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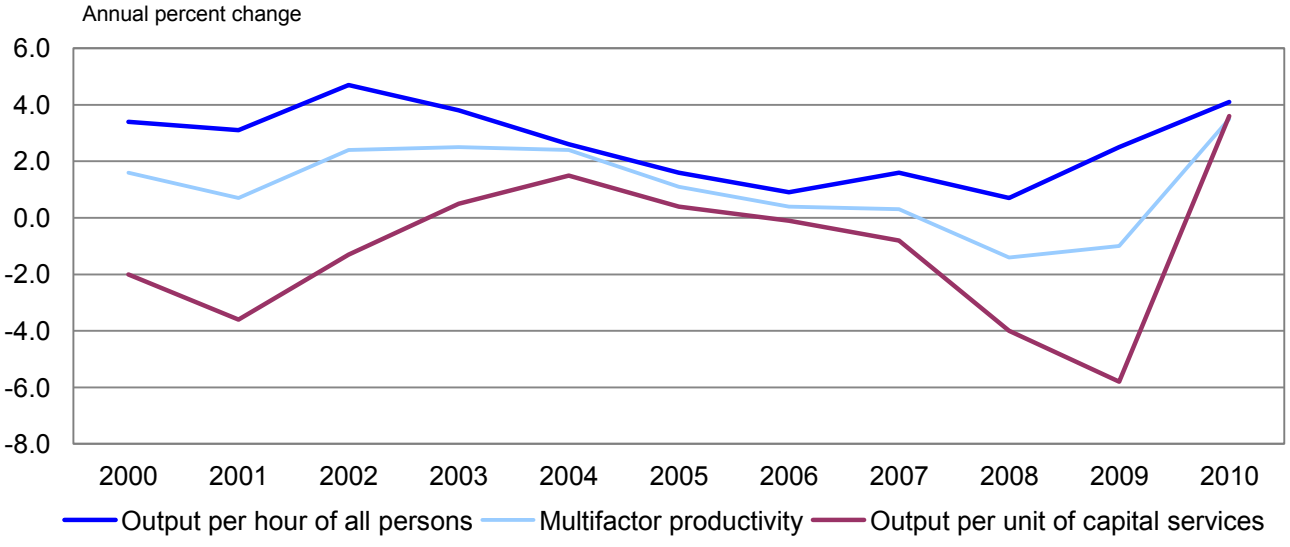
MULTIFACTOR PRODUCTIVITY TRENDS - 2010

Private nonfarm business sector multifactor productivity increased at a 3.5 percent annual rate in 2010, the U.S. Bureau of Labor Statistics reported today. This was the largest increase recorded in the series, which began in 1987. (See chart 1, table A.) The multifactor productivity gain in 2010 reflected a 4.0 percent increase in output and 0.5 percent increase in the combined inputs of capital and labor. Capital services grew by 0.4 percent, and labor input – which is the combined effect of hours worked and labor composition – grew 0.5 percent. (See table A, table 1.) The combination of fast-rising output and a modest increase in capital services caused output per unit of capital services to rise 3.6 percent, the largest gain since the series began in 1987.

Multifactor productivity measures the change in output per unit of combined capital and labor input. It is designed to measure the joint influences of technological change, efficiency improvements, returns to scale, reallocation of resources, and other factors on economic growth, allowing for the effects of capital and labor. Multifactor productivity, therefore, differs from labor productivity (output per hour worked) measures that are published quarterly by BLS. Multifactor productivity includes information on capital services, hours worked, and shifts in the composition of labor. Estimates of capital services and labor composition are not included in the quarterly labor productivity measures. Additionally, much of the source data needed to construct multifactor productivity measures are not available quarterly.

Private business sector multifactor productivity increased at a 3.4 percent annual rate in 2010, reversing a decline of 0.8 percent in 2009. The multifactor productivity gain in 2010 reflected a 4.0 percent increase in output and 0.5 percent increase in the combined inputs of capital and labor. Capital services grew by 0.5 percent, and labor input grew by 0.6 percent. (See table A, table 2.)

Chart 1. Output per hour of all persons, multifactor productivity, and output per unit of capital services in the private nonfarm business sector, 2000-2010



Historical trends in private nonfarm business

Multifactor productivity in private nonfarm business grew 0.9 percent annually from 1987 to 2010. (See table A.) For the 2007-2010 period, multifactor productivity grew 0.3 percent, due to a 0.9 percent decline in output coupled with a 1.2 percent decline in combined inputs. In contrast, the 3.5 percent increase in multifactor productivity in 2010 was a result of an increase in output much larger than the increase in combined inputs. The 4.0 percent rise in output over the year represents the largest increase since 2004. (See table 1.)

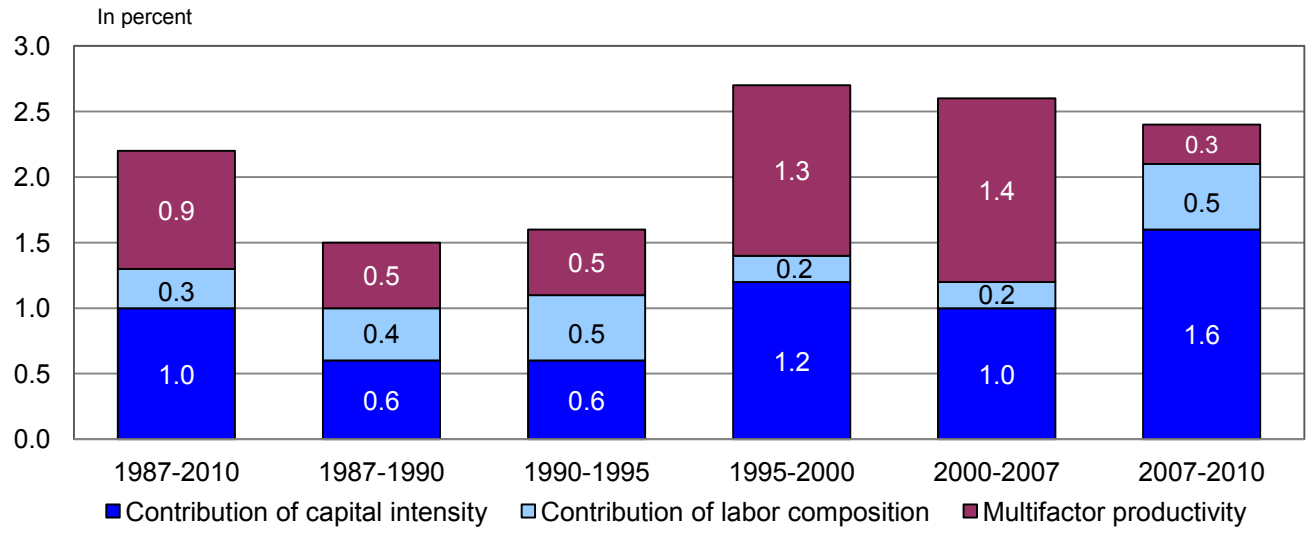
Annual labor productivity growth can be viewed as the sum of three components: multifactor productivity growth, the contribution of capital intensity, and the contribution of shifts in labor composition. Output per hour shifted sharply upwards after the 1990-1995 period. In particular, the contribution of capital intensity to labor productivity growth became more pronounced after 1995. (See chart 2, table B.)

For the 2007-2010 period, the contribution of capital intensity increased at a 1.6 percent annual rate and the contribution of labor composition increased at a 0.5 percent annual rate, faster than the gains seen in the 1995-2000 and 2000-2007 periods. Gains made in private nonfarm business output per hour due to the rising contributions of capital intensity and of labor composition were tempered by slower multifactor productivity growth. (See chart 2, table B.)

For the 2000-2007 period, information processing equipment and software (IPES) grew 8.1 percent annually in the private nonfarm business sector. (See table 5.) For the 2007-2010 period, IPES slowed to 4.4 percent annually. For both periods, the rate of increase in information processing equipment and software was markedly lower than the double-digit increase observed in the 1995-2000 period.

The revised multifactor productivity measure for the most recent year reflects the use of a more rigorous methodology than that used in the preliminary multifactor productivity release published on May 19, 2011 http://www.bls.gov/news.release/archives/prod3_05192011.pdf. Revisions to underlying data affect multifactor productivity growth rates for the 2007-2010 period. (See table C.) In 2010, multifactor productivity growth in the private nonfarm business sector was 3.5 percent, larger than the 3.2 percent increase reported May 19, 2011, mainly due to a 0.3 percent upward revision to output. For 2009, multifactor productivity growth in the private nonfarm business sector was revised downward to a 1.0 percent decline, a 1.1 percent downward revision. This was largely due to a revision to output from a 3.7 percent decline to a fall of 5.0 percent.

Chart 2. Percentage point contributions to growth in output per hour in the private nonfarm business sector, 1987-2010



Note: Multifactor productivity plus the contributions of capital intensity and labor composition may not sum to output per hour due to independent rounding.

Table A. Compound annual growth rates for productivity, output, and inputs in the private nonfarm business and private business sectors for selected periods, 1987-2010

In percent

	1987-2010	1987-1990	1990-1995	1995-2000	2000-2007	2007-2010	2009-2010
Private nonfarm business[1]							
Productivity							
Multifactor Productivity[2]	0.9	0.5	0.5	1.3	1.4	0.3	3.5
Output per hour of all persons	2.2	1.4	1.6	2.7	2.6	2.4	4.1
Output per unit of capital services	-0.8	-0.4	-0.4	-1.0	-0.5	-2.2	3.6
Output	2.8	3.2	2.9	5.0	2.7	-0.9	4.0
Inputs							
Combined inputs[3]	1.9	2.7	2.4	3.6	1.3	-1.2	0.5
Labor Input[4]	1.1	2.3	2.0	2.5	0.4	-2.5	0.5
Hours	0.6	1.7	1.3	2.2	0.1	-3.2	-0.1
Labor composition[5]	0.5	0.6	0.7	0.3	0.3	0.7	0.7
Capital services	3.6	3.6	3.3	6.0	3.2	1.3	0.4
Analytic ratio							
Capital services per hour of all persons	3.1	1.9	1.9	3.8	3.1	4.7	0.6
Private business[1]							
Productivity							
Multifactor Productivity[2]	1.0	0.6	0.4	1.5	1.4	0.5	3.4
Output per hour of all persons	2.3	1.6	1.5	2.9	2.7	2.5	4.1
Output per unit of capital services	-0.7	-0.4	-0.3	-0.8	-0.5	-1.9	3.5
Output	2.8	3.2	2.8	5.0	2.7	-0.8	4.0
Inputs							
Combined inputs[3]	1.8	2.6	2.4	3.4	1.2	-1.2	0.5
Labor Input[4]	1.0	2.1	2.0	2.4	0.3	-2.5	0.6
Hours	0.5	1.6	1.3	2.0	0.0	-3.2	-0.1
Labor composition[5]	0.5	0.6	0.7	0.3	0.3	0.7	0.7
Capital services	3.5	3.6	3.1	5.8	3.2	1.2	0.5
Analytic ratio							
Capital services per hour of all persons	3.0	2.0	1.8	3.7	3.1	4.5	0.6

1 Excludes government enterprises.

2 Output per unit of combined labor input and capital services.

3 The growth rate of each input is weighted by its share of current dollar costs.

4 Hours at work by age, education, and gender group are weighted by each group's share of the total wage bill.

5 Ratio of labor input to hours.

Table B. Compound annual growth rates in output per hour of all persons and the contributions of capital intensity, labor composition, and multifactor productivity in the private nonfarm business and private business sectors for selected periods, 1987-2010

In percent

	1987-2010	1987-1990	1990-1995	1995-2000	2000-2007	2007-2010	2009-2010
Private nonfarm business[1]							
Output per hour of all persons	2.2	1.4	1.6	2.7	2.6	2.4	4.1
Contribution of capital intensity[2]	1.0	0.6	0.6	1.2	1.0	1.6	0.2
Contribution of information processing equipment and software[3]	0.6	0.5	0.5	0.9	0.5	0.6	0.3
Contribution of all other capital services	0.4	0.1	0.2	0.2	0.4	1.0	-0.1
Contribution of labor composition[4]	0.3	0.4	0.5	0.2	0.2	0.5	0.4
Multifactor productivity[5]	0.9	0.5	0.5	1.3	1.4	0.3	3.5
Contribution of R&D to multifactor productivity	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Private business[1]							
Output per hour of all persons	2.3	1.6	1.5	2.9	2.7	2.5	4.1
Contribution of capital intensity[2]	1.0	0.6	0.6	1.2	1.0	1.5	0.2
Contribution of information processing equipment and software[3]	0.6	0.5	0.4	0.9	0.5	0.6	0.3
Contribution of all other capital services	0.4	0.2	0.1	0.3	0.4	1.0	0.0
Contribution of labor composition[4]	0.3	0.4	0.5	0.2	0.2	0.5	0.4
Multifactor productivity[5]	1.0	0.6	0.4	1.5	1.4	0.5	3.4

1 Excludes government enterprises.

2 Capital services per hour multiplied by capital's share of current dollar costs.

3 Information processing equipment and software per hour multiplied by its share of current dollar costs.

4 Labor composition multiplied by labor's share of current dollar costs.

5 Output per unit of combined labor input and capital services.

Note: Multifactor productivity plus contribution of capital intensity and labor composition may not sum to output per hour due to independent rounding. Contributions of information processing equipment and all other capital services may not sum to the contribution of capital intensity due to independent rounding.

Table C. Annual growth rates of the previous and revised multifactor productivity measures in the private nonfarm business and private business sectors for the 1987-2010 period

Annual percent change from previous year

	Private Nonfarm Business		Private Business	
Year	Previous	Revised	Previous	Revised
1988	1.0	1.0	0.8	0.8
1989	0.0	0.0	0.3	0.3
1990	0.4	0.4	0.6	0.6
1991	-1.0	-1.0	-1.0	-1.0
1992	2.3	2.3	2.6	2.6
1993	0.3	0.3	0.2	0.2
1994	0.7	0.7	0.7	0.7
1995	0.0	0.0	-0.3	-0.3
1996	1.4	1.4	1.7	1.7
1997	0.6	0.6	0.8	0.8
1998	1.5	1.5	1.5	1.5
1999	1.7	1.6	1.9	1.8
2000	1.6	1.6	1.7	1.7
2001	0.7	0.7	0.8	0.8
2002	2.4	2.4	2.3	2.4
2003	2.4	2.5	2.6	2.7
2004	2.5	2.4	2.6	2.4
2005	1.1	1.1	1.1	1.0
2006	0.4	0.4	0.5	0.5
2007	0.4	0.3	0.3	0.3
2008	-1.0	-1.4	-0.9	-1.2
2009	0.1	-1.0	0.2	-0.8
2010	3.2	3.5	3.2	3.4

TECHNICAL NOTES

Capital Services: Capital services are the services derived from the stock of physical assets and software. There are 86 asset types for fixed business equipment and software, structures, inventories, and land. Data on investments in physical assets are obtained from BEA. Data on inventories are estimated using BEA and additional information from IRS Corporation Income Returns. Data for land in the farm sector are obtained from USDA. Nonfarm industry detail for land is based on IRS book value data. Current-dollar value-added data, obtained from BEA, are used in estimating capital rental prices.

Among equipment, BLS provides additional detail in tables 5 and 6 on information processing equipment and software (IPES). IPES is composed of four broad classes of assets: computers and related equipment, software, communications equipment, and other IPES equipment. Computers and related equipment includes mainframe computers, personal computers, printers, terminals, tape drives, storage devices, and integrated systems. Software is comprised of pre-packaged, custom, and own-account software. Communications equipment is not further differentiated. Other IPES includes medical equipment and related instruments, electromedical instruments, nonmedical instruments, photocopying and related equipment, and office and accounting machinery. Structures include nonresidential structures and residential capital that are rented out by profit-making firms or persons.

Financial assets are excluded from capital services measures, as are owner-occupied residential structures. The aggregate capital services measures are obtained by Tornqvist aggregation of the capital stocks for each asset type within each of 60 NAICS industry groupings using estimated rental prices for each asset type. Each rental price reflects the nominal rate of return to all assets within the industry and rates of economic depreciation and revaluation for the specific asset; rental prices are adjusted for the effects of taxes. Current-dollar capital costs can be defined as each asset's rental price multiplied by its constant-dollar stock, adjusting for capital composition effects.

Labor Input: Labor input in private business and private nonfarm business is obtained by chained superlative (Tornqvist) aggregation of the hours at work by all persons, classified by age, education, and gender with weights determined by each group's share of the total wage bill. Hours paid of employees are largely obtained from the Current Employment Statistics program (CES). These hours paid are then converted to an at-work basis by using information from the Employment Cost Index (ECI) of the National Compensation Survey (NCS) benchmarked to the Hours at Work Survey. Hours at work for nonproduction and supervisory workers are derived using data from the Current Population Survey (CPS), the CES, and the NCS. The hours at work of proprietors, unpaid family workers, and farm employees are derived from the Current Population Survey. Hours at work data reflect Productivity and Costs data as of the February 2, 2012 "Productivity and Costs" news release (USDL-12-0162). The growth rate of labor composition is defined as the difference between the growth rate of weighted labor input and the growth rate of the hours of all persons. Additional information concerning data sources and methods of measuring labor composition can be found in Cindy Zoghi, 2007, "Measuring Labor Composition: A Comparison of Alternate Methodologies" http://www.bls.gov/bls/fesacp1121407.pdf.

Combined Inputs: Labor input and capital services are combined using chained superlative Tornqvist aggregation, applying weights that represent each component's share of total costs. The chained superlative Tornqvist index uses changing weights; the share in each year is averaged with the preceding year's share. Total costs are defined as the value of output less a portion of taxes on production and imports. Most of the taxes on production and imports, such as excise taxes, are excluded from costs; however, property and motor vehicle taxes remain in total costs.

Capital Intensity: Capital intensity is the ratio of capital to hours worked in the production process. The higher the capital to hours ratio, the more capital intensive the production process is.

In a production process, profit maximizing/cost-minimizing firms adjust the factor proportions of capital and labor if the price of one factor is less than the other factor; there would be a tendency for the firms to substitute the less expensive factor for the more expensive one. In the short run, changes in hours worked are more variable than changes in capital services. Changes in hours worked in business cycles can result in volatility of the capital intensity ratio over short periods of time. In the long run an increase in wages relative to the price of capital will induce the firm to substitute capital for labor, resulting in an increase in capital intensity.

Rising labor costs are, in fact, an incentive for firms to introduce automated production processes. Industry estimates of capital to hours ratios can be obtained at http://www.bls.gov/mfp/mprdload.htm.

Output: Private business sector output is a chain-type, current-weighted index constructed after excluding from gross domestic product (GDP) the following outputs: general government, nonprofit institutions, private households (including owner-occupied housing), and government enterprises. This release presents data for the private business and private nonfarm business sectors. The private business sector, which accounted for approximately 76 percent of gross domestic product in 2005, includes all of gross domestic product except the output of general government, government enterprises, non-profit institutions, the rental value of owner-occupied real estate, and the output of paid employees of private households. The private nonfarm business sector excludes farms but includes agricultural services. All multifactor productivity measures exclude government enterprises, however government enterprises are included in the business and nonfarm business sectors covered by the BLS quarterly productivity measures. The output measures are based on the revised National Income and Product Accounts (NIPA) data released by BEA on January 27, 2012.

Multifactor Productivity: Multifactor productivity measures describe the relationship between output in real terms and the inputs involved in its production. They do not measure the specific contributions of labor or capital, or any other factor of production. Rather, multifactor productivity is designed to measure the joint influences of technological change, efficiency improvements, returns to scale, reallocation of resources, and other factors on economic growth, allowing for the effects of capital and labor.

The multifactor productivity indexes for private business and private nonfarm business are derived by dividing an output index by an index of capital services and labor input. The output indexes are computed as chained superlative indexes (Fisher Ideal indexes) of components of real output.

Research and development: The stock of research and development in private nonfarm business is derived by cumulating constant dollar measures of research and development expenditures and allowing for depreciation. Current dollar expenditures for privately financed research and development are obtained from annual issues of Research and Development in Industry published by the National Science Foundation. BLS develops price deflators and estimates of the rate of depreciation. Further description of these data and methods can be found in BLS Bulletin 2331 (September 1989), "The Impact of Research and Development on Productivity Growth." BLS measures of year-to-year contributions of research and development to the private nonfarm business sector and measures of the stock of research and development are available at http://www.bls.gov/mfp/rdtable.pdf .

Other information: Comprehensive tables containing additional data beyond the scope of this press release are available upon request at 202-691-5606 or at http://www.bls.gov/mfp/mprdload.htm . More detailed information on methods, limitations, and data sources of capital and labor are provided in BLS Bulletin 2178 (September 1983), "Trends in Multifactor Productivity, 1948-81" and on the BLS Multifactor Productivity website under the title "Technical Information About the BLS Multifactor Productivity Measures" for Major Sectors and 18 NAICS 3-digit Manufacturing Industries at http://www.bls.gov/mfp/mprtech.pdf. General information is available on the BLS Multifactor Productivity website at http://www.bls.gov/mfp/mprover.htm. Additional data not contained in the release can be obtained in print or at http://www.bls.gov/mfp. A number of comprehensive tables set up as zip files can be obtained at http://www.bls.gov/mfp/mprdload.htm. Included in the additional data available in the home page is a zip file containing selected multifactor productivity data that links 1948-87 SIC data to NAICS data from 1987 forward. This file includes data for the private business and private nonfarm business sectors.

Table 1. Private nonfarm business sector: productivity and related measures for the 1987-2010[1] period

Annual percent change from previous year

Year	Productivity			Output[3]	Inputs			Capital services per hour of all persons
	Output per hour of all persons	Output per unit of capital services	Multifactor Productivity[2]		Labor Input[4]	Capital Services[5]	Combined units of labor input and capital services[6]	
1988	1.7	0.9	1.0	4.6	3.5	3.6	3.5	0.7
1989	0.8	-0.4	0.0	3.5	3.3	4.0	3.5	1.2
1990	1.9	-1.7	0.4	1.4	0.1	3.2	1.1	3.7
1991	1.7	-3.6	-1.0	-0.9	-1.1	2.9	0.1	5.5
1992	4.0	1.5	2.3	3.8	1.0	2.3	1.4	2.5
1993	0.6	0.4	0.3	3.6	3.3	3.2	3.3	0.3
1994	1.1	1.1	0.7	4.7	4.1	3.6	3.9	0.0
1995	0.5	-1.1	0.0	3.3	2.7	4.4	3.2	1.6
1996	2.6	-0.3	1.4	4.4	2.2	4.8	3.0	2.9
1997	1.5	-0.4	0.6	5.1	4.0	5.5	4.5	1.9
1998	2.9	-1.2	1.5	5.2	2.4	6.4	3.6	4.2
1999	3.3	-1.2	1.6	5.6	2.6	6.9	3.9	4.5
2000	3.4	-2.0	1.6	4.5	1.2	6.5	2.8	5.5
2001	3.1	-3.6	0.7	1.0	-1.6	4.7	0.3	7.0
2002	4.7	-1.3	2.4	1.9	-2.0	3.3	-0.4	6.1
2003	3.8	0.5	2.5	3.1	-0.4	2.7	0.6	3.3
2004	2.6	1.5	2.4	4.0	1.2	2.5	1.6	1.1
2005	1.6	0.4	1.1	3.4	2.0	3.0	2.3	1.2
2006	0.9	-0.1	0.4	3.2	2.5	3.3	2.8	1.0
2007	1.6	-0.8	0.3	2.2	1.2	3.0	1.8	2.5
2008	0.7	-4.0	-1.4	-1.5	-1.5	2.7	-0.1	4.9
2009	2.5	-5.8	-1.0	-5.0	-6.5	0.8	-4.0	8.7
2010	4.1	3.6	3.5	4.0	0.5	0.4	0.5	0.6

See footnotes following table 4.

Source: Bureau of Labor Statistics

Table 2. Private business sector: productivity and related measures for the 1987-2010[1] period

Annual percent change from previous year

Year	Productivity			Output[3]	Inputs			Capital services per hour of all persons
	Output per hour of all persons	Output per unit of capital services	Multifactor Productivity[2]		Labor Input[4]	Capital Services[5]	Combined units of labor input and capital services[6]	
1988	1.5	0.5	0.8	4.3	3.4	3.8	3.5	1.0
1989	1.0	-0.2	0.3	3.7	3.2	3.9	3.4	1.2
1990	2.2	-1.5	0.6	1.5	-0.1	3.0	0.9	3.7
1991	1.6	-3.4	-1.0	-0.8	-1.0	2.7	0.2	5.2
1992	4.2	1.8	2.6	4.0	1.0	2.1	1.4	2.3
1993	0.6	0.2	0.2	3.3	3.1	3.1	3.1	0.4
1994	0.9	1.4	0.7	5.0	4.5	3.5	4.2	-0.4
1995	0.1	-1.3	-0.3	2.9	2.7	4.3	3.2	1.5
1996	2.9	0.0	1.7	4.6	2.0	4.6	2.8	2.9
1997	1.8	-0.1	0.8	5.2	3.9	5.3	4.4	1.8
1998	3.0	-1.1	1.5	5.0	2.3	6.2	3.5	4.1
1999	3.5	-1.0	1.8	5.6	2.4	6.7	3.7	4.5
2000	3.5	-1.7	1.7	4.6	1.2	6.3	2.8	5.3
2001	3.2	-3.5	0.8	0.9	-1.8	4.6	0.1	7.0
2002	4.6	-1.2	2.4	2.0	-1.9	3.2	-0.4	5.9
2003	3.9	0.6	2.7	3.2	-0.4	2.6	0.5	3.3
2004	2.8	1.4	2.4	4.1	1.1	2.6	1.6	1.3
2005	1.7	0.2	1.0	3.5	2.0	3.2	2.4	1.5
2006	1.0	0.0	0.5	3.1	2.4	3.1	2.6	1.0
2007	1.6	-0.7	0.3	2.1	1.2	2.8	1.7	2.3
2008	0.7	-3.7	-1.2	-1.3	-1.4	2.4	-0.1	4.6
2009	2.6	-5.4	-0.8	-4.8	-6.5	0.6	-4.1	8.4
2010	4.1	3.5	3.4	4.0	0.6	0.5	0.5	0.6

See footnotes following table 4. Source: Bureau of Labor Statistics

Table 3. Private nonfarm business sector: indexes of productivity and related measures, 1987-2010[1]

Indexes 2005=100

Year	Productivity			Output[3]	Inputs			Capital services per hour of all persons
	Output per hour of all persons	Output per unit of capital services	Multifactor Productivity[2]		Labor Input[4]	Capital Services[5]	Combined units of labor input and capital services[6]	
1987	66.3	111.4	82.3	54.2	75.5	48.7	65.9	59.5
1988	67.4	112.4	83.2	56.7	78.2	50.5	68.2	59.9
1989	67.9	112.0	83.2	58.7	80.8	52.5	70.6	60.6
1990	69.2	110.0	83.5	59.6	80.8	54.2	71.4	62.9
1991	70.3	106.0	82.7	59.1	79.9	55.7	71.4	66.3
1992	73.1	107.6	84.6	61.3	80.7	57.0	72.5	67.9
1993	73.6	108.0	84.9	63.5	83.4	58.8	74.9	68.1
1994	74.4	109.2	85.5	66.5	86.9	60.9	77.8	68.1
1995	74.7	107.9	85.5	68.7	89.2	63.6	80.3	69.2
1996	76.7	107.6	86.7	71.7	91.1	66.7	82.8	71.3
1997	77.8	107.2	87.2	75.4	94.8	70.4	86.5	72.6
1998	80.1	105.9	88.5	79.3	97.1	74.9	89.6	75.6
1999	82.7	104.7	89.9	83.8	99.6	80.0	93.1	79.0
2000	85.6	102.6	91.4	87.5	100.8	85.3	95.8	83.4
2001	88.3	99.0	92.1	88.4	99.2	89.3	96.0	89.2
2002	92.4	97.7	94.2	90.1	97.2	92.3	95.6	94.6
2003	95.8	98.1	96.6	92.9	96.9	94.7	96.2	97.7
2004	98.4	99.6	98.9	96.7	98.1	97.1	97.7	98.8
2005	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2006	100.9	99.9	100.4	103.2	102.5	103.3	102.8	101.0
2007	102.6	99.1	100.7	105.4	103.8	106.4	104.7	103.6
2008	103.3	95.0	99.3	103.9	102.2	109.3	104.6	108.7
2009	105.8	89.6	98.3	98.7	95.6	110.1	100.4	118.1
2010	110.2	92.8	101.7	102.6	96.1	110.6	100.9	118.8

See footnotes following table 4.

Source: Bureau of Labor Statistics

Table 4. Private business sector: indexes of productivity and related measures, 1987-2010[1]

Indexes 2005=100

Year	Productivity			Output[3]	Inputs			Capital services per hour of all persons
	Output per hour of all persons	Output per unit of capital services	Multifactor Productivity[2]		Labor Input[4]	Capital Services[5]	Combined units of labor input and capital services[6]	
1987	65.4	109.3	81.4	54.2	76.4	49.6	66.6	59.9
1988	66.4	109.9	82.1	56.5	78.9	51.4	68.9	60.5
1989	67.1	109.7	82.3	58.6	81.5	53.5	71.3	61.2
1990	68.6	108.1	82.8	59.5	81.4	55.1	71.9	63.5
1991	69.7	104.4	82.0	59.1	80.5	56.6	72.0	66.8
1992	72.6	106.3	84.1	61.4	81.4	57.8	73.0	68.3
1993	73.1	106.5	84.3	63.4	83.9	59.6	75.3	68.6
1994	73.8	108.0	84.9	66.6	87.7	61.7	78.4	68.3
1995	73.8	106.5	84.6	68.5	90.0	64.3	80.9	69.3
1996	76.0	106.6	86.1	71.7	91.8	67.2	83.2	71.3
1997	77.3	106.5	86.8	75.4	95.4	70.8	86.9	72.6
1998	79.6	105.3	88.0	79.2	97.6	75.2	89.9	75.6
1999	82.4	104.3	89.7	83.6	99.9	80.2	93.3	79.0
2000	85.3	102.6	91.2	87.4	101.1	85.3	95.9	83.2
2001	88.0	98.9	91.9	88.3	99.3	89.2	96.0	89.0
2002	92.1	97.8	94.1	90.0	97.4	92.1	95.6	94.2
2003	95.7	98.4	96.7	92.9	97.0	94.4	96.1	97.3
2004	98.4	99.8	99.0	96.7	98.1	96.9	97.7	98.6
2005	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2006	101.0	100.0	100.5	103.1	102.4	103.1	102.6	101.0
2007	102.6	99.3	100.8	105.2	103.6	106.0	104.4	103.2
2008	103.3	95.7	99.6	103.8	102.1	108.5	104.3	108.0
2009	106.0	90.5	98.8	98.9	95.5	109.2	100.1	117.1
2010	110.3	93.7	102.2	102.8	96.0	109.7	100.6	117.8

See footnotes following table 4.

Source: Bureau of Labor Statistics

Footnotes, Tables 1-4

Source: The Bureau of Labor Statistics (BLS) develops productivity measures using output and compensation data published by the Bureau of Economic Analysis (BEA), hours data published by other BLS programs, and capital data supplied by BEA and U.S. Department of Agriculture. Also see Technical Notes in this release.

(1) The private business sector covers gross domestic product with the exception of the output of general government, government enterprises, non-profit institutions, the rental value of owner-occupied real estate, and the output of paid employees of private households. The private nonfarm business sector further excludes farms but includes agricultural services.

(2) Output per unit of combined labor and capital services.

(3) Gross domestic product originating in the sector, chained superlative index.

(4) Index of hours at work of all persons including employees, proprietors, and unpaid family workers, classified by age, education, and gender. This chained superlative index is computed by combining changes in the hours of each age, education, and gender group weighted by each group's share of the total wage bill.

(5) A measure of the flow of capital services used in the sector. Capital services measure the services derived from the stock of physical assets and software. The assets included are fixed business equipment, structures, inventories, and land.

(6) The growth rates of labor input and capital services are combined by weighting with their respective shares of current dollar costs, and aggregating into a chained superlative index.

Table 5. Compound average annual growth rates in real capital services by asset type, private nonfarm business sector, 1987-2010

In percent

	1987-2010	1987-1990	1990-1995	1995-2000	2000-2007	2007-2010	2009-2010
All Assets	3.6	3.6	3.3	6.0	3.2	1.3	0.4
Equipment	5.6	4.9	5.1	10.0	5.0	1.7	0.5
All Information Processing Equipment & Software (IPES)	10.4	11.0	9.6	17.8	8.1	4.4	3.3
Computers & related equipment	20.0	19.2	16.1	40.7	13.8	10.5	9.6
Software	11.6	17.8	13.4	16.8	8.0	3.4	2.1
Communication equipment	7.0	6.0	5.3	10.7	7.1	4.4	3.6
Other IPES	3.2	2.8	4.0	3.5	3.0	2.0	1.3
All other equipment	2.0	2.2	1.9	3.2	1.9	0.5	-0.3
Structures	2.0	3.0	2.0	2.3	1.5	1.5	0.9
Residential rental capital	1.2	1.9	1.0	1.6	1.4	0.0	-0.4
Inventories	2.2	3.4	2.2	4.2	1.8	-1.7	-2.0
Land	1.5	1.9	1.3	1.7	1.4	1.4	0.7

Note: For a brief discussion of methods used in preparing these data, see Technical Notes in this release. Source: Bureau of Labor Statistics

Table 6. Compound average annual growth rates in real capital services by asset type, private business sector, 1987-2010

In percent

	1987-2010	1987-1990	1990-1995	1995-2000	2000-2007	2007-2010	2009-2010
All Assets	3.5	3.6	3.1	5.8	3.2	1.2	0.5
Equipment	5.5	4.6	4.9	9.9	5.0	1.7	0.5
All Information Processing Equipment &Software (IPES)	10.4	11.0	9.6	17.8	8.1	4.4	3.3
Computers & related equipment	20.0	19.2	16.1	40.7	13.8	10.5	9.6
Software	11.6	17.8	13.4	16.8	8.0	3.4	2.1
Communication equipment	7.0	6.0	5.3	10.7	7.1	4.4	3.6
Other IPES	3.2	2.9	4.0	3.6	3.1	2.0	1.3
All other equipment	1.9	2.2	1.8	3.0	1.8	0.3	-0.3
Structures	1.9	2.9	1.9	2.2	1.5	1.5	0.9
Residential rental capital	1.2	1.9	1.0	1.6	1.4	0.0	-0.4
Inventories	2.1	2.9	2.2	4.1	1.7	-1.6	-1.9
Land	1.4	3.1	1.3	1.3	1.3	0.2	0.8

Note: For a brief discussion of methods used in preparing these data, see Technical Notes in this release. Source: Bureau of Labor Statistics