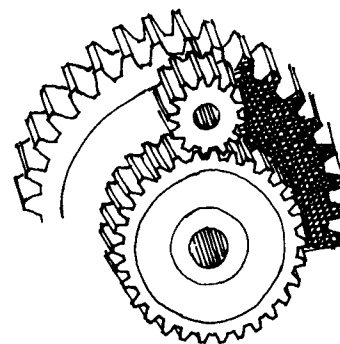


Productivity Reports



Productivity declined in 1980 in most industries measured

ARTHUR S. HERMAN

Productivity, as measured by output per employee hour, declined in 1980 in more than half of the industries for which the Bureau of Labor Statistics regularly publishes data. Although a number of important industries, such as coal mining, petroleum refining, and major household appliances registered significant gains, the productivity falloff in most industries was consistent with the situation in the nonfarm business sector as a whole, which had a 0.3-percent decline in 1980.

Table 1 shows productivity trends for the industries currently measured by the Bureau and includes new measures for the transformer, machine tools (including separate measures for metal cutting and metal forming machine tools), and nonwool yarn mill industries.¹ Data for 1980 are preliminary. The table also includes, for the first time, a series for the hardwood veneer and plywood industry, and the softwood veneer and plywood industry. These measures were developed by disaggregating the existing measure for veneer and plywood. Many of the measures have been revised back to 1972, due to the introduction of more current data. The labor input series for the mining industries have been revised to include nonproduction worker hours. Therefore, the mining productivity series now refer to output per employee hour rather than output per production worker hour, as previously published.

Changes by industry

Manufacturing. The motor vehicles industry, one of the more economically significant industries covered, had a large productivity decline of 4.4 percent in 1980. Output plummeted 28.2 percent as demand was off sharply for passenger cars, trucks, truck trailers, and buses. Employee hours were reduced drastically, down 24.9 percent. Productivity also declined in 1979, dropping 1.2

percent as both output and hours fell, but less sharply than in 1980. In steel manufacturing, another important industry, productivity declined 3.7 percent in 1980, after falling 1.3 percent in 1979. Output in this industry declined significantly, down 17.0 percent, because of a decrease in demand from such key markets as motor vehicles, construction, and appliances, while hours were reduced 13.8 percent.

Among other large manufacturing industries, a major productivity decline of 13.2 percent occurred in the construction machinery industry as output dropped 19.7 percent due to poor conditions throughout the construction industry. Productivity in the gray iron foundry industry declined 6.0 percent as output dropped a steep 21.7 percent. Productivity declines associated with large output reductions occurred in the measures for motors and generators (-4.1 percent), household furniture (-2.2 percent), and sawmills (-1.9 percent). Output fell more than 10 percent in 1980 in these three industries.

However, a number of manufacturing industries experienced productivity gains in 1980. But for many, the productivity increases reflected declines in output associated with even greater reductions in hours. In the fluid milk industry, for example, productivity grew 5.7 percent as output fell 0.1 percent and hours dropped 5.5 percent. Productivity increased 4.9 percent in the household appliance industry as output declined 6.8 percent and hours fell 11.1 percent. The petroleum refining industry had a productivity gain of 4.4 percent with output down 6.4 percent and hours dropping 10.3 percent.

Mining. Productivity in coal mining increased 12.6 percent in 1980, after falling in almost every year in the past decade. Coal output grew 6.4 percent owing to increased demand as a petroleum substitute, growing exports and stockpiling in anticipation of a strike in 1981, while hours fell 5.5 percent. However, productivity declines occurred in the other mining industries covered, with copper mining (recoverable metal) dropping 7.4 percent, nonmetallic minerals down 5.8 percent, and iron mining (usable ore) declining 0.2 percent.

Transportation and utilities. Productivity changes were mixed in transportation and utility industries. A

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Table 1. Indexes of output per employee hour in selected industries 1975-80 and percent changes 1979-80 and 1975-80

[1977 = 100]

SIC code ¹	Industry	1975	1976	1977	1978	1979	1980 ²	Percent Change 1979-80	Average Annual Percent Change 1975-80
Mining									
1011	Iron mining, crude ore	112.7	113.5	100.0	116.7	125.3	126.6	1.0	3.0
1011	Iron mining, usable ore	117.8	115.9	100.0	119.1	125.5	125.3	-0.2	2.1
1021	Copper mining, crude ore	87.2	99.2	100.0	109.6	103.8	98.1	-5.5	2.4
1021	Copper mining, recoverable metal	77.2	94.7	100.0	107.6	97.8	90.6	-7.4	2.8
111,121	Coal mining	105.3	103.1	100.0	106.4	99.4	111.9	12.6	0.7
121	Bituminous coal and lignite mining	105.2	103.0	100.0	106.7	99.6	111.8	12.2	0.8
14	Nonmetallic minerals, except fuels	90.6	96.2	100.0	104.7	102.6	96.6	-5.8	1.6
142	Crushed and broken stone	91.4	93.7	100.0	108.9	108.5	104.4	-3.8	3.5
Manufacturing									
2026	Fluid milk	95.5	99.5	100.0	107.9	116.2	122.8	5.7	5.3
203	Preserved fruits and vegetables	93.7	100.1	100.0	104.4	99.3	(³)	(³)	1.6 ^a
2033	Canned fruits and vegetables	92.2	102.3	100.0	103.7	101.4	(³)	(³)	2.1 ^a
204	Grain mill products	87.1	91.1	100.0	100.4	101.9	(³)	(³)	4.2 ^a
2041	Flour and other grain mill products	85.8	85.1	100.0	101.7	98.6	92.6	-6.1	2.4
2043	Cereal breakfast foods	94.8	100.0	100.0	101.7	107.6	(³)	(³)	2.7 ^a
2044	Rice milling	90.4	88.7	100.0	92.7	92.9	(³)	(³)	1.0 ^a
2045	Blended and prepared flour	106.2	110.9	100.0	92.5	90.1	(³)	(³)	5.0 ^a
2046	Wet corn milling	74.1	83.2	100.0	102.0	110.7	(³)	(³)	10.6 ^a
2047,48	Prepared feeds for animals and fowls	85.9	90.1	100.0	100.9	102.1	(³)	(³)	4.7 ^a
205	Bakery products	93.4	93.9	100.0	97.2	94.1	97.6	3.7	0.6
2061,62,63	Sugar	94.0	95.8	100.0	100.7	108.6	113.2	4.2	3.8
2061,62	Raw and refined cane sugar	98.8	92.5	100.0	100.0	106.4	(³)	(³)	4.0 ^a
2063	Beet sugar	90.1	101.7	100.0	101.1	111.0	(³)	(³)	2.4 ^a
2065	Candy and confectionary products	90.8	84.9	100.0	107.9	(³)	(³)	(³)	(³)
2082	Malt beverages	86.1	95.5	100.0	100.3	107.6	109.9	2.1	4.6
2086	Bottled and canned soft drinks	87.2	94.2	100.0	104.5	105.6	108.8	3.0	4.4
2111,21,31	All tobacco products	93.9	97.8	100.0	102.8	102.2	103.2	1.0	1.8
2111,31	Cigarettes, chewing and smoking tobacco	93.3	96.7	100.0	103.8	102.1	102.2	0.1	1.9
2121	Cigars	93.7	99.9	100.0	98.0	103.8	110.8	6.7	2.7
2251,52	Hosiery	94.3	106.4	100.0	101.8	106.5	108.0	1.4	2.0
2281	Nonwool yarn mills	101.2	93.5	100.0	104.2	103.9	106.1	2.1	1.7
2421	Sawmills and planing mills, general	98.8	103.2	100.0	101.4	104.8	102.8	-1.9	0.7
2435,36	Veneer and plywood	97.8	97.9	100.0	101.7	95.8	96.7	0.9	-0.3
2435	Hardwood veneer and plywood	92.5	89.1	100.0	100.7	101.2	98.2	-3.0	2.0
2436	Softwood veneer and plywood	100.5	102.1	100.0	102.1	93.4	96.6	3.4	-1.3
251	Household furniture	97.5	99.7	100.0	104.6	101.3	99.1	-2.2	0.5
2511,17	Wood household furniture	98.0	101.3	100.0	104.9	101.6	(³)	(³)	1.1 ^a
2512	Upholstered household furniture	97.2	98.1	100.0	108.8	104.9	(³)	(³)	2.6 ^a
2514	Metal household furniture	94.1	96.3	100.0	97.4	89.9	(³)	(³)	-0.8 ^a
2515	Mattresses and bedsprings	96.9	99.2	100.0	101.5	102.7	(³)	(³)	1.4 ^a
2611,21,31,61	Paper, paperboard and pulp mills	86.7	95.0	100.0	103.2	105.4	106.6	1.1	4.0
2643	Paper and plastic bags	99.8	100.5	100.0	99.8	97.5	(³)	(³)	-0.5 ^a
2651	Folding paperboard boxes	98.5	102.8	100.0	102.9	101.4	103.5	2.1	0.7
2653	Corrugated and solid fiber board boxes	96.2	101.5	100.0	103.5	107.1	107.5	0.4	2.2
2823,24	Synthetic fibers	84.5	89.5	100.0	105.2	115.0	108.6	-5.6	6.1
2834	Pharmaceutical preparations	92.5	98.4	100.0	98.9	106.4	106.6	0.2	2.7
2841	Soaps and detergents	97.3	100.1	100.0	105.3	104.2	(³)	(³)	1.9 ^a
2851	Paints and allied products	94.2	97.3	100.0	104.7	105.7	106.2	0.5	2.6
2911	Petroleum refining	88.7	93.0	100.0	101.3	98.6	102.9	4.4	2.7
301	Tires and inner tubes	91.8	99.8	100.0	108.8	109.5	(³)	(³)	4.5 ^a
314	Footwear	101.3	102.1	100.0	102.5	100.2	102.0	1.8	(⁵)
3221	Glass containers	98.5	98.2	100.0	101.4	105.9	112.7	6.4	2.6
3241	Hydraulic cement	84.7	92.4	100.0	101.3	96.0	92.0	-4.2	1.6
325	Structural clay products	91.0	94.9	100.0	102.6	96.4	92.0	-4.6	0.4
3251,3,9	Clay construction products	89.1	94.2	100.0	102.6	92.5	90.2	-2.5	0.1
3251	Brick and structural clay	93.1	102.2	100.0	96.5	85.8	79.9	-6.9	-3.7
3253	Ceramic wall and floor tile	89.0	89.0	100.0	115.5	112.0	(³)	(³)	7.5 ^a
3255	Clay refractories	95.5	97.1	100.0	102.9	109.1	97.2	-10.9	1.3
3271,72	Concrete products	91.9	95.0	100.0	98.6	94.5	(³)	(³)	0.9 ^a
3273	Ready-mixed concrete	97.5	98.8	100.0	103.1	99.8	(³)	(³)	0.9 ^a
331	Steel	93.3	99.0	100.0	108.3	106.9	102.9	-3.7	2.3
3321	Gray iron foundries	97.0	96.4	100.0	102.1	96.9	91.1	-6.0	-0.8
3324,25	Steel foundries	107.5	105.7	100.0	98.1	99.3	96.6	-2.7	-2.1
3331,32,33	Primary copper, lead, and zinc	85.3	96.0	100.0	96.5	96.2	91.9	-4.5	1.0
3331	Primary copper	83.0	95.2	100.0	99.4	98.3	88.3	-10.2	1.1
3334	Primary aluminum	96.2	101.4	100.0	99.6	99.7	97.4	-2.3	(⁵)
3351	Copper rolling and drawing	76.8	86.1	100.0	96.2	98.8	94.0	-4.9	4.0
3353,54,55	Aluminum rolling and drawing	87.5	101.7	100.0	104.6	101.7	104.5	2.8	2.7
3411	Metal cans	87.0	93.4	100.0	102.3	103.5	106.9	3.3	4.0
3441	Fabricated structural metal	97.4	98.9	100.0	100.4	102.0	100.2	-1.8	0.7
3531	Construction machinery and equipment	93.9	96.3	100.0	105.8	100.3	87.1	-13.2	-0.6

Table 1. Continued—Indexes of output per employee hour

[1977 = 100]

SIC code ¹	Industry	1975	1976	1977	1978	1979	1980 ²	Percent Change 1979-80	Average Annual Percent Change 1975-80
3541,42	Machine tools	103.0	98.4	100.0	102.5	101.9	101.7	-0.2	0.2
3541	Metal cutting machine tools	102.9	97.3	100.0	103.6	103.1	104.7	1.6	0.8
3542	Metal forming machine tools	104.0	101.7	100.0	99.9	98.4	93.2	-5.3	-1.8
3562	Ball and roller bearings	97.5	99.0	100.0	105.6	105.4	93.9	-10.9	0.2
3612	Transformers	89.3	90.1	100.0	103.5	108.5	109.3	0.7	4.7
3621	Motors and generators	93.0	95.9	100.0	98.5	97.9	93.9	-4.1	0.3
3631,2,3,9	Major household appliances	93.6	96.6	100.0	100.5	108.7	114.0	4.9	3.9
3631	Household cooking equipment	97.8	100.7	100.0	100.3	108.5	119.8	10.4	3.6
3632	Household refrigerators and freezers	94.5	94.0	100.0	98.4	112.2	115.9	3.3	4.5
3633	Household laundry equipment	93.6	99.0	100.0	102.3	108.2	113.1	4.5	3.6
3639	Household appliances, NEC	88.8	93.0	100.0	104.0	104.3	101.0	-3.2	3.0
3641	Electric lamps	96.4	102.9	100.0	103.0	106.2	103.8	-2.3	1.4
3645,46,47,48	Lighting fixtures	89.2	95.1	100.0	100.5	95.0	97.1	2.2	1.2
3651	Radio and television receiving sets	90.1	100.8	100.0	113.1	118.1	111.4	-5.7	4.9
371	Motor vehicles and equipment	87.7	93.9	100.0	99.7	98.5	94.2	-4.4	1.4
	Other								
401	Railroad transportation-revenue traffic	89.5	95.4	100.0	104.5	104.7	107.3	2.5	3.6
401	Railroad transportation-car miles	98.3	100.1	100.0	102.8	102.9	106.4	3.4	1.5
4111,31,414 PT	Class 1 bus carriers	97.0	93.8	100.0	99.7	101.5	104.8	3.3	1.8
4213 PT	Intercity trucking ³	89.2	100.3	100.0	99.8	98.6	94.2	-4.5	0.6
4213 PT	Intercity trucking—general freight ⁶	88.4	96.1	100.0	98.6	96.6	87.9	-9.0	-0.1
4511,4521 PT	Air transportation ⁶	87.6	95.5	100.0	109.3	113.1	106.2	-6.1	4.6
4612,13	Petroleum pipelines	95.7	95.2	100.0	101.6	101.6	90.8	-10.6	-0.1
4811	Telephone communications	85.9	93.3	100.0	105.8	111.2	118.5	6.6	6.5
491,492,493	Gas and electric utilities	95.7	98.2	100.0	98.2	97.8	95.6	-2.2	-0.1
491,493 PT	Electric utilities	92.9	95.6	100.0	96.9	95.5	94.2	-1.4	0.1
492,493 PT	Gas utilities	101.4	103.5	100.0	101.4	104.4	99.0	-5.2	-0.2
54	Retail food stores ⁷	100.7	102.0	100.0	95.4	96.6	96.8	0.2	-1.2
5511	Franchised new car dealers	95.0	98.6	100.0	98.6	94.6	98.8	4.4	0.2
5541	Gasoline service stations ⁷	85.6	94.3	100.0	102.8	104.4	100.7	-3.5	3.3
58	Eating and drinking places ⁷	101.0	101.4	100.0	97.6	96.7	94.8	-2.0	-1.4
5912	Drug and proprietary stores ⁷	94.2	97.1	100.0	102.1	104.4	111.6	6.9	3.2
7011	Hotels, motels, and tourist courts ⁷	89.7	95.7	100.0	105.0	99.6	91.9	-7.7	0.8
721	Laundry and cleaning services ⁷	96.9	97.4	100.0	100.6	94.0	87.6	-6.8	1.7

¹As defined in the 1972 *Standard Industrial Classification Manual* published by the Office of Management and Budget.

²Preliminary.

³Not available.

⁴Percent change 1975-79.

⁵Rate of change is less than 0.05 percent.

⁶Output per employee.

⁷Output per hour of all persons.

NOTE: Although the output per employee hour measures relate output to the hours

of all employees engaged in each industry, they do not measure the specific contribution of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force. Some of these measures use a labor input series that is based on hours paid and some use a labor input series that is based on plant hours. Because of revisions in source data and rebasing to 1977 = 100, a number of the measures published in this table differ from those previously published.

10.1-percent decline occurred in the petroleum pipeline industry as output decreased because of reduced demand for petroleum products. Productivity dropped 6.1 percent in air transportation, the first productivity decline since the measure began in 1947, as output fell. Productivity in intercity trucking fell 4.5 percent, the fourth consecutive decline, as output dropped 9.7 percent due to decreased shipments of consumer products, construction materials, and petroleum. Conversely, the two transportation industries that posted gains were bus carriers (3.3 percent) and railroads (revenue traffic, 2.5 percent). Electric and gas utilities had a productivity decline of 2.2 percent, based on a small increase in output and a larger gain in hours. Telephone communications, however, had a productivity gain of 6.6 percent, associated with a large gain in output.

Trade and services. Productivity changes also varied among trade and service industries. Productivity de-

clined in hotels and motels (-7.7 percent), laundries and dry cleaning (-6.8 percent), gasoline stations (-3.5 percent), and eating and drinking places (-2.0 percent). Output fell in all of these industries. Conversely, productivity in drugstores rose 6.9 percent as output was up. New car dealers had a productivity gain of 4.4 percent, based on a sharp drop in output and an even steeper drop in hours. Retail food stores posted a small productivity gain of 0.2 percent, as output was up 2.6 percent.

Trends, 1975-80

While all of the measured industries registered gains over the long term (generally 1947-80 or 1958-80),² a significant number of industries had declining productivity over the more recent 5-year period, 1975-80. More than three-quarters of the industries recorded lower productivity during this period than in the preceding long term period (1947-75 or 1958-75.) This

slowdown was consistent with the trends in the non-farm business sector of the economy where productivity grew 0.6 [ercent from 1975–80, compared with 2.4 percent from 1947–75.

Gains. In recent years, the wet corn milling industry showed the highest rate of gain among the measured industries. Productivity grew 10.6 percent during 1975–79 (1980 data were not yet available). The productivity advance in this industry was aided by a high rate of output growth (9.2 percent) as strong demand for high fructose syrup, one of the industry's key products, continued. During this period, a number of new plants were opened and a significant amount of highly automatic manufacturing equipment came on line. The second highest rate of productivity growth was for ceramic wall and floor tile (1975–79 rate of 7.5 percent). A new technique for firing tile which became widespread in the industry, coupled with changes in materials handling, resulted in significant labor savings.

Other industries with current, high rates of growth were telephone communications (6.5 percent), synthetic fibers (6.1 percent), and fluid milk (5.3 percent). In the telephone industry, high output growth was sustained over 1975–80 (9.8 percent a year) and productivity was aided by expanded use of electronic switching equipment. In synthetic fibers, a highly capital intensive in-

dustry, output averaged 4.8 percent while hours were down 1.1 percent, resulting in the productivity gain. In the fluid milk industry, output was up at a low rate of 0.5 percent, while hours dropped at a rate of 4.5 percent. New, larger plants utilizing highly automatic computerized processing came on line during this period, while a number of smaller, less efficient milk plants were closed.

Declines. The flour industry had the largest average falloff in productivity, dropping 5.0 percent from 1975 to 1979. Output declined at an average rate of 2.2 percent while hours grew at a rate of 2.9 percent. Other industries with significant declines over 1975–80 were brick and structural clay tile (–3.7 percent), steel foundries (–2.1 percent), metal forming machine tools (–1.8 percent), and laundries (–1.7 percent). Twelve other industries recorded declining rates over the 1975–80 period, including such large industries as eating and drinking places (–1.4 percent), retail food stores (–1.2 percent), gray iron foundries (–0.8 percent), as well as gas and electric utilities and intercity trucking (both –0.1 percent).

A full report, *Productivity Measures for Selected Industries, 1954–80*, BLS Bulletin 2128, is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. □

— FOOTNOTES —

¹ For a detailed report on these industries, see the following *Monthly Labor Review* articles: John Duke and Horst Brand, "Cyclical behavior of productivity in the machine tool industry," November 1981, pp. 27–34; Phyllis Flohr Otto, "Transformer industry productivity slows," November 1981, pp. 35–39; and James D. York, "Nonwool

yarn mills experience slow gains in productivity," March 1982, pp. 30–33.

² About half of the data were collected beginning in 1947 and the remainder was collected from 1958 to present.