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## **PRODUCTIVITY AND COSTS BY INDUSTRY: SELECTED SERVICE-PROVIDING AND MINING INDUSTRIES, 2007**

Labor productivity, defined as output per hour, rose in 66 percent of the detailed service-providing and mining industries in 2007, about the same as in 2006. Unit labor costs, which reflect hourly compensation and productivity, rose in 70 percent of the industries, compared to 76 percent in 2006.

Over the longer period, 1987 to 2007, labor productivity increased in 86 percent of the industries studied. Unit labor costs rose in 78 percent of the industries.

Productivity and cost measures for three industries are presented for the first time: support activities for mining (NAICS 213), accommodation (NAICS 721), and reupholstery and furniture repair (NAICS 81142). The addition of labor productivity measures for accommodation (NAICS 721), along with the previously published BLS measures for food services and drinking places (NAICS 722), completes coverage of the accommodation and food services sector (NAICS 72). Measures for NAICS 72 are also published here for the first time.

BLS updates the industry labor productivity measures as data become available. Productivity measures for industries in manufacturing, retail trade, and wholesale trade are published in separate releases that can be accessed online at [http://www.bls.gov/schedule/archives/prin\\_nr.htm](http://www.bls.gov/schedule/archives/prin_nr.htm).

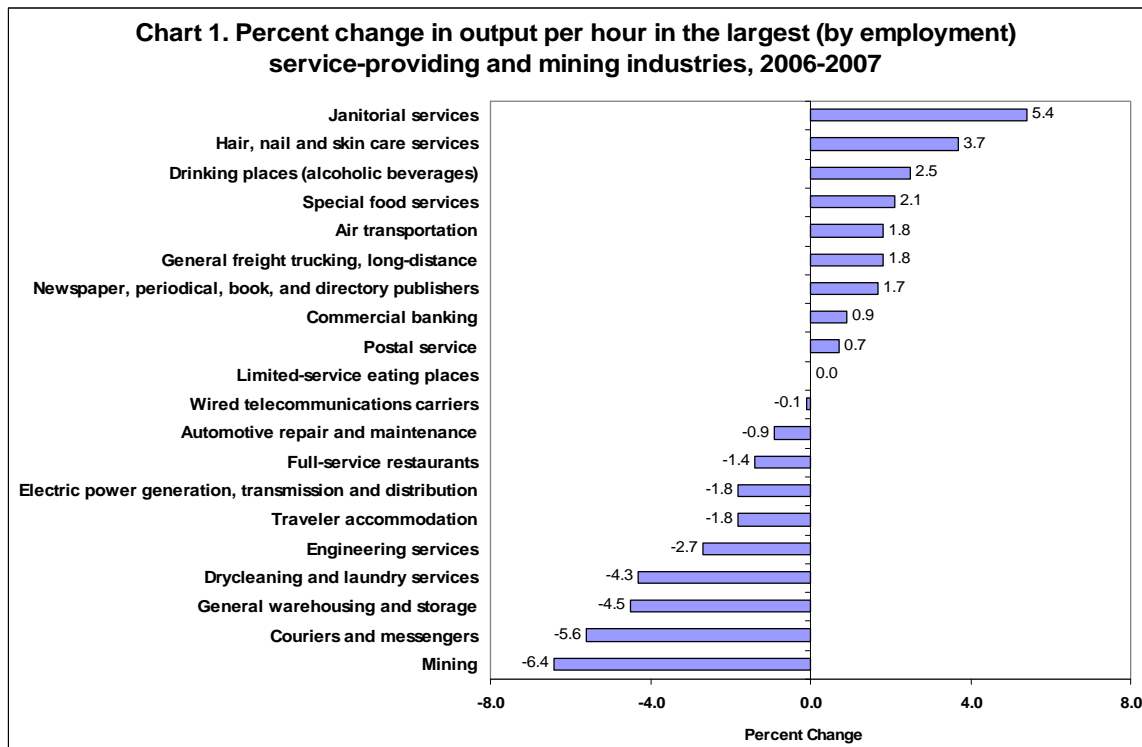
### **2006-2007 change**

In 2007, output per hour increased in 31 of the 45 detailed service-providing industries and in two of the five detailed mining industries studied. (See table 1.) Output rose in 66 percent of the industries in 2007, while labor hours declined in 48 percent.

Among the largest industries included, those with employment over one million, productivity rose 0.9 percent in commercial banking (NAICS 52211) and 5.4 percent in janitorial services (NAICS 56172), but declined 1.8 percent in traveler accommodation

(NAICS 7211); 1.4 percent in full-service restaurants (NAICS 7221); and 0.9 percent in automotive repair and maintenance (NAICS 8111). The limited-service eating places industry (NAICS 7222) had no change in productivity.

Chart 1 shows the 2007 productivity changes in the twenty largest service-providing and mining industries studied.



Three service-providing industries recorded productivity growth greater than fifteen percent in 2007: video tape and disc rental (NAICS 53223), 26.5 percent; bowling centers (NAICS 71395), 19.7 percent; and passenger car rental (NAICS 532111), 16.8 percent. Each of these industries posted large reductions in hours. Productivity fell most, 11.4 percent, in diagnostic imaging centers (NAICS 621512), due mostly to a rapid rise in hours.

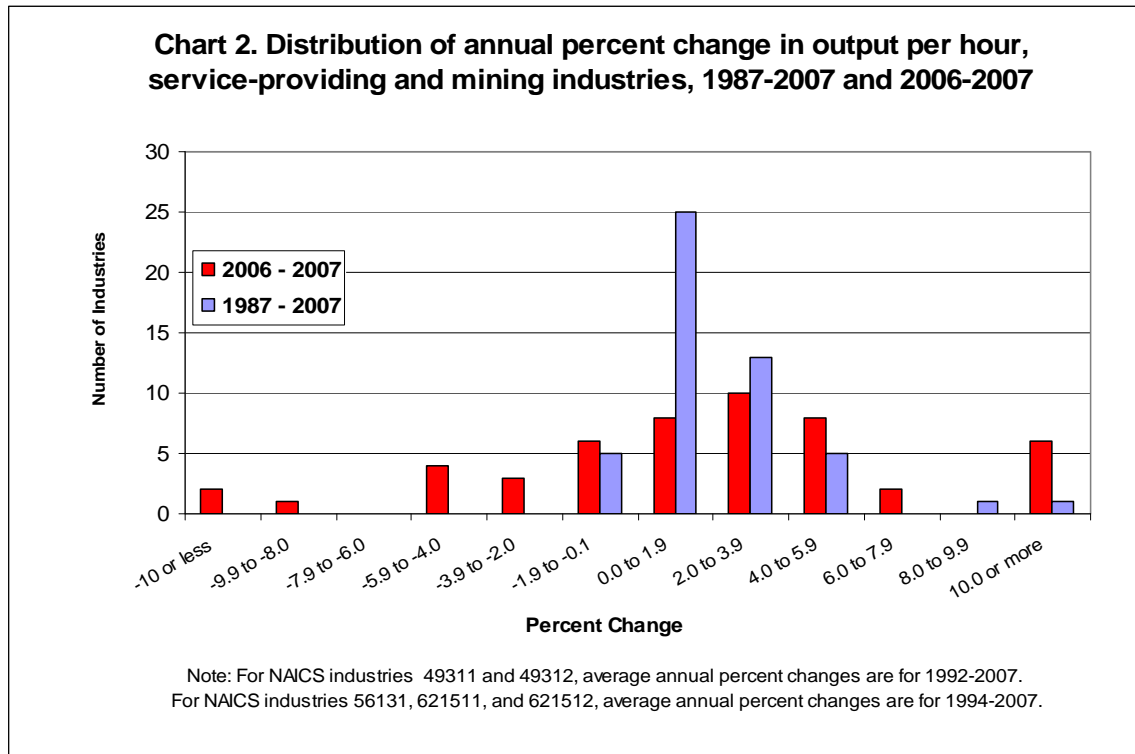
Labor productivity fell 6.4 percent in the overall mining sector (NAICS 21), led by a large productivity decline of 15.4 percent in metal ore mining (NAICS 2122), where hours rose rapidly.

Unit labor costs rose in two-thirds of the service-providing industries and in all of the mining industries in 2007. Declines in unit labor costs were greatest in the two industries with the largest productivity increases: video tape and disc rental (NAICS 53223) and bowling centers (NAICS 71395), where unit labor costs fell by 9.2 and 6.9 percent, respectively.

## Long-term trends

Between 1987 and 2007, labor productivity increased in 38 of the 45 detailed service-providing industries and in all of the covered mining industries. Software publishers (NAICS 5112) recorded the greatest productivity growth over the period, 15.6 percent per year on average, followed by wireless telecommunications carriers (NAICS 5172), with average yearly growth of 9.4 percent.

As shown in chart 2, labor productivity declined in more of the detailed service-providing and mining industries in 2007 than over the longer-term period.



Unit labor costs increased in 78 percent of the detailed service-providing industries and in all but one mining industry from 1987 to 2007. Unit labor costs grew most rapidly in oil and gas extraction (NAICS 2111), 5.9 percent per year on average. The most rapid declines in unit labor costs occurred in the two industries with the fastest productivity growth, with software publishers (NAICS 5112) declining 8.9 percent and wireless telecommunications carriers (NAICS 5172) falling 6.0 percent.

## Technical Note

**Labor Productivity:** The industry labor productivity measures describe the relationship between industry 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 the labor productivity measures relate output to hours of employees or all persons in an industry, they do not measure the specific contribution of labor or any other factor of production. Rather, they reflect the joint effects of many influences, including changes in technology; capital investment; utilization of capacity, energy, and materials; the use of purchased services inputs, including contract employment services; the organization of production; managerial skill; and the characteristics and effort of the workforce.

Long-term productivity trends tend to be more reliable indicators of the performance of an industry than are year-to-year changes. The annual changes in an industry's output and use of labor may reflect cyclical changes in the economy as well as long-term trends.

**Output:** Industry output is measured as an annual-weighted index of the changes in the various products or services (in real terms) provided for sale outside the industry. Real industry output is usually derived by deflating nominal sales or values of production using BLS price indexes, but for some industries it is measured by physical quantities of output.

Industry output measures are constructed primarily using data from the economic censuses and annual surveys of the U.S. Census Bureau, U.S. Department of Commerce, together with information on price changes primarily from BLS. Output measures for some mining and utilities industries are based on physical quantity data from the Energy Information Administration, U.S. Department of Energy, while output measures for some transportation industries are based on physical quantity data from the Bureau of Transportation Statistics, U.S. Department of Transportation. Other data sources for some industries include the U.S. Geological Survey, U.S. Department of the Interior; the U.S. Postal Service; the Postal Rate Commission; and the Federal Deposit Insurance Corporation.

**Labor Hours:** The primary source of industry employment and hours data is the BLS Current Employment Statistics (CES) survey. The CES provides monthly data on the number of total and nonsupervisory worker jobs held by wage and salary workers in nonfarm establishments, as well as data on the average weekly hours of nonsupervisory workers in those establishments. CES data are supplemented or further disaggregated for some industries using data from the BLS Quarterly Census of Employment and Wages (QCEW), the Bureau of the Census, or other sources. Data from the Current Population Survey (CPS) are also used to supplement the CES data. The industry productivity program estimates the average weekly hours of supervisory workers for each industry using data from the CPS together with the CES data. Data from the CPS are also used to estimate the employment and hours of self-employed and unpaid family workers in each industry. Other sources of employment and hours data for some service industries include the Association of American Railroads, the U.S. Department of Transportation, and the U.S. Postal Service. Hours of all workers in an industry are treated as homogeneous and are directly aggregated.

**Unit Labor Costs:** Unit labor costs represent the cost of labor required to produce one unit of output. The unit labor cost indexes are computed by dividing an index of industry labor compensation by an index of real industry output. Unit labor costs also describe the relationship between compensation per hour and real output per hour (labor productivity). Increases in hourly compensation increase unit labor costs; increases in labor productivity offset compensation increases and lower unit labor costs.

Compensation, defined as payroll plus supplemental payments, is a measure of the cost to the employer of securing the services of labor. Payroll includes salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind. Supplemental payments include legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, 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.

**Additional Information:** Measures for the three added industries were developed using standard BLS methods as described above. Output measures for all three industries are based on receipts data from the U.S. Census Bureau, deflated with price indexes from BLS. Revenues for support activities for mining are based on additional data from the Department of Energy. The labor input measures for all three new industries were constructed using employment and hours data from BLS surveys.

The industries included in this release are classified according to the 2002 NAICS. Industry productivity measures for service-providing industries will be classified according to the 2007 NAICS in 2010, with the publication of data for 2008 and the inclusion of data from the 2007 economic censuses. All of the measures for 2007 in this release are preliminary and subject to revision.

Industry productivity and related indexes and rates of change can be accessed online by visiting the Labor Productivity and Costs web site at <http://www.bls.gov/lpc/>. Data on industry employment, hours, labor compensation, value of production, and the implicit price deflator for output for these industries are available upon request by calling the Division of Industry Productivity Studies (202-691-5618) or by sending a request by e-mail to [dipsweb@bls.gov](mailto:dipsweb@bls.gov). While the rates of change reported by BLS in this news release are rounded to one decimal place, all industry productivity percent changes are calculated using index numbers to three decimal places.

Information in this report will be made available to sensory-impaired individuals upon request. Voice phone: 202-691-5618; TDD message referral phone number: 1-800-877-8339.

**Table 1. Percent change in output per hour, output, hours, compensation, and unit labor costs, 2006-2007**

NAICS code	Industry	2007 Employment (thousands)	Percent change, 2006-2007				
			Output per hour	Output	Hours	Labor compensation	Unit labor costs
<b>Mining Industries</b>							
21	Mining	664	-6.4	0.0	6.9	12.1	12.1
211	Oil and gas extraction	146	-3.3	1.3	4.8	9.4	8.1
2111	Oil and gas extraction	146	-3.3	1.3	4.8	9.4	8.1
212	Mining, except oil and gas	223	-5.3	-3.8	1.6	4.0	8.0
2121	Coal mining	77	1.2	-2.6	-3.7	0.7	3.3
2122	Metal ore mining	36	-15.4	0.6	18.8	15.9	15.3
2123	Nonmetallic mineral mining and quarrying	110	-8.5	-7.7	0.8	2.1	10.7
213	Support activities for mining	294	6.7	19.7	12.2	21.2	1.2
2131	Support activities for mining	294	6.7	19.7	12.2	21.2	1.2
<b>Service-Providing Industries</b>							
<b>Utilities</b>							
2211	Power generation and supply	398	-1.8	1.0	2.9	6.6	5.6
2212	Natural gas distribution	107	0.5	6.5	6.0	5.4	-1.1
<b>Transportation and Warehousing</b>							
481	Air transportation	433	1.8	3.1	1.3	2.6	-0.5
482111	Line-haul railroads	186	-4.5	-4.4	0.1	1.4	6.0
48412	General freight trucking, long-distance	920	1.8	0.5	-1.3	2.5	2.0
48421	Used household and office goods moving	102	4.9	-4.1	-8.5	0.1	4.3
491	Postal service	762	0.7	-1.3	-1.9	14.2	15.6
4911	Postal service	762	0.7	-1.3	-1.9	14.2	15.6
492	Couriers and messengers	614	-5.6	-3.6	2.1	-1.0	2.8
493	Warehousing and storage	670	-3.3	1.4	4.9	8.0	6.5
4931	Warehousing and storage	670	-3.3	1.4	4.9	8.0	6.5
49311	General warehousing and storage	566	-4.5	1.0	5.8	8.3	7.2
49312	Refrigerated warehousing and storage	49	5.9	3.8	-2.0	8.8	4.7
<b>Information</b>							
511	Publishing	936	4.0	4.0	0.0	6.1	2.0
5111	Newspaper, book, and directory publishers	679	1.7	-0.7	-2.3	3.0	3.7
5112	Software publishers	257	3.3	9.4	5.9	10.5	1.1
51213	Motion picture and video exhibition	137	3.1	-2.5	-5.5	6.8	9.6
515	Broadcasting, except internet	337	7.9	5.7	-2.1	5.1	-0.5
5151	Radio and television broadcasting	246	3.7	2.1	-1.5	2.8	0.6
5152	Cable and other subscription programming	91	14.5	10.8	-3.2	13.1	2.0
5171	Wired telecommunications carriers	489	-0.1	-1.5	-1.4	-7.8	-6.4
5172	Wireless telecommunications carriers	207	5.8	10.9	4.9	5.5	-4.8
5175	Cable and other program distribution	142	11.9	9.5	-2.1	6.0	-3.2
<b>Finance and Insurance</b>							
52211	Commercial banking	1351	0.9	3.9	3.0	5.9	1.9
<b>Real Estate and Rental and Leasing</b>							
532111	Passenger car rental	130	16.8	1.1	-13.4	4.9	3.8
53212	Truck, trailer and RV rental and leasing	58	2.9	-1.7	-4.4	-0.5	1.2
53223	Video tape and disc rental	123	26.5	1.3	-19.9	-8.0	-9.2
<b>Professional and Technical Services</b>							
541213	Tax preparation services	150	13.7	6.6	-6.2	14.8	7.7
54131	Architectural services	241	4.7	11.1	6.1	9.7	-1.3
54133	Engineering services	961	-2.7	2.4	5.2	9.3	6.7
54181	Advertising agencies	199	3.7	8.5	4.6	7.9	-0.6
541921	Photography studios, portrait	79	5.8	3.8	-1.9	2.6	-1.2

**Table 1. Percent change in output per hour, output, hours, compensation, and unit labor costs, 2006-2007**

NAICS code	Industry	2007 Employment (thousands)	Percent change, 2006-2007				
			Output per hour	Output	Hours	Labor compensation	Unit labor costs
<b>Administrative and Waste Services</b>							
56131	Employment placement agencies	294	7.2	4.7	-2.4	21.4	16.0
56151	Travel agencies	119	3.9	1.3	-2.5	2.7	1.4
56172	Janitorial services	1228	5.4	8.1	2.6	8.1	0.0
<b>Health Care and Social Assistance</b>							
6215	Medical and diagnostic laboratories	223	-2.6	1.1	3.8	9.1	7.9
621511	Medical laboratories	148	2.1	2.4	0.3	7.4	4.9
621512	Diagnostic imaging centers	75	-11.4	-0.7	12.0	12.4	13.2
<b>Arts, Entertainment, and Recreation</b>							
71311	Amusement and theme parks	135	5.6	4.5	-1.0	5.2	0.6
71395	Bowling centers	78	19.7	9.2	-8.7	1.7	-6.9
<b>Accommodation and Food Services</b>							
72	Accommodation and food services	11766	-0.7	0.9	1.6	6.3	5.4
721	Accommodation	1907	-1.6	-0.1	1.5	5.9	6.1
7211	Traveler accommodation	1829	-1.8	-0.2	1.6	6.0	6.2
722	Food services and drinking places	9859	-0.4	1.3	1.7	6.5	5.1
7221	Full-service restaurants	4618	-1.4	0.8	2.2	7.2	6.3
7222	Limited-service eating places	4167	0.0	1.5	1.5	6.3	4.8
7223	Special food services	703	2.1	3.1	1.0	5.4	2.2
7224	Drinking places (alcoholic beverages)	372	2.5	0.8	-1.7	0.7	-0.1
<b>Other Services</b>							
8111	Automotive repair and maintenance	1170	-0.9	-0.8	0.1	4.6	5.4
81142	Reupholstery and furniture repair	26	5.7	-6.2	-11.3	-6.4	-0.2
81211	Hair, nail and skin care services	923	3.7	1.9	-1.7	-1.8	-3.6
81221	Funeral homes and funeral services	105	-2.4	-6.3	-4.0	4.8	11.9
8123	Drycleaning and laundry services	376	-4.3	-1.4	3.1	6.7	8.1
81292	Photofinishing	26	-1.0	-0.1	0.9	-4.9	-4.7

**Table 2. Average annual percent change in output per hour, output, hours, compensation, and unit labor costs, 1987-2007**

NAICS code	Industry	Average annual percent change, 1987-2007				
		Output per hour	Output	Hours	Labor compensation	Unit labor costs
<b>Mining Industries</b>						
21	Mining	-0.2	-0.3	-0.1	4.8	5.1
211	Oil and gas extraction	1.0	-0.9	-1.8	5.0	5.9
2111	Oil and gas extraction	1.0	-0.9	-1.8	5.0	5.9
212	Mining, except oil and gas	2.1	0.9	-1.2	1.8	0.9
2121	Coal mining	2.8	0.0	-2.8	0.0	0.0
2122	Metal ore mining	1.9	1.9	0.0	4.2	2.2
2123	Nonmetallic mineral mining and quarrying	1.1	1.1	0.0	3.2	2.1
213	Support activities for mining	3.5	5.9	2.3	8.5	2.5
2131	Support activities for mining	3.5	5.9	2.3	8.5	2.5
<b>Service-Providing Industries</b>						
<b>Utilities</b>						
2211	Power generation and supply	2.8	1.2	-1.5	2.9	1.6
2212	Natural gas distribution	2.9	1.3	-1.5	3.4	2.1
<b>Transportation and Warehousing</b>						
481	Air transportation	3.2	3.4	0.3	3.1	-0.3
482111	Line-haul railroads	4.3	2.3	-2.0	1.3	-1.0
48412	General freight trucking, long-distance	1.5	3.2	1.7	3.7	0.5
48421	Used household and office goods moving	-0.7	0.3	1.0	4.1	3.8
491	Postal service	1.1	1.0	0.0	4.6	3.5
4911	Postal service	1.1	1.0	0.0	4.6	3.5
492	Couriers and messengers	-0.6	2.5	3.1	5.4	2.8
493	Warehousing and storage <sup>1/</sup>	2.8	6.2	3.3	6.2	-0.1
4931	Warehousing and storage <sup>1/</sup>	2.8	6.2	3.3	6.2	-0.1
49311	General warehousing and storage <sup>1/</sup>	4.8	8.2	3.2	6.8	-1.3
49312	Refrigerated warehousing and storage <sup>1/</sup>	-0.6	3.0	3.6	4.8	1.7
<b>Information</b>						
511	Publishing	4.3	4.9	0.5	6.0	1.0
5111	Newspaper, book, and directory publishers	0.4	-0.4	-0.8	3.7	4.1
5112	Software publishers	15.6	23.5	6.9	12.6	-8.9
51213	Motion picture and video exhibition	1.0	1.7	0.7	3.9	2.2
515	Broadcasting, except internet	1.5	2.7	1.3	5.4	2.6
5151	Radio and television broadcasting	0.6	0.8	0.2	4.5	3.6
5152	Cable and other subscription programming	3.0	8.2	5.0	10.7	2.3
5171	Wired telecommunications carriers	4.7	2.9	-1.7	1.9	-1.0
5172	Wireless telecommunications carriers	9.4	23.3	12.7	16.0	-6.0
5175	Cable and other program distribution	0.8	6.0	5.1	10.1	3.9
<b>Finance and Insurance</b>						
52211	Commercial banking	2.6	2.6	0.0	5.9	3.1
<b>Real Estate and Rental and Leasing</b>						
532111	Passenger car rental	1.7	3.3	1.6	6.4	3.0
53212	Truck, trailer and RV rental and leasing	5.4	4.6	-0.7	3.6	-1.0
53223	Video tape and disc rental	5.5	5.9	0.4	3.8	-1.9
<b>Professional and Technical Services</b>						
541213	Tax preparation services	1.8	4.3	2.5	4.9	0.6
54131	Architectural services	1.6	4.3	2.6	6.4	2.0
54133	Engineering services	1.0	3.3	2.3	6.9	3.4
54181	Advertising agencies	1.9	2.4	0.5	5.1	2.7
541921	Photography studios, portrait	0.3	2.7	2.4	4.9	2.1



**Table 2. Average annual percent change in output per hour, output, hours, compensation, and unit labor costs, 1987-2007**

NAICS code	Industry	Average annual percent change, 1987-2007				
		Output per hour	Output	Hours	Labor compensation	Unit labor costs
<b>Administrative and Waste Services</b>						
56131	Employment placement agencies <sup>2/</sup>	3.2	5.5	2.3	10.1	4.3
56151	Travel agencies	3.9	2.9	-1.0	4.2	1.3
56172	Janitorial services	2.5	4.6	2.1	6.1	1.4
<b>Health Care and Social Assistance</b>						
6215	Medical and diagnostic laboratories <sup>2/</sup>	3.1	6.6	3.4	6.3	-0.3
621511	Medical laboratories <sup>2/</sup>	2.7	5.6	2.8	5.4	-0.1
621512	Diagnostic imaging centers <sup>2/</sup>	3.4	8.4	4.8	8.4	0.0
<b>Arts, Entertainment, and Recreation</b>						
71311	Amusement and theme parks	-0.4	2.7	3.1	6.5	3.7
71395	Bowling centers	0.7	-0.9	-1.7	1.5	2.4
<b>Accommodation and Food Services</b>						
72	Accommodation and food services	0.7	2.4	1.6	5.6	3.2
721	Accommodation	1.2	2.5	1.3	5.6	3.0
7211	Traveler accommodation	1.3	2.6	1.3	5.6	3.0
722	Food services and drinking places	0.6	2.4	1.7	5.7	3.2
7221	Full-service restaurants	0.6	2.4	1.8	6.7	4.1
7222	Limited-service eating places	0.6	2.5	1.9	5.4	2.8
7223	Special food services	1.5	2.6	1.1	4.1	1.4
7224	Drinking places (alcoholic beverages)	0.0	-0.1	-0.1	2.4	2.5
<b>Other Services</b>						
8111	Automotive repair and maintenance	1.3	2.2	0.9	4.5	2.3
81142	Reupholstery and furniture repair	0.0	-1.8	-1.8	1.3	3.1
81211	Hair, nail and skin care services	2.4	3.4	0.9	5.5	2.1
81221	Funeral homes and funeral services	-0.3	-0.2	0.2	4.4	4.6
8123	Drycleaning and laundry services	0.8	0.5	-0.3	3.3	2.7
81292	Photofinishing	0.7	-4.6	-5.3	-1.9	2.8

<sup>1/</sup> For NAICS industries 493, 4931, 49311, and 49312, average annual percent changes are for 1992-2007.

<sup>2/</sup> For NAICS industries 56131, 6215, 621511, and 621512, average annual percent changes are for 1994-2007.