# Productivity in the retail auto and home supply store industry

*Productivity grew at an above-average annual rate during the 1972–87 period, reflecting strong demand and improvements in store operations*

Patricia S. Wilder

Productivity, or output per hour of all persons, in the retail auto and home supply store industry[1] rose at an average annual rate of 3.0 percent from 1972 to 1987. This increase was well above the 0.9-percent annual gain in productivity registered by the nonfarm business sector of the economy. The growth in productivity reflects an increase in output of 5.5 percent per year, and a rise in hours of 2.4 percent annually. Contributing to the growth in productivity for the auto and home supply store industry were strong demand and increased use of computers in store operations.

The productivity trend for the 15-year period was one of overall growth for the industry. Since 1972, increases in productivity have occurred in every year but four, ranging from 0.6 percent to 11.4 percent. Declines in productivity occurred in 1974, 1979, and 1982, with no change occurring in 1984. The largest decline occurred in 1974, when productivity posted a 6.2-percent drop. (See table 1.)

Two pronounced subperiod trends in productivity were observed for the years 1972–82 and 1982–87. During the earlier period, productivity in the auto and home supply store industry increased at an average annual rate of 2.7 percent, as output rose 5.2 percent and hours of all persons grew 2.4 percent. Even though the economy experienced two economic recessions during this period, auto and home supply stores recorded substantial growth, demonstrating the countercyclical nature of the industry. During this same period, output of the franchised new car dealers industry reflected the general downturn in the economy, declining 0.7 percent while productivity was growing at a very low rate of 0.6 percent. Auto and home supply stores benefited from the recovery that began in 1983. During the latter period, 1982–87, productivity grew 3.8 percent annually, while output grew at a high rate of 6.9 percent, and hours increased 3.1 percent.

## Output and demand

In spite of several economic downturns during 1972–87, output of the auto and home supply store industry increased at a rapid rate of 5.5 percent per year. In comparison, output of the private nonfarm business sector increased an average of 2.8 percent per year. Although auto and home supply store industry output growth can be affected by cyclical changes in the economy, the industry is less prone to the negative effects of economic downturns than other industries. For example, during this same period, output grew at a slow average annual rate in the motor vehicle manufacturing (2.0 percent) and the franchised new car dealers industries (1.2 percent).

During downturns or recessions, consumers who want a new vehicle, but cannot afford one, frequently turn to auto parts stores to maintain their existing vehicles. These "do-it-yourselfers" change their own oil and filters;

Patricia S. Wilder is an economist in the Division of Industry Productivity and Technology Studies, Bureau of Labor Statistics.
Mark W. Dumas, an economist in the same division, provided assistance in the preparation of this article.

Table 1. **Productivity and related indexes for the auto and home supply stores industry, 1972–87**

[1977=100]

| Year | Output per hour of all persons | Output | Hours of all persons | All persons |
|---|---|---|---|---|
| 1972 | 86.2 | 68.2 | 79.1 | 77.4 |
| 1973 | 90.3 | 77.5 | 85.8 | 84.3 |
| 1974 | 84.7 | 76.0 | 89.7 | 88.8 |
| 1975 | 89.9 | 81.5 | 90.7 | 91.0 |
| 1976 | 90.5 | 86.0 | 95.0 | 95.5 |
| 1977 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1978 | 104.0 | 104.2 | 100.2 | 104.6 |
| 1979 | 103.2 | 108.5 | 105.1 | 109.8 |
| 1980 | 106.7 | 107.6 | 100.8 | 105.1 |
| 1981 | 109.2 | 110.6 | 101.3 | 106.0 |
| 1982 | 107.2 | 109.9 | 102.5 | 106.9 |
| 1983 | 119.4 | 124.3 | 104.1 | 110.6 |
| 1984 | 119.4 | 136.5 | 114.3 | 119.6 |
| 1985 | 126.3 | 149.4 | 118.3 | 124.2 |
| 1986 | 127.0 | 149.7 | 117.9 | 124.8 |
| 1987 | 132.4 | 154.5 | 116.7 | 125.1 |
| | **Average annual rates of change (in percent)[1]** | | | |
| 1972–87 | 3.0 | 5.5 | 2.4 | 3.0 |
| 1982–87 | 3.8 | 6.9 | 3.1 | 3.4 |

[1] All average rates of change are based on the linear least squares of the logarithms of the index numbers.

replace air filters; install their own car stereos; and in the case of older cars and trucks, attempt more complicated jobs such as brake repair. During the 1980 and 1981–82 recessions, output in the auto and home supply store industry grew 1.1 percent per year, compared with a decline of 3.4 percent in the franchised new car dealers industry.

Reflecting the general economic recovery since 1982, output in the industry again experienced a sharp increase, rising 6.9 percent annually from 1982 to 1987. The surge in light truck sales during this period contributed to the strong demand for accessories and parts. From 1982 to 1987, sales of light trucks increased at an average annual rate of 14.9 percent.[2] Studies indicate that a major proportion of light truck owners plan to purchase items such as heavy-duty shocks, off-road tires and wheels, heavy-duty springs, lift kits, and grille guards. These items are generally purchased within 1 year of vehicle purchase.[3]

Auto parts stores operate in what is commonly referred to as the automotive "aftermarket" because the products they sell are used to improve or repair a vehicle after it has been sold by a dealer. Industry output growth reflects, in part, the growing number of motor vehicles on the road and an increase in the average age of these vehicles. Passenger cars in operation increased at an average annual rate of 2.0 percent between 1972 and 1987. The number of trucks in operation also increased over this period, growing 5.8 percent per year.[4] An increase in the average age of cars and trucks has also contributed to industry output growth. The mean age of passenger cars grew from 5.7 years in 1972 to 7.6 years in 1987. While the mean age of trucks in operation has generally been higher than that of passenger cars, the age of trucks also increased from 7.2 years in 1972 to 8.0 in 1987.[5] Consumers who hold onto their vehicles longer, either for economic or personal reasons, tend to turn to auto parts stores to dress up their vehicles with such items as new floor mats, new body-striping, and new wheel covers.[6]

Of the total automotive service and parts market, the auto and home supply store industry has boosted its share of the market from 17 percent in 1975 to 22 percent in 1985.[7] For new car dealers, who have the largest proportion of the service and parts market, at about 33 percent, market share remained relatively unchanged during this period. The share held by gasoline service stations, however, declined from about 14 percent of the market in 1975 to 8 percent in 1985. The breakdown of sales in the automotive service and parts market by source during 1985 was: franchised new car dealers, 33 percent; automotive repair shops, 28 percent; tire, battery, and accessory dealers (auto supply stores), 22 percent; gasoline service stations, 8 percent; general merchandise stores, 7 percent; and all others, 3 percent. Auto dealers tend to reap the benefits of auto parts sales in the first year of new vehicle ownership. Until recently, new car dealers have not focused much of their attention on auto parts sales. They have been and still are primarily interested in the sale of new vehicles, thus far leaving the major portion of auto parts sales to the automotive aftermarket.

*Auto and home supply stores demonstrate substantial countercyclicality during recessions.*

## Industry structure and employment

The auto and home supply store industry consists of establishments primarily engaged in the sale of tires, batteries, and automobile parts and accessories. Home supply items such as appliances, radios, and television sets are frequently sold by these establishments. However, the percentage of dealers selling home appliances and other home supplies has continued to decline over time. Tire, battery, and accessory stores have grown from over 75 percent of total auto and home supply establishments in 1972 to 90

percent in 1982. Tire, battery, and accessory stores also account for 90 percent of the industry's retail sales.

The retail auto and home supply store industry is characterized by a large number of small, single-unit firms. Auto and home supply stores have relatively few employees per store. In 1972, the industry consisted of 37,510 establishments with an average of nearly 6 employees per store. By 1982, there were 48,846 establishments with average employees per store remaining at about 6. The number of single-unit firms, which make up 90 percent of all establishments, has remained relatively unchanged since 1972.

*Workers in marketing and sales represent the largest occupational group in the industry's work force.*

While single-unit firms still account for the majority of the stores in the industry, multiunit operations (for example, companies that own a chain of stores) account for 10 percent of total stores and generate about 50 percent of industry sales. Employment in multiunit firms accounts for about 48 percent of the paid employees in the industry. This percentage has not changed significantly since 1972.

The work force of the auto and home supply store industry consists of nonsupervisory workers, supervisory workers, the self-employed, and unpaid family workers. The number of persons employed in the industry rose 62 percent, or 3.0 percent annually, from 214,500 in 1972 to 346,500 in 1987. Hours of all persons increased at an average annual rate of 2.4 percent. The average weekly hours of nonsupervisory workers in the industry fell 8.9 percent between 1972 and 1987, from 43.9 to 39.2.

Employment of nonsupervisory workers, the largest component of the industry work force, increased 55 percent during the period studied, from 166,600 to 257,800. The number of supervisory workers more than doubled, rising from 23,900 to 60,700. From 1972 to 1987, the number of self-employed persons grew 30 percent, from 20,000 to 26,000. During the same period, the number of unpaid family workers declined 50 percent, from 4,000 to 2,000.

Workers in marketing and sales represent the largest occupational group in the retail auto and home supply store industry's work force.[8] In 1986, nearly one-third of the industry's work force was employed in marketing and sales. Within this occupational group, salespersons represented the largest category, accounting for 30 percent of employment in the industry. Mechanic, installer, and repairer occupations represent about 29 percent of the work force. Within this occupational group, tire repairers and changers accounted for almost 14 percent of employment and automotive mechanics about 13 percent.

## Factors affecting productivity

One of the most important innovations in this industry has been the increased use of computers for retail operations. Recent productivity growth has benefited from the spread of this technology. However, because most retail auto and home supply stores are small, computer use varies greatly throughout the industry. Although not all stores have fully computerized their operations, most have replaced mechanical cash registers with electronic cash registers.

Computers are often used in conjunction with point-of-sale terminals (cash registers) and electronic scanning devices. This technology varies in its sophistication, but its objective is to computerize the transaction. In some cases, information coded on merchandise is fed into the computer using the scanning devices. In a more labor-intensive operation, the description and price of the items to be purchased are entered by a salesperson into a computer terminal. Accumulating sales information using the computer results in more accurate inventory records and reduces employee time required for monitoring shelf stocks. In addition, the computer provides the location of each item in the stockroom, and, in some cases, the location in which the item belongs on the sales floor. Purchase orders can be automatically generated when computer records show stockroom quantities are too low.

Computers are also used to perform recordkeeping and administrative functions formerly performed manually. For example, by using computerized information on sales activity, store managers can schedule staff hours more efficiently. In some stores, computer terminals are linked directly to a companywide computer system that can be used by each store for operations such as inventory control and product reorder, and for participation in advertising campaigns.

Computers now are being used more frequently in service bay areas of firms that have combined parts stores with complete service operations. Computerized diagnostic equipment can pinpoint car problems quickly and provide a complete engine analysis, helping mechanics perform auto repairs faster and more accurately. Other equipment available for auto repair includes comprehensive testing devices for the more sophisticated electronic ignition systems in automobiles. These devices allow mechanics to trigger the electronic ignition system without starting the engine, thereby avoiding long and costly road testing of vehicles.

Electronic equipment is available for wheel balancing. This equipment is compact and easy to operate. These units use light beams for

measuring off-balance motion, detect imbalances, and recommend weight adjustments with electronic speed and accuracy. The units are designed to be set up faster and to operate more easily than other balancers and can be used for a wide range of automobiles.

A product that uses the latest laser technology is available to assist mechanics in aligning wheels and suspensions accurately. Compact design and portability make these devices attractive. Some models do not require a rack or a dedicated bay, and the setup time is about half that of other systems.

The extent to which sophisticated diagnostic equipment is being used varies greatly throughout the industry. The skill and equipment mix usually found in the smaller establishments often is not well suited for the more complex diagnosis and repair work. The effect of this technology on the industry has been further limited because many firms, especially smaller ones, cannot afford the high cost of much of the equipment.

Other factors, such as store layout and design and self-service merchandising, have had an impact on productivity growth in the retail auto and home supply store industry. Some stores have sought to increase productivity growth and sales by remodeling older stores and improving the design and layout of new facilities. Because more than two-thirds of all purchasing decisions are made after the customer enters the store, adequate signs and displays are important.[9] By emphasizing the more popular product lines, auto and home supply stores are able to use the do-it-yourself trend to help increase their total sales volume. Furthermore, store layout emphasizes the self-service concept, which is increasingly important as stores operate with a low ratio of sales personnel to customers.[10] Self-service store layouts have helped to reduce the work load of store personnel by allowing customers to browse for their choice of merchandise.

## Outlook

Industry productivity growth should benefit from the continuing diffusion of electronic data processing equipment. The availability of more affordable personal computers has put computer technology within the reach of many more small store owners. More complex technology, such as electronic shopping systems for the sale of auto parts and accessories, could lead to increases in productivity for the industry if its use becomes widespread. These computerized systems can print customer orders, shipping date, and credit card information, and provide inventory status for the retailer. Also, increased use of more sophisticated technology, such as electronic diagnostic equipment, lasers, and other electronic testing devices, will help to improve productivity. Continued improvements in store layout and design should also be a contributing factor to productivity growth in the industry.

Mergers and acquisitions are beginning to occur more frequently and are expected to continue in the near future. If this trend continues, it could have a positive effect on productivity because the economies of scale and financial resources of larger companies have facilitated the introduction and use of computer technology. Also, industry output growth is expected to continue even during periods when new car sales are down. The continuing popularity of light trucks is predicted to boost sales for the parts market into the 1990's.[11]

The skill composition of the work force of the auto and home supply store industry is not expected to change much over the next decade. Based on Bureau of Labor Statistics projections, the proportion of marketing and sales personnel is expected to rise from about 33 percent of wage and salary worker employment in 1986 to 34 percent in the year 2000. The share of employment held by salespersons is expected to rise slightly to about 32 percent. Numbers of automotive mechanics and tire repairers and changers are expected to rise by less than 1 percent. Workers in administrative support occupations, including clerical, are projected to decline from about 15 percent of industry employment in 1986 to about 13 percent in 2000, reflecting the diffusion of computer technology in the future. □

## Footnotes

[1] The auto and home supply store industry is classified as SIC 5531 in the 1987 *Standard Industrial Classification Manual*, published by the U.S. Office of Management and Budget.

[2] Based on statistics published in *Wards Automotive Yearbook* (Detroit, MI, Ward's Communications, Inc., 1983 to 1988).

[3] "Truck surge means gold for aftermarket," *Automotive News*, Aug. 15, 1988.

[4] Based on statistics published in *Wards Automotive Yearbook, 1987*, and *Wards Automotive Yearbook, 1988* (Detroit, MI, Ward's Communications, Inc.).

[5] *Motor Vehicle Facts and Figures, 1988* (Detroit, MI, Motor Vehicle Manufacturers Association, 1988).