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## PRODUCTIVITY AND COSTS BY INDUSTRY: MANUFACTURING, 2005

Labor productivity - defined as output per hour - rose in 2005 in 88 percent of the manufacturing industries studied by the Bureau of Labor Statistics, U.S. Department of Labor. Output (the production of manufactured goods) rose in 83 percent of the industries, while hours fell in 65 percent of the industries. Unit labor costs declined in 69 percent of manufacturing industries.

The share of industries with productivity increases over a longer period was even greater. From 1987 to 2005, labor productivity increased in all but one manufacturing industry. Output rose in 80 percent of the industries, while hours fell in 80 percent. Unit labor costs fell in 22 percent of the industries.

The attached tables present data for all manufacturing subsectors (3-digit) and detailed industries (4-digit) as classified in the North American Industry Classification System (NAICS).

## 2004-2005 change

Labor productivity rose in 2005 in 76 of the 86 detailed manufacturing industries. (See table 1.) Sixty percent of the industries recorded productivity gains of at least 4.0 percent, and more than a quarter had productivity growth of 8.0 percent or more. The largest productivity gain, 38.4 percent, was recorded in computer and peripheral equipment manufacturing (NAICS 3341), followed by a 23.7 percent productivity increase in apparel knitting mills (NAICS 3151). Both industries combined strong output increases with reductions in labor hours. Hours fell particularly steeply in the apparel manufacturing industries. Among the ten industries with declining or flat labor productivity, the railroad rolling stock manufacturing industry (NAICS 3365) had the largest drop, 8.0 percent.

In 2005, labor productivity increased in each of the three largest detailed manufacturing industries. In motor vehicle parts manufacturing (NAICS 3363), productivity increased 4.7 percent. In printing and related support activities (NAICS 3231 ) and plastics product manufacturing (NAICS 3261), productivity rose 4.5 and 2.7 percent, respectively. Productivity growth in all three industries resulted from a combination of increases in output and declines in labor hours.

Unit labor costs, which reflect the total labor costs required to produce a unit of output, fell in 59 of the 86 detailed manufacturing industries in 2005. The largest declines in unit labor costs, 18.8 percent and 17.3 percent, occurred respectively in computer and peripheral equipment manufacturing (NAICS 3341) and apparel knitting mills (NAICS 3151), the industries with the largest productivity gains.

As shown in the chart below, productivity increased in 2005 in all 21 manufacturing subsectors. In 14 of the subsectors, productivity rose 5.0 percent or more. In several subsectors, as in many industries, declining hours combined with increasing output to produce large productivity gains in 2005. One of these, the leather and allied products subsector (NAICS 316), recorded the largest increase in productivity, 9.8 percent. The combination of output growth and hours declines also resulted in large productivity gains for the textile product mills, chemicals, and electrical equipment and appliances subsectors.

Percent change in output per hour in manufacturing subsectors, 2004-2005


## Long-term trends

Between 1987 and 2005, productivity increased in 85 of the 86 detailed manufacturing industries studied. (See table 2.) Output rose in 69 industries and hours fell in 69 industries. (The industries with increasing output were not always the same as those with declining hours.) Productivity increased fastest in four detailed industries in the computer and electronic products manufacturing subsector (NAICS 334). Productivity grew an average 24.6 percent per year in computer and peripheral equipment (NAICS 3341), 19.0 percent per year in semiconductors and electronic components (NAICS 3344), 7.8 percent in audio and video equipment (NAICS 3343), and 7.4 percent in communications equipment (NAICS 3342). The only industry with declining labor productivity over the long-term period was accessories and other apparel manufacturing (NAICS 3159). Productivity in this industry fell at an average annual rate of 1.0 percent, reflecting a more rapid decline in output than in hours.

Unit labor costs fell in 19 of the 86 detailed manufacturing industries from 1987 to 2005. The four industries in the computer and electronic products manufacturing subsector (NAICS 334) that posted the fastest productivity increases also had the largest declines in unit labor costs. Unit labor costs fell an average 18.2 percent per year in computer and peripheral equipment (NAICS 3341), 13.1 percent in semiconductors and other electronic equipment (NAICS 3344), 4.2 percent in communications equipment (NAICS 3342), and 2.2 percent in audio and video equipment (NAICS 3343).

## Technical Note

## Output

Industry output is measured as sectoral output, the total value in real terms of goods and services produced for sale outside the industry. Wherever possible, the indexes of industry output are calculated with a Törnqvist formula. This formula aggregates the growth rates of the various industry outputs between two periods, using their relative shares in industry value of production, averaged over the two periods, as weights.

Industry output measures for manufacturing industries are constructed using data from the economic censuses and annual surveys of the Bureau of the Census, U.S. Department of Commerce, together with information on price changes primarily from the Bureau of Labor Statistics.

## Labor Hours

The industry labor input measures represent the hours of all workers in the industry. The primary source of data on employment and hours is the BLS Current Employment Statistics (CES) survey, which provides monthly data on the number of jobs held by wage and salary workers employed directly by nonfarm establishments. The CES survey also provides data on the average weekly hours of production and nonsupervisory workers in these establishments.

Data from the Current Population Survey (CPS) are used to supplement the CES data. The Division of Industry Productivity Studies (DIPS) estimates the average weekly hours of supervisory and nonproduction workers for each industry using data from the CPS together with the CES data. For the industries covered in this release, the hours of production and nonproduction workers are treated as homogeneous and are directly aggregated.

## Labor Productivity

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. Industry output per hour indexes are prepared from data published by various public and private agencies, using the greatest level of industry detail available.

Although the labor productivity 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 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 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.

## Unit Labor Costs

The unit labor cost series represents the cost of labor input required to produce one unit of output. The indexes of unit labor costs for each industry are computed by dividing an index of industry labor compensation by an index of industry output. 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.

## Notes

The measures in this news release incorporate revised data from the Census Bureau's 2005 Annual Survey of Manufactures (ASM) and the annual benchmark revision of the BLS Current Employment Statistics (CES) survey published in February 2007. These measures replace the manufacturing series published in the news release Productivity and Costs by Industry: Manufacturing, 2004 (released May 2, 2006) and in table 51 of the Monthly Labor Review. All of the measures for 2005 in this release are preliminary and subject to revision.

Published productivity and unit labor cost indexes for selected NAICS industries, including the industries covered in this report, can be accessed electronically by visiting the Labor Productivity and Costs Web site: http://www.bls.gov/lpc/home.htm. While the index numbers and rates of change reported by BLS in this news release are rounded to one decimal place, all industry productivity percent changes in this release and on the BLS web site are calculated using index numbers to three decimal places.

Measures for selected detailed industries are available upon request by calling the Division of Industry Productivity Studies (202-691-5618) or by sending a request by email: dipsweb@bls.gov. Data on industry employment, annual hours, the net value of production, and the implicit price deflator for output also are available upon request.

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Table 1. Percent change in output per hour, output, hours, compensation, and unit labor costs, 2004-2005

| NAICS code | Industry | 2005 <br> Employment <br> (thousands) | Percent change, 2004-2005 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Output per hour | Output | Hours | $\begin{array}{\|c\|} \hline \text { Total } \\ \text { compensation } \\ \hline \end{array}$ | $\begin{gathered} \hline \text { Unit labor } \\ \text { costs } \\ \hline \end{gathered}$ |
|  | Manufacturing |  |  |  |  |  |  |
| 311 | Food | 1478 | 5.5 | 3.6 | -1.8 | 2.9 | -0.7 |
| 3111 | Animal food | 49 | 11.1 | 8.8 | -2.0 | 5.0 | -3.5 |
| 3112 | Grain and oilseed milling | 61 | 5.7 | 5.9 | 0.2 | 4.9 | -0.9 |
| 3113 | Sugar and confectionery products | 79 | 11.1 | 2.5 | -7.7 | 1.9 | -0.6 |
| 3114 | Fruit and vegetable preserving and specialty | 174 | 4.6 | 0.2 | -4.2 | 7.1 | 6.9 |
| 3115 | Dairy products | 132 | 2.0 | 5.3 | 3.2 | 4.6 | -0.7 |
| 3116 | Animal slaughtering and processing | 504 | 8.7 | 5.2 | -3.3 | 1.6 | -3.4 |
| 3117 | Seafood product preparation and packaging | 41 | 14.8 | 5.1 | -8.4 | 7.5 | 2.3 |
| 3118 | Bakeries and tortilla manufacturing | 280 | 1.4 | 0.9 | -0.5 | -1.2 | -2.1 |
| 3119 | Other food products | 159 | -3.3 | 0.1 | 3.5 | 4.7 | 4.6 |
| 312 | Beverages and tobacco products | 192 | 5.6 | 5.0 | -0.6 | 3.9 | -1.0 |
| 3121 | Beverages | 167 | 4.6 | 5.2 | 0.6 | 3.8 | -1.3 |
| 3122 | Tobacco and tobacco products | 25 | 13.0 | 4.5 | -7.5 | 4.3 | -0.2 |
| 313 | Textile mills | 218 | 6.6 | -1.3 | -7.5 | -5.8 | -4.5 |
| 3131 | Fiber, yarn, and thread mills | 50 | -2.4 | -3.4 | -1.1 | -4.8 | -1.4 |
| 3132 | Fabric mills | 104 | 8.6 | -3.0 | -10.7 | -7.6 | -4.7 |
| 3133 | Textile and fabric finishing mills | 63 | 9.5 | 1.9 | -7.0 | -2.6 | -4.4 |
| 314 | Textile product mills | 170 | 8.8 | 5.3 | -3.2 | -2.5 | -7.4 |
| 3141 | Textile furnishings mills | 96 | 10.5 | 5.6 | -4.4 | -4.8 | -9.9 |
| 3149 | Other textile product mills | 74 | 6.2 | 4.6 | -1.5 | 0.2 | -4.2 |
| 315 | Apparel | 257 | 7.6 | -3.4 | -10.2 | -8.1 | -4.9 |
| 3151 | Apparel knitting mills | 37 | 23.7 | 11.0 | -10.2 | -8.2 | -17.3 |
| 3152 | Cut and sew apparel | 200 | 4.3 | -6.7 | -10.5 | -8.7 | -2.2 |
| 3159 | Accessories and other apparel | 21 | 15.2 | 6.5 | -7.5 | -3.0 | -8.9 |
| 316 | Leather and allied products | 40 | 9.8 | 4.2 | -5.1 | 1.2 | -2.9 |
| 3161 | Leather and hide tanning and finishing | 7 | 10.3 | -0.7 | -10.0 | -2.5 | -1.9 |
| 3162 | Footwear | 18 | 6.9 | 2.2 | -4.4 | -2.0 | -4.1 |
| 3169 | Other leather products | 15 | 14.1 | 10.1 | -3.5 | 7.6 | -2.2 |
| 321 | Wood products | 560 | 6.5 | 6.7 | 0.2 | 5.0 | -1.5 |
| 3211 | Sawmills and wood preservation | 119 | 8.2 | 7.7 | -0.5 | 5.0 | -2.5 |
| 3212 | Plywood and engineered wood products | 123 | 7.2 | 8.1 | 0.8 | 5.9 | -2.0 |
| 3219 | Other wood products | 317 | 5.2 | 5.4 | 0.2 | 4.7 | -0.7 |
| 322 | Paper and paper products | 484 | 1.5 | 0.5 | -1.1 | 1.3 | 0.8 |
| 3221 | Pulp, paper, and paperboard mills | 142 | 0.6 | 0.0 | -0.6 | 2.1 | 2.1 |
| 3222 | Converted paper products | 343 | 2.1 | 0.8 | -1.2 | 0.7 | -0.1 |
| 323 | Printing and related support activities * | 646 | 4.5 | 2.3 | -2.2 | 0.6 | -1.7 |
| 324 | Petroleum and coal products * | 112 | 0.3 | 0.2 | -0.1 | 8.8 | 8.7 |
| 325 | Chemicals | 872 | 5.5 | 1.9 | -3.4 | 3.8 | 1.9 |
| 3251 | Basic chemicals | 150 | 5.7 | -0.7 | -6.0 | 0.6 | 1.3 |
| 3252 | Resin, rubber, and artificial fibers | 108 | 4.8 | 3.8 | -1.0 | 7.2 | 3.3 |
| 3253 | Agricultural chemicals | 40 | 14.2 | 9.6 | -4.1 | 1.2 | -7.6 |
| 3254 | Pharmaceuticals and medicines | 288 | 3.6 | 0.8 | -2.7 | 7.1 | 6.2 |
| 3255 | Paints, coatings, and adhesives | 68 | 3.6 | 1.3 | -2.3 | 1.2 | -0.1 |
| 3256 | Soaps, cleaning compounds, and toiletries | 114 | 12.8 | 7.7 | -4.5 | 4.3 | -3.2 |
| 3259 | Other chemical products and preparations | 104 | 1.8 | -1.2 | -3.0 | -0.2 | 1.0 |
| 326 | Plastics and rubber products | 804 | 3.1 | 1.2 | -1.9 | 2.4 | 1.2 |
| 3261 | Plastics products | 635 | 2.7 | 1.2 | -1.5 | 2.8 | 1.6 |
| 3262 | Rubber products | 168 | 4.3 | 0.8 | -3.4 | 0.6 | -0.1 |

[^0]Table 1. Percent change in output per hour, output, hours, compensation, and unit labor costs, 2004-2005

| NAICS code | Industry | 2005Employment <br> (thousands) | Percent change, 2004-2005 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Output per hour | Output | Hours | Total compensation | Unit labor costs |
| 327 | Nonmetallic mineral products | 505 | 5.4 | 4.0 | -1.3 | 4.4 | 0.4 |
| 3271 | Clay products and refractories | 62 | 6.6 | 2.9 | -3.5 | 1.2 | -1.7 |
| 3272 | Glass and glass products | 108 | 7.8 | 0.3 | -6.9 | 0.1 | -0.2 |
| 3273 | Cement and concrete products | 240 | 2.6 | 4.8 | 2.1 | 7.3 | 2.5 |
| 3274 | Lime and gypsum products | 20 | 12.1 | 7.4 | -4.2 | 9.2 | 1.7 |
| 3279 | Other nonmetallic mineral products | 76 | 6.9 | 5.6 | -1.2 | 3.8 | -1.7 |
| 331 | Primary metals | 466 | 1.8 | 1.8 | 0.0 | 0.9 | -0.9 |
| 3311 | Iron and steel mills and ferroalloy production | 96 | -2.6 | -1.9 | 0.7 | -2.5 | -0.6 |
| 3312 | Steel products from purchased steel | 61 | 2.1 | 4.2 | 2.0 | 2.6 | -1.5 |
| 3313 | Alumina and aluminum production | 73 | 12.0 | 11.4 | -0.6 | 3.8 | -6.8 |
| 3314 | Other nonferrous metal production | 72 | -0.5 | 1.5 | 2.0 | 3.5 | 1.9 |
| 3315 | Foundries | 164 | 3.3 | 1.4 | -1.8 | 1.6 | 0.1 |
| 332 | Fabricated metal products | 1522 | 2.6 | 4.2 | 1.6 | 3.4 | -0.8 |
| 3321 | Forging and stamping | 111 | 3.3 | 4.2 | 0.9 | 4.0 | -0.2 |
| 3322 | Cutlery and hand tools | 56 | 8.2 | 2.7 | -5.0 | 0.6 | -2.1 |
| 3323 | Architectural and structural metals | 398 | 2.5 | 6.8 | 4.2 | 3.4 | -3.2 |
| 3324 | Boilers, tanks, and shipping containers | 91 | 0.4 | -0.4 | -0.9 | 2.0 | 2.4 |
| 3325 | Hardware | 36 | 5.1 | -4.5 | -9.2 | -6.2 | -1.8 |
| 3326 | Spring and wire products | 59 | 9.3 | 2.7 | -6.0 | 3.3 | 0.6 |
| 3327 | Machine shops and threaded products | 345 | 0.6 | 5.3 | 4.6 | 6.2 | 0.9 |
| 3328 | Coating, engraving, and heat treating metals | 145 | 8.5 | 9.7 | 1.1 | 3.2 | -5.9 |
| 3329 | Other fabricated metal products | 282 | 1.3 | 2.1 | 0.8 | 2.6 | 0.6 |
| 333 | Machinery | 1163 | 5.3 | 6.9 | 1.5 | 4.1 | -2.6 |
| 3331 | Agriculture, construction, and mining machinery | 208 | 4.3 | 12.5 | 7.8 | 5.1 | -6.5 |
| 3332 | Industrial machinery | 124 | -3.6 | -2.1 | 1.6 | 2.8 | 4.9 |
| 3333 | Commercial and service industry machinery | 111 | 6.6 | 0.6 | -5.6 | 5.2 | 4.6 |
| 3334 | HVAC and commercial refrigeration equipment | 153 | 3.7 | 4.5 | 0.9 | 5.4 | 0.8 |
| 3335 | Metalworking machinery | 202 | 8.1 | 7.2 | -0.8 | 4.1 | -2.8 |
| 3336 | Turbine and power transmission equipment | 98 | 3.7 | 9.2 | 5.2 | 3.4 | -5.3 |
| 3339 | Other general purpose machinery | 268 | 7.9 | 8.8 | 0.9 | 3.7 | -4.8 |
| 334 | Computer and electronic products | 1306 | 6.2 | 6.5 | 0.3 | -1.0 | -7.0 |
| 3341 | Computer and peripheral equipment | 205 | 38.4 | 28.0 | -7.5 | 3.9 | -18.8 |
| 3342 | Communications equipment | 147 | -2.7 | -1.7 | 1.0 | -9.7 | -8.2 |
| 3343 | Audio and video equipment | 32 | 0.0 | 0.4 | 0.4 | 1.5 | 1.1 |
| 3344 | Semiconductors and electronic components | 452 | 7.1 | 6.6 | -0.4 | 2.9 | -3.5 |
| 3345 | Electronic instruments | 436 | -3.9 | 1.2 | 5.3 | -1.3 | -2.5 |
| 3346 | Magnetic media manufacturing and reproduction | 35 | 0.7 | -3.2 | -3.9 | -9.3 | -6.4 |
| 335 | Electrical equipment and appliances | 434 | 5.3 | 2.1 | -3.1 | 1.3 | -0.8 |
| 3351 | Electric lighting equipment | 61 | 8.9 | 4.2 | -4.3 | 3.3 | -0.8 |
| 3352 | Household appliances | 85 | 3.4 | -0.4 | -3.7 | -5.3 | -4.9 |
| 3353 | Electrical equipment | 152 | 5.4 | 1.5 | -3.6 | 5.2 | 3.6 |
| 3359 | Other electrical equipment and components | 136 | 5.2 | 3.7 | -1.5 | 0.4 | -3.1 |
| 336 | Transportation equipment | 1772 | 4.1 | 4.4 | 0.3 | -0.2 | -4.4 |
| 3361 | Motor vehicles | 248 | 3.5 | -0.2 | -3.6 | -2.4 | -2.1 |
| 3362 | Motor vehicle bodies and trailers | 171 | 3.2 | 6.0 | 2.8 | 6.2 | 0.2 |
| 3363 | Motor vehicle parts | 678 | 4.7 | 1.3 | -3.2 | -4.0 | -5.2 |
| 3364 | Aerospace products and parts | 455 | 11.3 | 16.2 | 4.4 | 3.8 | -10.7 |
| 3365 | Railroad rolling stock | 27 | -8.0 | 3.2 | 12.2 | 3.5 | 0.3 |
| 3366 | Ship and boat building | 153 | -4.0 | 2.5 | 6.7 | 0.3 | -2.1 |
| 3369 | Other transportation equipment | 40 | 8.7 | 9.9 | 1.1 | 15.0 | 4.6 |
| 337 | Furniture and related products | 566 | 5.6 | 3.8 | -1.7 | 1.9 | -1.8 |
| 3371 | Household and institutional furniture | 380 | 6.8 | 4.2 | -2.4 | 1.6 | -2.5 |
| 3372 | Office furniture and fixtures | 133 | 4.3 | 3.6 | -0.7 | 2.1 | -1.5 |
| 3379 | Other furniture-related products | 52 | 1.7 | 2.0 | 0.4 | 3.4 | 1.4 |
| 339 | Miscellaneous manufacturing | 652 | 8.3 | 7.7 | -0.5 | 4.0 | -3.4 |
| 3391 | Medical equipment and supplies | 305 | 7.8 | 10.9 | 2.9 | 7.5 | -3.1 |
| 3399 | Other miscellaneous manufacturing | 348 | 8.1 | 4.4 | -3.4 | 0.6 | -3.6 |

Table 2. Average annual percent change in output per hour, output, hours, compensation, and unit labor costs, 1987-2005

| NAICS code | Industry | Average annual percent change, 1987-2005 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Output per hour | Output | Hours | Total compensation | Unit labor |
|  | Manufacturing |  |  |  |  |  |
| 311 | Food | 1.5 | 1.7 | 0.2 | 3.2 | 1.4 |
| 3111 | Animal food | 3.9 | 2.5 | -1.3 | 3.3 | 0.8 |
| 3112 | Grain and oilseed milling | 3.0 | 1.8 | -1.2 | 2.2 | 0.4 |
| 3113 | Sugar and confectionery products | 2.3 | 1.2 | -1.0 | 2.3 | 1.1 |
| 3114 | Fruit and vegetable preserving and specialty | 2.0 | 1.6 | -0.4 | 2.9 | 1.3 |
| 3115 | Dairy products | 1.6 | 1.0 | -0.5 | 3.2 | 2.1 |
| 3116 | Animal slaughtering and processing | 1.0 | 2.4 | 1.3 | 3.6 | 1.2 |
| 3117 | Seafood product preparation and packaging | 2.3 | 1.1 | -1.2 | 3.2 | 2.1 |
| 3118 | Bakeries and tortilla manufacturing | 0.7 | 0.8 | 0.0 | 2.5 | 1.7 |
| 3119 | Other food products | 0.9 | 2.1 | 1.2 | 4.8 | 2.7 |
| 312 | Beverages and tobacco products | 1.4 | 0.3 | -1.1 | 1.6 | 1.4 |
| 3121 | Beverages | 2.5 | 1.8 | -0.6 | 2.0 | 0.2 |
| 3122 | Tobacco and tobacco products | 1.5 | -2.0 | -3.4 | 0.2 | 2.3 |
| 313 | Textile mills | 3.9 | -1.1 | -4.9 | -1.6 | -0.5 |
| 3131 | Fiber, yarn, and thread mills | 4.6 | 0.1 | -4.3 | -1.2 | -1.3 |
| 3132 | Fabric mills | 4.5 | -1.5 | -5.8 | -1.5 | 0.0 |
| 3133 | Textile and fabric finishing mills | 2.4 | -1.3 | -3.6 | -2.3 | -1.0 |
| 314 | Textile product mills | 2.1 | 1.0 | -1.0 | 1.6 | 0.5 |
| 3141 | Textile furnishings mills | 2.2 | 1.1 | -1.1 | 0.6 | -0.4 |
| 3149 | Other textile product mills | 1.8 | 0.9 | -0.9 | 2.8 | 1.8 |
| 315 | Apparel | 2.5 | -4.9 | -7.2 | -4.8 | 0.1 |
| 3151 | Apparel knitting mills | 2.5 | -3.9 | -6.3 | -4.7 | -0.8 |
| 3152 | Cut and sew apparel | 2.7 | -5.1 | -7.6 | -5.0 | 0.1 |
| 3159 | Accessories and other apparel | -1.0 | -4.2 | -3.2 | -2.6 | 1.7 |
| 316 | Leather and allied products | 2.9 | -4.0 | -6.8 | -3.0 | 1.1 |
| 3161 | Leather and hide tanning and finishing | 0.7 | -3.5 | -4.2 | -1.3 | 2.3 |
| 3162 | Footwear | 1.9 | -6.8 | -8.5 | -4.5 | 2.5 |
| 3169 | Other leather products | 2.5 | -2.4 | -4.8 | -1.8 | 0.6 |
| 321 | Wood products | 1.4 | 1.3 | -0.2 | 3.5 | 2.2 |
| 3211 | Sawmills and wood preservation | 2.8 | 1.4 | -1.4 | 2.2 | 0.8 |
| 3212 | Plywood and engineered wood products | 0.6 | 1.6 | 1.0 | 3.8 | 2.2 |
| 3219 | Other wood products | 1.1 | 1.0 | -0.1 | 3.9 | 2.9 |
| 322 | Paper and paper products | 2.1 | 0.6 | -1.5 | 1.9 | 1.3 |
| 3221 | Pulp, paper, and paperboard mills | 3.4 | 0.3 | -3.0 | 1.0 | 0.7 |
| 3222 | Converted paper products | 1.4 | 0.7 | -0.7 | 2.6 | 1.9 |
| 323 | Printing and related support activities * | 1.1 | 0.3 | -0.8 | 1.8 | 1.5 |
| 324 | Petroleum and coal products * | 3.1 | 1.3 | -1.8 | 4.2 | 2.8 |
| 325 | Chemicals | 2.4 | 1.8 | -0.6 | 3.3 | 1.5 |
| 3251 | Basic chemicals | 3.1 | 0.5 | -2.5 | 2.3 | 1.8 |
| 3252 | Resin, rubber, and artificial fibers | 2.8 | 1.3 | -1.5 | 2.0 | 0.7 |
| 3253 | Agricultural chemicals | 2.9 | 1.5 | -1.3 | 1.8 | 0.3 |
| 3254 | Pharmaceuticals and medicines | 1.2 | 4.0 | 2.8 | 6.5 | 2.4 |
| 3255 | Paints, coatings, and adhesives | 1.8 | 0.7 | -1.1 | 2.5 | 1.8 |
| 3256 | Soaps, cleaning compounds, and toiletries | 3.3 | 2.7 | -0.6 | 2.9 | 0.2 |
| 3259 | Other chemical products and preparations | 2.8 | 0.6 | -2.1 | 1.6 | 1.0 |
| 326 | Plastics and rubber products | 2.8 | 2.8 | 0.0 | 3.7 | 0.9 |
| 3261 | Plastics products | 2.8 | 3.2 | 0.4 | 4.2 | 1.0 |
| 3262 | Rubber products | 2.6 | 1.4 | -1.2 | 2.2 | 0.8 |

[^1]Table 2. Average annual percent change in output per hour, output, hours, compensation, and unit labor costs, 1987-2005

| NAICS code | Industry | Average annual percent change, 1987-2005 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Output per hour | Output | Hours | Total compensation | Unit labor costs |
| 327 | Nonmetallic mineral products | 1.5 | 1.4 | -0.1 | 2.7 | 1.3 |
| 3271 | Clay products and refractories | 1.6 | -0.2 | -1.8 | 1.0 | 1.1 |
| 3272 | Glass and glass products | 2.2 | 0.8 | -1.4 | 1.4 | 0.5 |
| 3273 | Cement and concrete products | 0.7 | 2.0 | 1.3 | 4.0 | 2.0 |
| 3274 | Lime and gypsum products | 1.6 | 0.7 | -0.9 | 3.1 | 2.4 |
| 3279 | Other nonmetallic mineral products | 2.0 | 1.5 | -0.5 | 3.0 | 1.5 |
| 331 | Primary metals | 2.8 | 0.8 | -2.0 | 1.0 | 0.2 |
| 3311 | Iron and steel mills and ferroalloy production | 5.2 | 1.9 | -3.1 | 0.0 | -1.9 |
| 3312 | Steel products from purchased steel | 0.7 | 0.1 | -0.6 | 1.5 | 1.4 |
| 3313 | Alumina and aluminum production | 3.0 | 0.7 | -2.2 | 1.4 | 0.7 |
| 3314 | Other nonferrous metal production | 1.3 | -0.8 | -2.1 | 1.6 | 2.4 |
| 3315 | Foundries | 2.5 | 1.1 | -1.4 | 1.7 | 0.6 |
| 332 | Fabricated metal products | 1.6 | 1.4 | -0.2 | 2.6 | 1.2 |
| 3321 | Forging and stamping | 3.0 | 2.0 | -1.1 | 2.0 | 0.0 |
| 3322 | Cutlery and hand tools | 1.7 | -0.1 | -1.7 | 1.6 | 1.7 |
| 3323 | Architectural and structural metals | 1.1 | 1.8 | 0.7 | 3.5 | 1.6 |
| 3324 | Boilers, tanks, and shipping containers | 0.5 | -0.5 | -1.0 | 1.2 | 1.7 |
| 3325 | Hardware | 2.3 | -1.0 | -3.2 | -0.3 | 0.7 |
| 3326 | Spring and wire products | 3.3 | 1.6 | -1.6 | 2.4 | 0.8 |
| 3327 | Machine shops and threaded products | 2.3 | 3.3 | 1.0 | 4.2 | 0.8 |
| 3328 | Coating, engraving, and heat treating metals | 3.3 | 3.6 | 0.3 | 3.5 | -0.1 |
| 3329 | Other fabricated metal products | 1.2 | 0.3 | -0.9 | 1.7 | 1.4 |
| 333 | Machinery | 2.7 | 1.9 | -0.9 | 2.1 | 0.2 |
| 3331 | Agriculture, construction, and mining machinery | 3.2 | 3.2 | 0.0 | 2.5 | -0.7 |
| 3332 | Industrial machinery | 2.7 | 1.9 | -0.8 | 2.5 | 0.6 |
| 3333 | Commercial and service industry machinery | 1.5 | -0.3 | -1.8 | 0.4 | 0.7 |
| 3334 | HVAC and commercial refrigeration equipment | 2.8 | 2.4 | -0.4 | 2.6 | 0.2 |
| 3335 | Metalworking machinery | 2.2 | 0.8 | -1.4 | 1.7 | 0.9 |
| 3336 | Turbine and power transmission equipment | 2.8 | 2.1 | -0.7 | 1.1 | -0.9 |
| 3339 | Other general purpose machinery | 2.8 | 1.9 | -0.9 | 2.7 | 0.9 |
| 334 | Computer and electronic products | 13.1 | 10.4 | -2.4 | 0.8 | -8.7 |
| 3341 | Computer and peripheral equipment | 24.6 | 19.5 | -4.1 | -2.3 | -18.2 |
| 3342 | Communications equipment | 7.4 | 4.8 | -2.5 | 0.3 | -4.2 |
| 3343 | Audio and video equipment | 7.8 | 4.2 | -3.3 | 1.9 | -2.2 |
| 3344 | Semiconductors and electronic components | 19.0 | 17.2 | -1.5 | 1.9 | -13.1 |
| 3345 | Electronic instruments | 3.9 | 1.4 | -2.4 | 1.2 | -0.2 |
| 3346 | Magnetic media manufacturing and reproduction | 2.9 | 2.8 | -0.1 | 1.8 | -0.9 |
| 335 | Electrical equipment and appliances | 3.1 | 0.6 | -2.4 | 1.3 | 0.7 |
| 3351 | Electric lighting equipment | 2.2 | 0.5 | -1.6 | 1.7 | 1.2 |
| 3352 | Household appliances | 4.6 | 2.0 | -2.5 | 1.0 | -1.0 |
| 3353 | Electrical equipment | 3.0 | 0.0 | -2.9 | 1.2 | 1.2 |
| 3359 | Other electrical equipment and components | 2.4 | 0.3 | -2.1 | 1.4 | 1.1 |
| 336 | Transportation equipment | 2.9 | 1.9 | -1.1 | 1.6 | -0.2 |
| 3361 | Motor vehicles | 3.8 | 2.5 | -1.2 | 2.2 | -0.3 |
| 3362 | Motor vehicle bodies and trailers | 1.7 | 3.0 | 1.3 | 5.0 | 1.9 |
| 3363 | Motor vehicle parts | 3.4 | 3.8 | 0.3 | 2.6 | -1.1 |
| 3364 | Aerospace products and parts | 2.1 | -1.2 | -3.2 | -0.2 | 1.0 |
| 3365 | Railroad rolling stock | 4.4 | 4.8 | 0.3 | 2.9 | -1.7 |
| 3366 | Ship and boat building | 1.9 | 1.1 | -0.8 | 2.1 | 1.0 |
| 3369 | Other transportation equipment | 5.2 | 5.5 | 0.3 | 4.3 | -1.2 |
| 337 | Furniture and related products | 2.2 | 1.8 | -0.4 | 3.0 | 1.2 |
| 3371 | Household and institutional furniture | 2.0 | 1.6 | -0.4 | 3.1 | 1.4 |
| 3372 | Office furniture and fixtures | 2.6 | 1.7 | -0.9 | 2.7 | 1.0 |
| 3379 | Other furniture-related products | 2.0 | 2.6 | 0.6 | 3.7 | 1.1 |
| 339 | Miscellaneous manufacturing | 3.3 | 3.3 | 0.0 | 4.6 | 1.2 |
| 3391 | Medical equipment and supplies | 3.8 | 4.8 | 1.0 | 5.7 | 0.8 |
| 3399 | Other miscellaneous manufacturing | 2.7 | 2.0 | -0.7 | 3.6 | 1.6 |


[^0]:    * 3-digit industry is the same as the 4-digit.

[^1]:    * 3-digit industry is the same as the 4-digit.

