

For release 10:00 a.m. (EDT) Thursday, March 27, 2014

USDL-14-0492

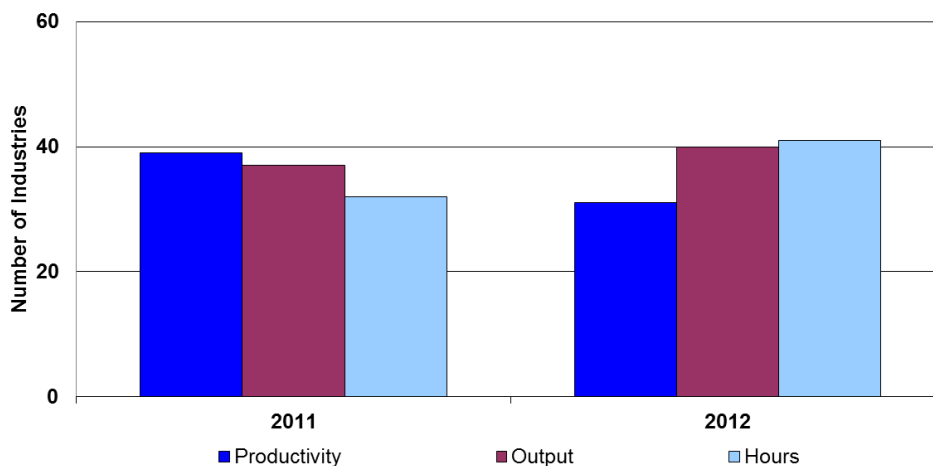
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**PRODUCTIVITY AND COSTS BY INDUSTRY:  
MANUFACTURING INDUSTRIES, 2012**

**Labor productivity** – defined as output per hour – rose in 54 percent of the detailed manufacturing industries covered in 2012, the U.S. Bureau of Labor Statistics reported today. This was down from 68 percent in 2011. **Unit labor costs**, which reflect the total labor costs required to produce a unit of output, declined in 39 percent of the industries in 2012 compared to 49 percent in 2011. More than half of industries with productivity increases posted declines in unit labor costs.

Output and hours rose in more industries in 2012 than in the previous year. (See chart 1 and table 1.) Output rose in 2012 in 40 of 57 NAICS 4-digit manufacturing industries for which data were available, up from 37 industries in 2011. Hours increased in even more industries, 41 compared to 32 in 2011. Hours rose in more industries in 2012 than in any year since 1997.

**Chart 1. Number of manufacturing industries with increases in labor productivity, output, and hours, 2011 and 2012**



The latest industry productivity data for manufacturing industries and for industries in other sectors are available on the BLS website at [www.bls.gov/lpc/iprprodydata.htm](http://www.bls.gov/lpc/iprprodydata.htm).

**Industry Productivity Hours Series Changes**

Beginning with this news release, labor hours for manufacturing industries represent hours worked. See Technical Note in this news release for more information about how hours worked are derived.

Chart 2 contrasts the distribution of average annual productivity changes during the 1987-2012 and 2007-2012 periods with those in the most recent year. During the 1987-2012 period, productivity rose in all but 1 industry, with productivity growth in most industries averaging between 0.1 and 4.0 percent per year. Productivity also increased in a majority of industries between 2007 and 2012, despite the fact that the period encompassed a severe recession. However, fewer industries had productivity growth greater than 2 percent per year, and productivity declined in 18 industries. In the most recent year, rates of productivity change were more evenly distributed than in either of the longer time periods.

**Chart 2. Distribution of average annual percent change in labor productivity, 1987-2012, 2007-2012 and 2011-2012**

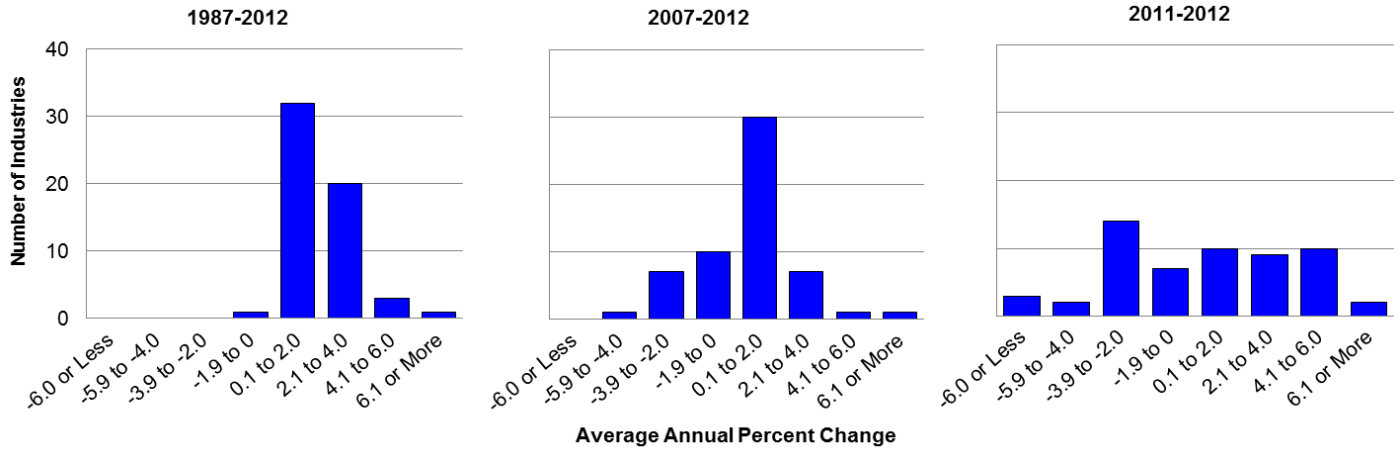
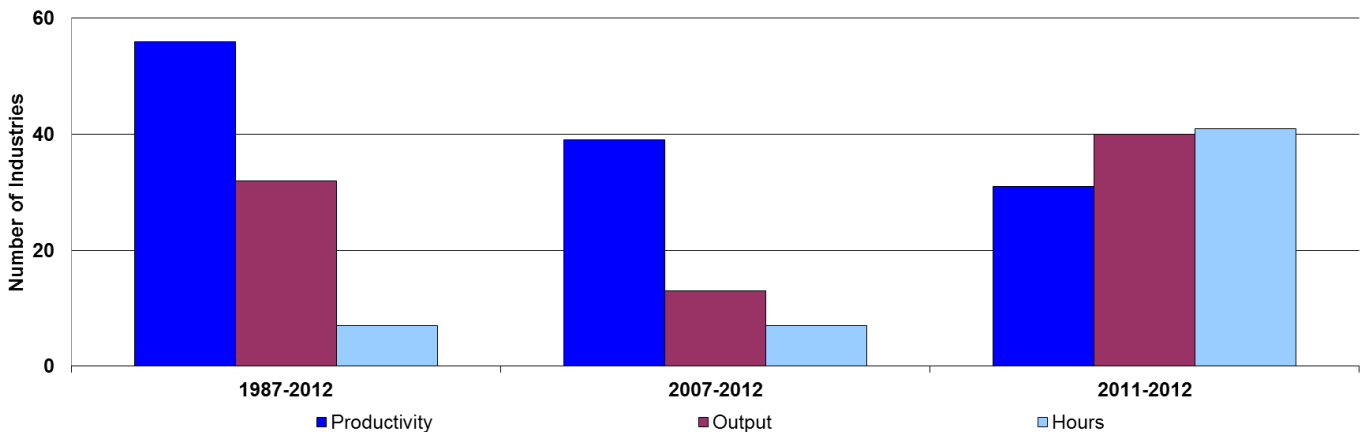


Chart 3 reflects the underlying trends in output and hours over the three periods studied. From 1987 to 2012, productivity growth was driven by rising output in many industries, while hours increased in very few. Productivity increased in fewer industries from 2007 to 2012, as output and hours rose in relatively few industries. In most industries, productivity advanced as output was produced with fewer hours. In contrast, output and hours rose in more industries in 2012 as the economic recovery continued. Increases in hours more than offset increases in output in a number of industries, with the result that productivity rose in fewer industries in 2012 than in the other two periods.

**Chart 3. Number of manufacturing industries with increases in labor productivity, output, and hours, 1987-2012, 2007-2012 and 2011-2012**

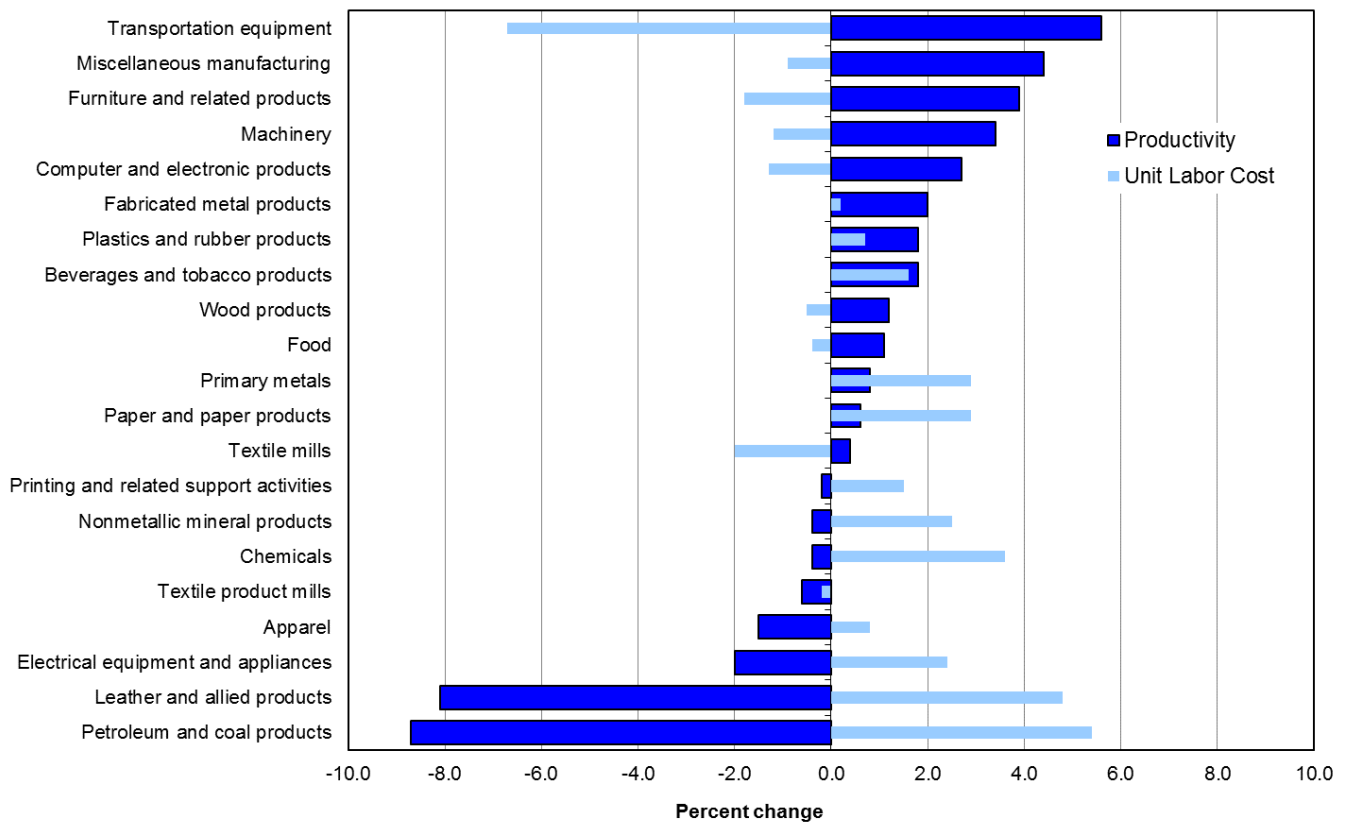


### 3-Digit NAICS Industries

Labor productivity increased in 13 of the 21 NAICS 3-digit manufacturing industries in 2012, as output increased in 17 industries and hours fell in 5 industries. Chart 4 shows the range of productivity and unit labor cost changes for all 21 industries. Productivity rose fastest in transportation equipment, where output increased much faster than hours. Of the 21 industries, 10 registered greater productivity growth, or smaller productivity declines, than in the previous year.

Unit labor costs fell in 9 of the 21 industries. Unit labor costs declined more frequently in industries where productivity rose, as productivity gains offset increases in hourly compensation. Unit labor costs fell in 8 of the 13 industries where productivity rose; in the 8 industries where productivity fell, 7 recorded an increase in unit labor costs.

**Chart 4. Percent change in labor productivity and unit labor costs in 3-digit NAICS manufacturing industries, 2011-2012**



### Revisions

This release updates productivity measures to 2012 for all 21 NAICS 3-digit and for 57 of the 86 NAICS 4-digit manufacturing industries. Data from the 2012 Economic Census were not available at the time of this release. As a result, BLS developed output estimates for 2012 for the industries covered in this release based on trends in industrial production from the Federal Reserve Board and on trends from the manufacturers' shipments, inventories, and orders (M3) survey from the Census Bureau, along with data on price changes from BLS. Labor compensation in 2012 is based on trends in industry wages from the BLS Quarterly Census of Employment and Wages (QCEW). The hours measures in this news release incorporate the annual benchmark revision of the BLS Current Employment Statistics (CES) survey published in February 2014. For the first time, labor hours in this news release represent hours at work. Data on hours paid from the CES were adjusted using industry hours worked/hours paid ratios derived

from National Compensation Survey (NCS) data. Data in this release are preliminary and subject to revision. Measures for 2012 for all 3-digit and 4-digit industries will be updated in a future release.

The industries included in this news release are classified according to the 2007 NAICS. While the rates of change reported by BLS in this release are rounded to one decimal place, all percent changes are calculated using index numbers rounded to three decimal places.

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

More detailed data for industries covered in this release and for additional industries are available on the BLS Labor Productivity and Costs website at [www.bls.gov/lpc](http://www.bls.gov/lpc). Data include productivity and related indexes; rates of change; and levels of industry employment, hours, nominal value of production, and labor compensation. Additional information can be obtained 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). 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.

Customers can subscribe to the industry productivity program's news releases on the BLS website at <https://subscriptions.bls.gov/accounts/USDOLBLS/subscriber/new>.

## Technical Note

**Labor Productivity:** Labor productivity describes the relationship between real output and the labor hours involved in its production. These measures show the changes from period to period in the amount of goods and services produced per hour worked. Although the labor productivity measures relate output in an industry to hours worked of all persons in that industry, they do not measure the specific contribution of labor to growth in output. 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; in addition to the characteristics and effort of the workforce.

**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 nominal 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.

**Output:** Industry output is measured as an annual-weighted index of the changes in the various products (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 reflects sectoral value of production, derived by adjusting shipments for changes in inventories and removing intra-industry transactions. Industry output measures are constructed primarily using data from the economic censuses and annual surveys of the Census Bureau, U.S. Department of Commerce, together with data on price changes primarily from BLS. The 2012 estimates are constructed with data on industrial production from the Federal Reserve and manufacturers' shipments, inventories, and orders from the Census Bureau.

**Labor Hours:** Labor hours reflect annual hours worked by all employed persons in an industry. Data on industry employment and hours come primarily from the BLS Current Employment Statistics (CES) survey and Current Population Survey (CPS). CES data on the number of total and production worker jobs held by wage and salary workers in nonfarm establishments are supplemented with CPS self-employed and unpaid family worker data to estimate industry employment. Hours worked estimates are derived using CES and CPS employment, CES data on the average weekly hours paid of production workers, CPS data on hours of nonproduction, self-employed, and unpaid family workers, and ratios of hours worked to hours paid based on data from the National Compensation Survey (NCS). For some industries, employment and hours data are supplemented or further disaggregated using data from the BLS Quarterly Census of Employment and Wages (QCEW), the Census Bureau, or other sources. Hours worked are estimated separately for different types of workers and then are directly aggregated; no adjustments for labor composition are made.

**Labor Compensation:** Labor 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 both 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. Industry compensation measures are constructed primarily using data from

the economic censuses and annual surveys of the Census Bureau, U.S. Department of Commerce. The estimates for 2012 are constructed using data from the BLS Quarterly Census of Employment and Wages (QCEW).

**Table 1. Percent change in output per hour, unit labor costs, and related data, 2011-2012**

Industry	NAICS code	2012 Employment (thousands)	Percent change, 2011-2012				
			Output per hour	Output	Hours	Labor compensation	Unit labor costs
<b>Manufacturing</b>							
Food.....	311	1,514.8	1.1	3.7	2.6	3.3	-0.4
Grain and oilseed milling.....	3112	60.7	-2.3	-0.1	2.3	7.2	7.3
Fruit and vegetable preserving and specialty.....	3114	173.5	4.4	4.4	0.0	0.6	-3.7
Dairy products.....	3115	136.4	-2.8	2.5	5.5	4.3	1.7
Animal slaughtering and processing.....	3116	485.2	0.5	0.5	-0.1	0.9	0.4
Bakeries and tortilla manufacturing.....	3118	317.4	-2.0	4.0	6.2	2.6	-1.3
Other food products.....	3119	176.9	1.0	7.0	6.0	6.5	-0.5
Beverages and tobacco products.....	312	195.9	1.8	1.6	-0.2	3.2	1.6
Beverages.....	3121	181.5	3.4	4.0	0.5	4.7	0.7
Tobacco and tobacco products.....	3122	14.4	5.6	-4.5	-9.5	-5.6	-1.2
Textile mills.....	313	128.0	0.4	2.8	2.3	0.7	-2.0
Fiber, yarn, and thread mills.....	3131	28.5	-0.5	-4.2	-3.7	-1.2	3.2
Fabric mills.....	3132	60.0	1.0	4.7	3.7	1.7	-2.9
Textile and fabric finishing and coating mills.....	3133	39.5	-2.7	2.7	5.5	0.2	-2.4
Textile product mills.....	314	125.9	-0.6	0.5	1.1	0.3	-0.2
Textile furnishings mills.....	3141	55.2	0.4	-1.2	-1.6	-2.4	-1.2
Other textile product mills.....	3149	70.7	-1.1	2.4	3.5	2.8	0.4
Apparel.....	315	169.9	-1.5	-3.5	-2.1	-2.7	0.8
Leather and allied products.....	316	35.0	-8.1	-0.1	8.6	4.7	4.8
Wood products.....	321	361.5	1.2	4.3	3.0	3.7	-0.5
Sawmills and wood preservation.....	3211	89.9	1.9	4.2	2.2	4.6	0.4
Plywood and engineered wood products.....	3212	64.0	-3.6	4.7	8.5	5.6	0.9
Other wood products.....	3219	207.6	2.4	4.2	1.7	2.6	-1.5
Paper and paper products.....	322	381.9	0.6	-2.4	-3.0	0.4	2.9
Pulp, paper, and paperboard mills.....	3221	108.7	0.5	-2.5	-3.0	1.4	4.0
Converted paper products.....	3222	273.2	0.7	-2.3	-2.9	-0.3	2.1
Printing and related support activities.....	323	482.2	-0.2	-2.4	-2.2	-1.0	1.5
Printing and related support activities.....	3231	482.2	-0.2	-2.4	-2.2	-1.0	1.5
Petroleum and coal products.....	324	113.2	-8.7	1.0	10.6	6.4	5.4
Petroleum and coal products.....	3241	113.2	-8.7	1.0	10.6	6.4	5.4
Chemicals.....	325	797.6	-0.4	0.2	0.5	3.8	3.6
Basic chemicals.....	3251	142.6	0.7	0.2	-0.5	1.6	1.3
Agricultural chemicals.....	3253	37.3	-7.2	-3.2	4.3	6.9	10.5
Pharmaceuticals and medicines.....	3254	273.1	-3.6	-3.5	0.1	6.3	10.1
Paints, coatings, and adhesives.....	3255	57.6	-6.4	-1.1	5.7	7.0	8.2
Plastics and rubber products.....	326	650.5	1.8	3.2	1.3	3.9	0.7
Plastics products.....	3261	519.1	2.8	4.3	1.4	4.5	0.2
Rubber products.....	3262	131.4	-1.9	-1.1	0.9	1.9	3.0
Nonmetallic mineral products.....	327	391.2	-0.4	1.1	1.5	3.7	2.5
Clay products and refractories.....	3271	54.3	-1.7	4.5	6.3	0.9	-3.4
Glass and glass products.....	3272	86.7	-1.2	-2.9	-1.7	2.6	5.6
Cement and concrete products.....	3273	167.2	2.8	5.5	2.6	3.8	-1.5
Lime and gypsum products.....	3274	14.1	2.6	4.5	1.9	10.6	5.9
Other nonmetallic mineral products.....	3279	68.9	-2.7	-3.6	-0.9	4.6	8.5
Primary metals.....	331	406.9	0.8	2.1	1.3	5.0	2.9
Alumina and aluminum production.....	3313	61.3	-2.8	3.4	6.4	3.4	0.0
Foundries.....	3315	128.0	4.5	3.7	-0.7	6.5	2.7
Fabricated metal products.....	332	1,434.1	2.0	7.2	5.1	7.4	0.2
Forging and stamping.....	3321	98.3	2.3	6.1	3.8	8.4	2.2
Cutlery and hand tools.....	3322	42.2	-2.3	5.2	7.6	6.6	1.3
Architectural and structural metals.....	3323	344.9	4.7	8.3	3.4	7.0	-1.2
Spring and wire products.....	3326	42.9	-4.6	-7.3	-2.8	2.4	10.4

**Table 1. Percent change in output per hour, unit labor costs, and related data, 2011-2012 — Continued**

Industry	NAICS code	2012 Employment (thousands)	Percent change, 2011-2012				
			Output per hour	Output	Hours	Labor compensation	Unit labor costs
Machine shops and threaded products.....	3327	371.6	2.2	7.2	4.8	7.3	0.2
Coating, engraving, and heat treating metals.....	3328	137.2	2.1	7.1	4.8	6.5	-0.6
Other fabricated metal products.....	3329	276.2	0.0	8.6	8.6	8.6	0.0
Machinery.....	333	1,114.5	3.4	7.0	3.5	5.7	-1.2
Agriculture, construction, and mining machinery.....	3331	248.5	5.4	13.0	7.2	10.9	-1.9
Industrial machinery.....	3332	107.2	-3.8	-3.4	0.3	1.0	4.6
HVAC and commercial refrigeration equipment.....	3334	128.5	3.1	0.8	-2.2	-0.5	-1.3
Metalworking machinery.....	3335	184.2	0.3	8.2	7.9	8.3	0.1
Computer and electronic products.....	334	1,097.3	2.7	1.4	-1.2	0.1	-1.3
Semiconductors and electronic components.....	3344	388.1	5.5	5.3	-0.2	-0.2	-5.2
Electronic instruments.....	3345	400.5	-5.5	-5.7	-0.2	0.3	6.4
Electrical equipment and appliances.....	335	374.8	-2.0	1.9	4.0	4.4	2.4
Electric lighting equipment.....	3351	46.7	-2.6	2.9	5.6	12.8	9.7
Household appliances.....	3352	55.6	-3.3	-0.4	3.1	2.0	2.3
Electrical equipment.....	3353	144.3	-3.0	2.6	5.7	3.4	0.8
Other electrical equipment and components.....	3359	128.2	0.2	2.1	1.9	3.5	1.4
Transportation equipment.....	336	1,471.5	5.6	12.8	6.8	5.2	-6.7
Motor vehicles.....	3361	167.8	12.2	20.0	6.9	5.6	-12.0
Motor vehicle parts.....	3363	486.1	5.0	16.0	10.4	7.7	-7.2
Aerospace products and parts.....	3364	500.7	4.8	6.7	1.8	2.8	-3.7
Ship and boat building.....	3366	130.9	-2.1	7.1	9.4	6.7	-0.4
Other transportation equipment.....	3369	34.1	15.4	21.3	5.1	-3.9	-20.8
Furniture and related products.....	337	378.4	3.9	4.7	0.7	2.8	-1.8
Household and institutional furniture.....	3371	240.2	5.1	6.4	1.2	2.7	-3.4
Miscellaneous manufacturing.....	339	632.8	4.4	5.5	1.1	4.6	-0.9
Medical equipment and supplies.....	3391	315.6	5.8	6.4	0.6	4.7	-1.6



**Table 2. Average annual percent change in output per hour, unit labor costs, and related data, 1987-2012**

Industry	NAICS code	Average annual percent change, 1987-2012				
		Output per hour	Output	Hours	Labor compensation	Unit labor costs
<b>Manufacturing</b>						
Food.....	311	1.1	1.3	0.2	2.9	1.6
Grain and oilseed milling.....	3112	1.5	0.9	-0.6	2.3	1.4
Fruit and vegetable preserving and specialty.....	3114	1.2	1.1	-0.1	2.7	1.6
Dairy products.....	3115	1.4	1.1	-0.3	3.2	2.1
Animal slaughtering and processing.....	3116	1.0	2.0	1.0	3.3	1.3
Bakeries and tortilla manufacturing.....	3118	0.4	0.4	-0.1	2.0	1.7
Other food products.....	3119	0.7	2.2	1.5	4.1	1.9
Beverages and tobacco products.....	312	0.7	-0.2	-0.9	1.4	1.6
Beverages.....	3121	1.8	1.5	-0.3	2.1	0.5
Tobacco and tobacco products.....	3122	1.8	-3.3	-5.0	-1.3	2.1
Textile mills.....	313	3.2	-2.5	-5.5	-3.0	-0.5
Fiber, yarn, and thread mills.....	3131	2.4	-2.8	-5.1	-3.1	-0.4
Fabric mills.....	3132	4.2	-2.3	-6.2	-3.0	-0.8
Textile and fabric finishing and coating mills.....	3133	1.5	-3.0	-4.4	-2.8	0.2
Textile product mills.....	314	0.9	-1.8	-2.7	0.1	2.0
Textile furnishings mills.....	3141	0.5	-2.6	-3.1	-0.8	1.9
Other textile product mills.....	3149	1.9	-0.4	-2.3	1.2	1.7
Apparel.....	315	-1.1	-7.6	-6.6	-5.8	2.0
Leather and allied products.....	316	1.0	-4.2	-5.1	-2.7	1.6
Wood products.....	321	1.2	-0.7	-1.9	1.2	1.9
Sawmills and wood preservation.....	3211	2.1	-0.1	-2.2	0.8	0.9
Plywood and engineered wood products.....	3212	0.8	-0.9	-1.7	0.7	1.6
Other wood products.....	3219	1.0	-0.8	-1.8	1.6	2.4
Paper and paper products.....	322	1.9	-0.2	-2.1	1.1	1.4
Pulp, paper, and paperboard mills.....	3221	2.8	-0.5	-3.2	0.5	0.9
Converted paper products.....	3222	1.4	-0.1	-1.5	1.6	1.7
Printing and related support activities.....	323	1.3	-0.7	-2.0	0.5	1.2
Printing and related support activities.....	3231	1.3	-0.7	-2.0	0.5	1.2
Petroleum and coal products.....	324	2.3	1.2	-1.0	3.8	2.6
Petroleum and coal products.....	3241	2.3	1.2	-1.0	3.8	2.6
Chemicals.....	325	1.4	0.6	-0.7	2.9	2.3
Basic chemicals.....	3251	2.2	0.3	-1.9	2.0	1.7
Agricultural chemicals.....	3253	1.6	0.2	-1.3	2.1	1.9
Pharmaceuticals and medicines.....	3254	-0.1	1.9	1.9	5.7	3.7
Paints, coatings, and adhesives.....	3255	0.9	-0.7	-1.6	2.1	2.8
Plastics and rubber products.....	326	2.0	1.2	-0.7	2.4	1.1
Plastics products.....	3261	1.8	1.5	-0.4	2.8	1.3
Rubber products.....	3262	2.2	0.4	-1.8	1.1	0.8
Nonmetallic mineral products.....	327	0.9	-0.3	-1.2	1.4	1.7
Clay products and refractories.....	3271	0.7	-1.5	-2.2	-0.6	0.9
Glass and glass products.....	3272	2.2	0.0	-2.1	0.8	0.8
Cement and concrete products.....	3273	0.1	-0.3	-0.4	2.0	2.3
Lime and gypsum products.....	3274	1.2	-0.7	-1.9	2.1	2.8
Other nonmetallic mineral products.....	3279	1.4	0.6	-0.8	2.2	1.6
Primary metals.....	331	2.3	0.3	-2.0	1.1	0.8
Alumina and aluminum production.....	3313	2.5	0.2	-2.3	0.8	0.7
Foundries.....	3315	2.2	0.0	-2.1	1.0	1.0
Fabricated metal products.....	332	1.3	1.0	-0.3	2.5	1.5
Forging and stamping.....	3321	2.7	1.5	-1.2	2.0	0.5
Cutlery and hand tools.....	3322	1.9	-0.4	-2.3	0.7	1.1
Architectural and structural metals.....	3323	0.7	0.8	0.0	2.9	2.2
Spring and wire products.....	3326	2.4	-0.3	-2.6	1.3	1.6

**Table 2. Average annual percent change in output per hour, unit labor costs, and related data, 1987-2012 — Continued**

Industry	NAICS code	Average annual percent change, 1987-2012				
		Output per hour	Output	Hours	Labor compensation	Unit labor costs
Machine shops and threaded products.....	3327	2.0	2.9	0.8	4.0	1.1
Coating, engraving, and heat treating metals.....	3328	2.8	2.8	0.1	3.1	0.3
Other fabricated metal products.....	3329	1.3	0.6	-0.7	2.0	1.4
Machinery.....	333	2.5	1.7	-0.7	2.1	0.3
Agriculture, construction, and mining machinery.....	3331	2.9	3.6	0.7	3.3	-0.3
Industrial machinery.....	3332	2.3	1.1	-1.1	1.8	0.7
HVAC and commercial refrigeration equipment.....	3334	2.0	1.0	-1.0	1.8	0.8
Metalworking machinery.....	3335	2.0	0.7	-1.4	1.3	0.7
Computer and electronic products.....	334	10.4	7.7	-2.4	0.8	-6.4
Semiconductors and electronic components.....	3344	15.6	13.8	-1.6	1.1	-11.2
Electronic instruments.....	3345	3.6	1.5	-2.0	2.0	0.4
Electrical equipment and appliances.....	335	2.3	0.0	-2.3	1.0	1.1
Electric lighting equipment.....	3351	2.0	-0.4	-2.3	1.4	1.8
Household appliances.....	3352	3.2	-0.2	-3.3	-1.0	-0.7
Electrical equipment.....	3353	2.0	-0.2	-2.1	0.9	1.1
Other electrical equipment and components.....	3359	2.1	0.1	-2.0	1.7	1.6
Transportation equipment.....	336	3.1	1.7	-1.4	1.1	-0.6
Motor vehicles.....	3361	4.3	2.0	-2.2	0.3	-1.7
Motor vehicle parts.....	3363	3.3	2.5	-0.9	0.5	-1.9
Aerospace products and parts.....	3364	1.8	-0.1	-1.9	1.1	1.2
Ship and boat building.....	3366	2.1	0.8	-1.2	2.6	1.8
Other transportation equipment.....	3369	5.7	5.6	-0.1	3.7	-1.7
Furniture and related products.....	337	1.6	-0.5	-2.1	0.8	1.4
Household and institutional furniture.....	3371	1.4	-1.0	-2.4	0.5	1.5
Miscellaneous manufacturing.....	339	3.0	2.5	-0.4	3.8	1.3
Medical equipment and supplies.....	3391	3.4	4.4	0.9	5.3	0.9