

Productivity trends in department stores, 1967-86

The domination of large chains and accompanying increased use of computers, led to above-average productivity in the department store industry

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As measured by output per employee hour, productivity in the department store industry increased at a 2.8-percent average annual rate between 1967 and 1986.¹ In comparison, the rate was 1.0 percent for the nonfarm business sector of the economy during the same period. The gain in department store productivity over the 19-year period reflects average annual increases of 3.6 percent in output and 0.8 percent in employee hours. (See table 1.)

The industry's productivity growth has been influenced by broad trends in general retailing. These trends include greater firm concentration and the resulting growth in the number of chain stores² which invested heavily in expansion; movement to better locations in shopping centers; and the use of computers in store operations. Improvements in store layout and design were also used to increase consumer service by helping salespersons serve customers more efficiently.³

The productivity trend can be divided into three periods: 1967-73, 1973-80, and 1980-86. During the first period, productivity rose at a 1.8-percent average annual rate. The rate increased to 2.9 percent in the middle period, and to 4.5 percent during the 1980-86 period.

Types of department stores

There are three basic types of department stores. *National chains* are very large firms, sometimes operating more than

1,000 stores. These chains enjoy substantial economies of scale. Management is fairly centralized, and computer technology is well diffused. Checkout registers are available in each department. These stores use computer technology to reduce unit labor requirements. In 1982, the most recent year for which data are available, national chains accounted for 29 percent of industry sales.

Discount department stores also are highly concentrated and consist of very large chains. They use their enormous buying power to offer goods at lower prices than other department stores. These stores use centralized checkout. Here, too, labor requirements are reduced through the extensive use of advanced technology.⁴ Discount department stores accounted for 39 percent of industry sales in 1982.

The conventional store is the third type of department store. Some of these stores are single-unit independents (although their number has dwindled during the period of this study), others are organized into relatively small corporately owned regional chains. Many regional chains are owned by a national holding company. The holding company allows for regional chain management, yet retains control of capital for expansion and technology. The conventional stores typically offer more service than the other types of department stores. Nevertheless, even this segment of the industry (especially chains owned by holding companies) has followed industry trends toward part-time labor and more electronic data processing in their need to reduce costs and compete with the discounters. Conventional stores accounted for about 22 percent of industry sales in 1982.

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Trends in three distinct periods

1967-73. The 1967-73 period represents the end of a trend in the department store industry which began in the 1950's. With large segments of the population moving to suburban locations, department stores grew strongly in terms of number of stores and sales, as they followed population growth. In response to competition from apparel stores, variety stores, and other retail establishments offering general merchandise, the industry also expanded in an attempt to obtain as many prime retail locations as possible.

The 1967-73 period saw the greatest increase in the number of department stores during the entire 1967-86 period. The number of outlets grew by nearly 2,000 between 1967 and 1972. Industry output posted its largest gains, averaging 5.6 percent per year. The strong growth in the number of stores was accompanied by an employment gain of 4.2 percent per year and an hours gain of 3.7 percent, with a modest 1.8-percent average annual growth in productivity. Output during this period increased every year, with large gains in 1971 (9.2 percent) and 1972 (8 percent). Productivity increased by 6.1 percent in 1971, and declined by -1.3 percent in 1969.

1973-80. Another distinct phase began in 1973. Spurred by the oil crisis beginning in late 1973, inflation began to accelerate; in 1974 and 1975, the U.S. economy experienced a recession. Higher interest rates, soaring energy costs, and slowed consumer spending braked the expansion of the previous period. Department store companies began to change strategies and modify or cancel expansion plans.⁵

During the 1973-80 period, the growth in the number of stores slowed markedly. Much of the growth that did occur was in the discount sector of the industry, which increased sales mainly by competing with lower prices. Sales during this period were hampered by shrinking disposable income available for general merchandise.⁶ The proportion of current consumption expenditures used for food, shelter, utilities, transportation, and health care increased during this period.⁷ Sales of the more discretionary items sold in department stores slowed. Output which had grown at the annual rate of 5.6 percent between 1967 and 1973, slowed to a 3-percent annual rate. The industry now instituted policies aimed at fighting costs, especially labor costs.⁸ Employment grew only 1.3 percent a year, and hours, hardly at all (0.1 percent). Overall productivity growth of 2.9 percent per year during the 1973-80 period was marked by declines only in 1974 and 1980. Productivity advanced strongly in 1975 (5.4 percent), 1976 (5.2 percent), and 1977 (5.7 percent).

1980-86. During the 1980-86 period, the productivity rate rose to 4.5 percent per year, as output increased 4.8 percent and hours, 0.4 percent. The slowdown in store additions continued. More resources were expended on store

remodeling and redecorating which, studies showed, increased shopper traffic and sales.⁹ Strong growth in retail spending¹⁰ during the period spurred industry output, which posted gains of 5.1 percent in 1981, 6.4 percent in 1983, and 9.6 percent in 1984. Output increases were boosted by the use of information gathered with point-of-sale technology to eliminate slow moving items and bolster products that sold well.¹¹ Output was also aided by income tax reductions, declining inflation, and the growing acceptance of third-party credit cards.¹² There was only one small output decline (-0.2 percent) in 1982. An industry very focused on costs and productivity¹³—as reflected in the trade press—saw either very small gains or declines in hours every year, except 1984 when the gain was 3.2 percent. Productivity did not decline in any year during this period, and advanced strongly in 1981, 1983, and 1984.

Industry structure highly concentrated

The department store industry is the most highly concentrated U.S. retail industry. It was already mostly organized into chains by 1967; however, an increasing proportion of stores became part of chains over the study period. The chains continued to grow by adding new stores or by purchasing existing chains and single stores. In 1967, 84 percent of all department stores were part of chains, with 74 percent belonging to chains having 11 stores or more, and 58 percent belonging to chains having 50 stores or more. By 1982, 96 percent of stores were part of chains, of which 92 percent were in chains consisting of 10 stores or more, and 82 percent were part of chains of 50 stores or more.

Table 1. Output per employee hour and related indexes in the department store industry, 1967-86
[1977=100]

Year	Output per employee hour	Output per employee	Output	Employee hours	Employees
1967	77.9	84.6	64.6	82.9	76.4
1968	79.3	85.1	69.1	87.1	81.2
1969	78.3	83.1	71.1	90.8	85.6
1970	78.2	82.3	71.9	91.9	87.4
1971	83.0	87.3	78.5	94.8	89.9
1972	84.0	88.8	84.8	100.9	95.5
1973	87.1	91.6	90.7	104.1	99.0
1974	85.3	88.9	87.5	102.6	98.4
1975	89.9	92.6	87.9	97.8	94.9
1976	94.6	96.2	93.3	98.6	97.0
1977	100.0	100.0	100.0	100.0	100.0
1978	101.9	99.8	105.6	103.6	105.8
1979	102.5	100.8	106.0	103.4	105.2
1980	101.0	98.4	103.1	102.1	104.8
1981	106.0	103.4	108.4	102.3	104.8
1982	107.4	105.0	108.2	100.7	103.0
1983	114.9	112.3	115.1	100.2	102.5
1984	122.1	117.5	126.2	103.4	107.4
1985	125.0	118.7	129.5	103.6	109.1
1986	130.3	121.9	135.1	103.7	110.8
Average annual rates of change (percent)					
1967-86	2.8	2.0	3.6	.8	1.6
1967-73	1.8	1.3	5.6	3.7	4.2
1973-80	2.9	1.7	3.0	.1	1.3
1980-86	4.5	3.6	4.8	.4	1.0

By their great size, the large chains can take advantage of economies of scale in distribution systems, buying practices, and the utilization of advertising and computer technology.¹⁴ In 1967, stores that were not part of a chain had sales of only \$23,600 per paid employee, while chains consisting of 4 stores or more had sales of \$28,000 per paid employee, and chains of 11 stores or more had sales of \$28,800 per paid employee. In 1982, stores not part of a chain had sales of \$55,800 per paid employee, while chain stores had sales of \$65,700 and chains of 10 stores or more had sales of \$66,100.

The strong expansion policies of firms in the 1960's and 1970's led to periods of overexpansion, followed by "shake-outs" when large numbers of marginal stores went out of business.¹⁵ This was especially true in the discount sector of the industry. The lower levels of capacity utilization which accompanied overexpansion caused downward pressures on short-term productivity. At the same time, the elimination of marginal stores boosted productivity.

Store location. Accessibility and exposure to shopper traffic is a prime determinant of how well a store's capacity and labor force are utilized. The rapid expansion in the number of malls and shopping centers in suburban locations between 1967 and 1986 probably had a positive influence on productivity growth. Between 1972 and 1984 alone, the number of shopping centers increased 93 percent.¹⁶ Shopping centers, more than any other type of location offer greater sales exposure for a retailer.¹⁷ Although there are no data pinpointing the type of department store by location, industry experts believe that mostly major conventional chains and national chains are the anchor stores for malls and larger shopping centers. Discount department stores often anchor smaller shopping centers.¹⁸

Technology

The major technological change within the department store industry has been the widespread and increasing use of computers. Electronic data processing is used in conjunction with point-of-sale technology. Through coding of merchandise, marketing information is gathered as a byproduct of merchandise sales. Data obtained at the point-of-sale is used for inventory control, sales audits, automatic computer-generated stock purchasing, personnel planning, sales forecasts, interstore transfers, accounts receivable, and credit verification.¹⁹ Computer technology provides accurate, useful, and readily available information for use in both the operational and merchandising aspects of the industry. According to surveys, retailers who use point-of-sale technology report that it allows their stores to operate with reduced inventory while preventing out-of-stock situations. Product mix can be better targeted to customer needs with better marketing information. It also saves employee hours in marking down merchandise prices because of overstocked or slow-moving inventory.²⁰

Large electronic data processing systems are used primarily by large national, discount, and regional chains. Electronic data processing is an important aid to the vast operations of major chains, especially in conjunction with their regional distribution centers and central warehousing. Single-unit independent stores and smaller chains are often unable to afford such equipment, and cannot make cost-effective use of it.²¹ In the warehouse, computer driven electronic data processing has resulted in "significant reductions in staff requirements."²² Higher levels of sales per person in chains are probably linked, to some extent, to electronic data processing.

Automated accounts receivable is another technological innovation that is used in the industry. The riskiest delinquent accounts are flagged and computer-typed collection notices are sent automatically. The system reduces employee hours in the accounts collection department.²³ Other technological advances include marking systems and security surveillance systems that aid in the prevention of shoplifting.

Employment

The number of employees in the department store industry has increased 45 percent, from 1.4 million in 1967 to 2.0 million in 1986, an average annual increase of 1.6 percent. Employee hours rose at the slower rate of 0.8 percent, as average weekly hours declined. Average weekly hours of nonsupervisory workers declined from 32.6 in 1967 to 28.2 in 1986, a result of an increase in part-time workers (often of school age) who work during weekends and evenings.

While the number of nonsupervisory workers has grown at an average annual rate of 1.8 percent from 1967 to 1986, the number of supervisory workers has declined 0.6 percent per year. (This trend accelerated after 1973, with the annual decline averaging 2.2 percent.) The decline in the supervisory work force is related, in part, to the large number of mergers and acquisitions among existing chains in which some managerial staff became redundant. The decline also results from the replacement of skilled supervisory sales staff with lower skilled workers.

Retaining experienced personnel remains a problem for all retail stores. Some studies show that retail employee turnover is as high as 60 percent per year.²⁴ The high turnover rate among nonsupervisory workers hinders gains in industry output per hour because new employees must undergo training and are not as productive during their breaking-in period.

A factor contributing to high employee turnover is the industry's low hourly earnings. Even though average hourly earnings of nonsupervisory employees were 9 percent above the total retailing average in 1986, earnings still were 48 percent below average hourly earnings of production workers in manufacturing industries. In addition, the trend toward more centralized management has clustered most managerial jobs at centralized corporate headquarters, so there

are fewer career opportunities within the stores themselves. The occupational mix is dominated by low-paying cashier, sales, and stock jobs (62 percent in 1986). For many employees, working in department stores is their first job, or it supplements income from other full-time employment.²⁵

The trend to reduce the work force is not universal in the industry. Some firms are using outside and in-house training to increase transaction size. There are also firms returning to commission sales.²⁶

A look ahead

Department store productivity increases in the near future will probably continue to reflect use of computer technology and electronic data processing. Automatic scanning devices in conjunction with point-of-sale technology are beginning to be used in the industry and are expected to become more widespread among larger chains.²⁷ The information obtained from electronic data processing is expected to be used further to refine product mix, and contribute to a trend toward new smaller stores. Such smaller stores have exhibited productivity improvement in terms of sales per square foot and, most likely, sales per employee hour.²⁸

The strong demand that spurred productivity growth in the last few years is not expected to be sustained. This is especially true in the all important apparel departments as, demographically, the number of teenagers, who drive fashion trends, is declining.²⁹ Demand for department stores may also be limited by increased competition from apparel specialty stores, "off-price" apparel stores, wholesale warehouse stores, and home shopping catalog stores.

Choice new locations of department stores, which spurred productivity gains in the past, are becoming scarce because of market saturation and the slowdown in the building of new shopping centers.³⁰ Department store chains are, therefore, becoming more conservative in terms of expansion and instead are using their resources to consolidate regional markets and upgrade and remodel to increase shopper traffic in existing stores.³¹

Recent trends toward more service in some segments of the industry are expected to continue. These services appeal to the more affluent consumers whose income have been boosted by increases in the number of working women and the number of two-worker households.³² This trend could exert downward pressure on measured productivity. □

FOOTNOTES

¹ All average annual rates of change are based on the linear least squares trends of the logarithms of the index numbers. The department store industry is designated as Standard Industrial Classification 5311. It includes retail stores carrying a general line of apparel, home furnishings, and housewares. These and other merchandise lines are normally arranged in separate sections or departments with accounting on a departmentalized basis. The departments and functions are integrated under a single management. The stores usually provide their own charge accounts, deliver merchandise, and maintain open stocks.

² A chain consists of four or more retail stores in a firm. Larger chains consist of 11 or more stores. In the department store industry, virtually all chains are corporately owned.

³ *U.S. Industrial Outlook* (U.S. Department of Commerce, 1980), p. 457.

⁴ Barry Bluestone, Patricia Hanna, Sarah Kuhn, and Laura Moore, *The Retail Revolution* (Boston, MA, Auburn House Publishing Co., 1981), p. 4.

⁵ Bluestone and others, *Retail Revolution*, p. 67.

⁶ "Retailing," *Standard and Poor's Industry Survey*, sec. 2, July 4, 1985, p. R115.

⁷ Based on family expenditure data from the BLS Consumer Expenditure Survey.

⁸ *U.S. Industrial Outlook* (U.S. Department of Commerce, 1975), p. 168.

⁹ *U.S. Industrial Outlook* (U.S. Department of Commerce, 1980), p. 459.

¹⁰ Total retail sales grew at an annual rate of 2.7 percent from 1980 to 1986, compared with 1 percent from 1973 to 1980. Real sales actually declined in 1981 and 1982, but grew strongly in the 1983-86 period.

¹¹ *U.S. Industrial Outlook* (U.S. Department of Commerce, 1984), pp. 48-49.

¹² "Third Party," *Stores*, September 1981, pp. 41-44.

¹³ A number of articles on cost and productivity appear in *Stores*, a magazine published by the National Retail Merchants Association. The

Association also published a series of articles in *Productivity in General Merchandise Retailing* in 1980 stressing the importance of productivity increases.

¹⁴ Bluestone and others, *Retail Revolution*, p. 64.

¹⁵ Bluestone and others, *Retail Revolution*, p. 29.

¹⁶ "Retailing," p. R116.

¹⁷ *U.S. Industrial Outlook* (U.S. Department of Commerce, 1972), p. 358.

¹⁸ Based on discussion with industry experts.

¹⁹ "Making it Work—Retail Technology," *Stores*, November 1980, p. 35; and "Retail Office," *Stores*, July 1980, pp. 49-54.

²⁰ Randy L. Allan, *POS Trends in the 80's* (New York, Touche Ross and Co., 1982).

²¹ Bluestone and others, *Retail Revolution*, p. 84.

²² Bluestone and others, *Retail Revolution*, p. 113.

²³ "Managing Receivables," *Stores*, April 1982, p. 72.

²⁴ "People Business," *Stores*, March 1981, p. 42.

²⁵ Bluestone and others, *Retail Revolution*, p. 84.

²⁶ "People Business;" and "Push for Productivity," *Stores*, January 1981.

²⁷ Discussion with industry experts.

²⁸ "An Introduction to Productivity in Retailing," in Robert E. Dewer, *Productivity in General Merchandise Retailing* (New York, National Retail Merchants Association, 1980), p. 9.

²⁹ "Retailing," pp. R115-R116.

³⁰ "Retailing," p. R121.

³¹ *U.S. Industrial Outlook* (U.S. Department of Commerce, 1987), p. 56-6.

³² "Retailing," p. R115.

APPENDIX: Measurement techniques and limitations

Indexes of output per employee hour measure changes in the relationship between the output of an industry and hours expended on that output. An index of output per hour is derived by dividing an index of output by an index of industry hours.

The preferred output index for retail trade industries would be obtained from data on quantities of the various goods sold by the industry, each weighted (multiplied) by the employee hours required to sell one unit of each good in some specified base period. This concept also embodies the services associated with moving the goods from the retail establishment to the consumer. Thus, those goods which require more retail labor are given more importance in the index.

Data on the quantities of goods sold usually are not available for trade industries, including department stores. Therefore, real output was measured by removing the effects of changing price levels from the current-dollar value of sales for the line items. Because an adjustment for changing price levels usually lowers the dollar value, such a series is usually referred to as a deflated value measure. Output measures based on deflated value have two major characteristics. First, shifts in sales within product lines can occur among products of different value which have the same unit labor requirements. Thus, a change can occur in the output per hour index even if the labor utilized to sell the merchandise does not change. Second, the sales level, both in current and constant dollars, reflects differences in unit values for identical products sold in different types of establishments. For example, the unit values associated with a product sold in a discount department store may be lower than the unit value associated with the same product sold in a conventional department store that provides a number of sales clerks as well as delivery service. The output measure, therefore, reflects changes in the level of service provided to customers, insofar as differences in unit values reflect

the difference in service among the various types of establishment.

In addition to the deflated value technique, the output measure for department stores was compiled by combining output from the various store departments using weights relating to labor importance (employee hours). This procedure results in an industry output index that is closer, conceptually, to the preferred output measure.

The index of hours for the department store industry is for all employees. As in all of the output per hour measures published by the Bureau of Labor Statistics, hours and employment are each considered homogeneous and additive. Adequate data are not available to weight the various types of labor separately.

The indexes of output per hour relate total output to one input—labor time. The indexes do not measure the specific contribution of labor, capital, or any other single factor. Rather, they reflect the joint effect of many factors such as changes in technology, capital investment, capacity utilization, store design and layout, skill and effort of the work force, managerial ability, and labor-management relations.

No explicit adjustments were made to the measures to take into account increases or decreases in some services provided to the consumer. With the growth of discount department stores, there has been a trend toward more self-service operations. This shifted some of the hours in retailing from employee to consumer. However, data are not available to measure the effect of this change. Adjustments for changes in product quality are made to the extent that changes in quality have been accounted for in the price indexes used to deflate the current-dollar value of sales.

The basic sources for the output series for this measure consist of the total sales data and sales by merchandise line reported by the U.S. Department of Commerce. The deflators were developed using Consumer Price Indexes published by BLS. The basic source for the all employee series consists of data on employment and hours published by BLS.