilities and transportation that experienced a drop in unit labor costs. Four industries had unit labor cost increases below 2.0 percent annually.

From 1987 to 2002, all but one of the information industries posted productivity gains. The largest increase, 17.2 percent per year, was in software publishers. Cable and other program distribution registered the sole decline in output per hour (-0.6 percent per

year). Unit labor costs fell in three industries. In software publishers, unit labor costs contracted by 8.8 percent per year.

Output per hour increased in 9 of the 11 remaining service-providing industries over the long term. Among the largest industries, productivity rose 1.3 percent per year in traveler accommodations, 2.3 percent annually in commercial banking, and 1.1 percent per year in automotive repair and maintenance. All 11 industries experienced rising unit labor costs. The increases ranged from 1.2 percent per year to 5.3 percent per year.

Labor productivity and associated series through 2001 for all 3- and 4-digit NAICS manufacturing industries and through 2002 for wholesale trade, retail trade, and food services industries have been released previously. Selected 5- and 6-digit industries have been available by request.

Data have been revised for labor productivity and related series for many industries including those in the manufacturing, retail trade, and wholesale trade industries not presented in this release. Labor productivity and related data were first published on a NAICS basis at the 4-digit level. Measures were developed later at the 5- and 6-digit level. The aggregation of employment and hours data from the detailed 5- and 6-digit level resulted in revisions to the employment and hours data for the industries at the 4-, 3-, and 2-digit NAICS levels. In addition, data were revised for some industries in the information sector and in retail industry groups NAICS 453 and 454 to incorporate modifications and improvements to data and methodology. The latest data are on the Labor Productivity and Costs website (<http://www.bls.gov/lpc/home.htm>).

Technical Note

Data in this news release are based on the North American Industry Classification System (NAICS), which replaced the Standard Industrial Classification (SIC) system as the basis for assigning and tabulating data by industry. The data in this news release and revised data on the BLS website replace the series published in Table 46 of the *Monthly Labor Review* and in the news release *Productivity and Costs by Industry, 2001* (released September 18, 2003). All of the measures for 2002 in this news release are preliminary and subject to revision.

Overall, the industry productivity series account for 57 percent of the 4-digit NAICS industries in the nonfarm business sector of the economy. Expansion of industry coverage within the service-providing sector will continue.

NAICS-based measures and source data

The NAICS classification system is the product of a cooperative effort on the part of the statistical agencies of the United States, Canada, and Mexico. The NAICS differs from the SIC in that it uses a production-oriented approach to categorize economic units, focusing on how products and services are created in contrast to the SIC focus on what was produced. The structure of the NAICS system also is different from that of the SIC, with a greater emphasis on emerging industries and service-providing industries. Under NAICS, some detailed industries that existed under the SIC were collapsed or combined with other industries, while other new industries were added. Treatment of auxiliaries also changed under NAICS: NAICS classifies auxiliary units involved in activities such as transportation and warehousing; accounting, bookkeeping, and payroll services; and general management into specialized industries rather than including them in the manufacturing, trade, or service industries they support (as in the SIC). As a result of these changes, many of the NAICS industries are significantly different from those in the SIC system.

Industry output indexes are prepared from basic data published by various public and private agencies, using the greatest level of detail available. Data from the Bureau of the Census, U.S. Department of Commerce, are used extensively in developing output series for manufacturing, trade, and service-providing industries, as well as in developing compensation and unit labor cost series for manufacturing industries. Census Bureau data for years prior to 1997 were classified according to the Standard Industrial Classification (SIC) system. The 1997 Economic Censuses provided data on a NAICS basis, and data classified according to NAICS began to be provided in subsequent Annual Survey reports beginning in 1998 or 1999. Some data for wholesale and retail trade industries have been made available by the Census Bureau on a NAICS basis back to 1992.

The 1997 Economic Census questionnaires were designed to permit the classification of each establishment according to both NAICS and SIC. As a result, the Census Bureau tabulated and published 1997 Census data on both a NAICS and SIC basis. The Bureau of Labor Statistics used these dual-coded data to calculate conversion ratios relating NAICS values to SIC values, and the ratios were used to convert data on receipts, value of shipments, inventories, and labor compensation for SIC-based industries to estimates for NAICS-based industries for years prior to 1997.

The labor series used in the industry productivity measures are based primarily on employment and average weekly hours data from the Bureau's Current Employment Statistics (CES) survey and the Current Population Survey (CPS). Other sources are the Association of American Railroads, the Department of Transportation, and the U.S. Postal Service. The CES data were published on a 2002 NAICS basis with the release of May 2003 data in June 2003. Historical NAICS data back to 1990 were provided for all of the CES series; data for years prior to 1990 were provided for some industries. CES NAICS industry series not available back to 1987 were extrapolated back with estimates calculated using conversion ratios derived from dual-coded first-quarter 2001 data from

the Covered Employment and Wages Program (ES-202). These ratios also were used to convert historical ES-202 wage data from SIC to NAICS for use in the compensation and unit labor cost measures for nonmanufacturing industries.

Productivity measurement

The industry labor productivity measures describe the relationship between 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 of employees or all persons engaged in an industry, 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 workforce.

The indexes of industry output used in measuring labor productivity and unit labor costs are, wherever possible, calculated with a Tornqvist formula. This formula aggregates the growth rates of the various industry products between two periods using the products' shares in industry value of production, averaged over the two periods, as weights.

Year-to-year movements in productivity measures for some industries might be erratic, particularly in the smaller industries. The annual changes in an industry's output and use of labor may reflect cyclical changes in the economy rather than long-term trends. Also, annual productivity indexes are based on sample data, which are likely to differ from data generated by a census of establishments in the industry. As a result, long-term trends tend to be more reliable indicators of the performance of an industry than are the year-to-year changes.

Unit labor cost measurement

The unit labor cost series in this release describe the cost of labor input required to produce one unit of output. Unit labor costs are calculated as the ratio of current dollar labor compensation to constant dollar output. The indexes of unit labor costs for each industry are computed by dividing an index of current dollar compensation by an index of constant dollar output.

Compensation is a measure of the cost to the employer of securing the services of labor. It is defined as payroll plus supplemental payments. Payroll includes salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind. Supplemental payments are divided into legally required expenditures and payments for voluntary programs. The legally required expenditures include employers' contributions to Social Security, unemployment insurance taxes, and workers' compensation. Payments for voluntary programs include all programs not

specifically required by legislation, such as the employer portion of private health insurance and pension plans.

Productivity and unit labor cost data for industries can be obtained in several ways: by visiting the Labor Productivity and Costs web site (<http://www.bls.gov/lpc/home.htm>); by calling the Division of Industry Productivity Studies (202-691-5618); or by sending a request by e-mail (dipsweb@bls.gov). Historical productivity and related series for 3- and 4-digit SIC industries through 2000 continue to be maintained, but will no longer be updated. SIC-based industry data are available on the BLS web site or by request.

Information in this release will be made available to sensory impaired individuals upon request. Voice phone: 202-691-5200; TDD message referral phone number: 1-800-877-8339.

Table 1. Annual percent change in output per hour and related series: selected service-providing and mining industries, 1987-02 and 2001-02

NAICS code	Industry	2002 Employment (thousands)	Annual percent change, 1987-02			Annual percent change, 2001-02		
			Output per hour	Output	Hours	Output per hour	Output	Hours
Mining								
21	Mining	512	1.8	-0.1	-1.9	4.3	-2.7	-6.7
211	Oil and gas extraction	122	2.6	-0.8	-3.4	1.6	-2.3	-3.9
212	Mining, except oil and gas	211	3.2	0.9	-2.2	2.5	-3.7	-6.0
2121	Coal mining	74	4.4	0.1	-4.2	-1.9	-5.0	-3.1
2122	Metal ore mining	29	4.8	2.7	-2.0	9.2	-5.8	-13.7
2123	Nonmetallic mineral mining and quarrying	107	1.1	0.8	-0.3	4.5	-1.6	-5.8
Utilities								
2211	Power generation and supply	434	3.1	1.4	-1.7	-3.8	-5.7	-1.9
2212	Natural gas distribution	115	3.7	1.8	-1.9	4.4	3.3	-1.1
Transportation and Warehousing								
481	Air transportation	509	1.6	2.9	1.3	12.2	-0.8	-11.6
482111	Line-haul railroads	180	5.5	2.2	-3.1	8.3	0.2	-7.5
48412	General freight trucking, long-distance	807	2.2	3.4	1.2	5.0	1.1	-3.7
491	Postal service	842	1.0	1.5	0.5	0.9	-2.9	-3.7
Information								
511	Publishing	964	3.8	5.4	1.5	3.7	-2.3	-5.8
5111	Newspaper, book, and directory publishers	711	0.2	0.1	-0.2	1.6	-3.5	-5.0
5112	Software publishers	253	17.2	28.2	9.4	4.7	-3.2	-7.5
51213	Motion picture and video exhibition	173	1.0	3.3	2.3	-0.3	3.8	4.0
5151	Radio and television broadcasting	241	0.2	0.5	0.3	6.4	2.6	-3.6
5152	Cable and other subscription programming	93	1.7	7.9	6.1	4.9	6.3	1.3
5171	Wired telecommunications carriers	651	5.8	5.3	-0.5	8.0	-5.6	-12.6
5172	Wireless telecommunications carriers	197	6.2	23.8	16.5	11.2	12.0	0.7
5175	Cable and other program distribution	130	-0.6	5.3	6.0	6.7	3.9	-2.6
Finance and Insurance								
52211	Commercial banking	1278	2.3	2.0	-0.3	2.2	2.8	0.6
Real Estate and Rental and Leasing								
532111	Passenger car rental	125	1.5	3.8	2.4	1.1	-5.5	-6.5
53212	Truck, trailer and RV rental and leasing	60	2.5	2.7	0.2	-2.3	-2.0	0.3
Professional and Technical Services								
541213	Tax preparation services	101	-0.3	4.0	4.3	17.8	4.4	-11.4
54181	Advertising agencies	190	1.7	1.8	0.2	6.2	-3.0	-8.7
Accommodation and Food Services								
7211	Traveler accommodations	1752	1.3	2.4	1.1	2.1	-2.8	-4.8
Other Services								
8111	Automotive repair and maintenance	1150	1.1	2.8	1.7	-5.2	-4.2	1.0
81211	Hair, nail, and skin care services	853	1.5	2.8	1.3	-4.8	3.3	8.5
81221	Funeral homes and funeral services	105	-0.9	0.5	1.4	-3.2	-4.4	-1.2
8123	Drycleaning and laundry services	409	1.4	1.2	-0.2	-0.7	-2.9	-2.2
81292	Photofinishing	93	1.8	-0.6	-2.4	16.1	2.1	-12.1

Table 2. Annual percent change in total compensation, output, and unit labor costs: selected service-providing and mining industries, 1987-02 and 2001-02

NAICS code	Industry	2002 Employment (thousands)	Annual percent change, 1987-02			Annual percent change, 2001-02		
			Total compensation	Output	Unit labor costs	Total compensation	Output	Unit labor costs
Mining								
21	Mining	512	2.3	-0.1	2.4	-4.3	-2.7	-1.6
211	Oil and gas extraction	122	2.8	-0.8	3.7	-1.7	-2.3	0.7
212	Mining, except oil and gas	211	0.4	0.9	-0.5	-3.7	-3.7	0.0
2121	Coal mining	74	-2.0	0.1	-2.1	-1.4	-5.0	3.8
2122	Metal ore mining	29	2.0	2.7	-0.7	-11.1	-5.8	-5.6
2123	Nonmetallic mineral mining and quarrying	107	3.2	0.8	2.4	-2.8	-1.6	-1.2
Utilities								
2211	Power generation and supply	434	2.8	1.4	1.4	2.2	-5.7	8.3
2212	Natural gas distribution	115	3.5	1.8	1.7	-2.0	3.3	-5.2
Transportation and Warehousing								
481	Air transportation	509	4.8	2.9	1.8	-3.2	-0.8	-2.5
482111	Line-haul railroads	180	0.4	2.2	-1.8	0.0	0.2	-0.2
48412	General freight trucking, long-distance	807	4.3	3.4	0.9	-2.2	1.1	-3.2
491	Postal service	842	4.6	1.5	3.1	0.4	-2.9	3.4
Information								
511	Publishing	964	7.1	5.4	1.7	-8.0	-2.3	-5.8
5111	Newspaper, book, and directory publishers	711	4.0	0.1	4.0	-4.0	-3.5	-0.6
5112	Software publishers	253	16.9	28.2	-8.8	-12.6	-3.2	-9.7
51213	Motion picture and video exhibition	173	3.8	3.3	0.6	6.6	3.8	2.8
5151	Radio and television broadcasting	241	4.3	0.5	3.8	-3.7	2.6	-6.1
5152	Cable and other subscription programming	93	10.9	7.9	2.8	3.6	6.3	-2.6
5171	Wired telecommunications carriers	651	3.4	5.3	-1.8	-9.3	-5.6	-3.9
5172	Wireless telecommunications carriers	197	19.8	23.8	-3.2	-7.0	12.0	-16.9
5175	Cable and other program distribution	130	9.0	5.3	3.5	1.9	3.9	-2.0
Finance and Insurance								
52211	Commercial banking	1278	5.5	2.0	3.4	8.4	2.8	5.4
Real Estate and Rental and Leasing								
532111	Passenger car rental	125	6.2	3.8	2.3	-3.4	-5.5	2.2
53212	Truck, trailer and RV rental and leasing	60	3.9	2.7	1.2	1.2	-2.0	3.3
Professional and Technical Services								
541213	Tax preparation services	101	9.5	4.0	5.3	7.1	4.4	2.6
54181	Advertising agencies	190	4.9	1.8	3.0	-11.1	-3.0	-8.4
Accommodation and Food Services								
7211	Traveler accommodations	1752	5.6	2.4	3.1	-2.1	-2.8	0.8
Other Services								
8111	Automotive repair and maintenance	1150	5.4	2.8	2.4	3.5	-4.2	8.1
81211	Hair, nail, and skin care services	853	5.5	2.8	2.6	12.2	3.3	8.6
81221	Funeral homes and funeral services	105	5.1	0.5	4.6	1.9	-4.4	6.6
8123	Drycleaning and laundry services	409	3.2	1.2	2.0	1.5	-2.9	4.5
81292	Photofinishing	93	2.4	-0.6	3.1	-4.8	2.1	-6.7