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LABOR PRODUCTIVITY in FOOD DISTRIBUTION

Larry Friedman and Gerald Grinnell
(202) 447-9200

aging enables the manufacturer to attract the shopper and reinforce the brand's image. One way of gaining in-store attention is to capture large blocks of shelf facing, through a multiplication of package sizes, flavor variants, and other forms of brand proliferation. The rate of brand proliferation of foods has been found to be associated with the intensity of packaging costs.

Regulation is often viewed as a cost-increasing factor. Very little regulation of packaging materials and sizes occurs on the Federal level, although several agencies regulate food labeling. The FDA prohibits packaging materials that may cause foods to become impure or unsafe. The only other Federal Government statute directly applicable to packaging is the Fair Labeling and Packaging Act passed in the mid 1960s. The principal purpose of the law was to give the FDA and the FTC power to prohibit packaging that might deceive or mislead consumers about the weight or contents. The law also authorized the Department of Commerce to seek voluntary industry agreements to reduce undue proliferation of package sizes. Differences in package sizes make it difficult for consumers to compare per unit prices. The unit pricing in grocery stores makes this task more manageable. ■

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Since labor costs to move products from the processors' loading docks to store shelves take about 22 cents of each food dollar, a decline in labor productivity over recent years is a growing concern to consumers and the food industry.

From 1929 to 1972, labor productivity in the Nation's retailing and wholesaling industries was marked by rapid gains. However, by 1977 these gains had slowed considerably, and by the end of the decade productivity in the food industry had registered a decline. These developments evolved over the past half century from the continuous changes in the food industry.

The Early Years

The food wholesaling and retailing industries underwent major changes that increased productivity prior to World War II. Chains (food firms with 11 or more stores) became a significant factor in food retailing during the 1920's. Before, food wholesalers (or jobbers) sent route salesmen from store to store, competing with other wholesalers for small orders. Chains bypassed jobbers by operating their own warehouses. As chains increased their share of industry sales, the amount of labor needed at the wholesale level to handle each unit of product sold was sharply reduced.

During the 1930's and 1940's, many independent retailers affiliated with wholesalers and agreed to concentrate their purchases from a single supplier. They also granted the wholesalers considerable control over product availability to increase efficiency. This wholesale-retail affiliation enabled wholesalers to gain many of the productivity advantages enjoyed by integrated chains. Retailers benefited from lower cost merchandise and services, such as accounting, private label merchandise, employee training, group advertising, and financial assistance.

After 1945, small, multi-story warehouses in the center of town were replaced by one-story buildings in the suburbs. The



method of moving goods within the warehouse changed too; pallets and forklifts replaced two-wheel hand trucks and freight elevators. The whole emphasis of warehousing changed from the shrewd purchase and storage of merchandise to the efficient distribution of merchandise to stores. Potential gains from shrewd buying were less than gains possible with rapid inventory turnover.

Independent retailers introduced supermarkets in the 1930's. Supported by rapid population growth, new store construction picked up after the war and hastened the adoption of supermarkets. Supermarkets' reliance upon self-service eliminated the need for as many clerks as in the traditional stores, increasing labor productivity. Credit sales and delivery, also labor intensive, were discontinued. By moving large amounts of merchandise, supermarkets lowered building and equipment costs per item sold.

Mid-Century

Labor productivity continued to improve during the 1950's as supermarkets replaced smaller stores and wholesale-retail affiliations increased. Supermarkets' (grocery stores with 20 or more employees) share of sales rose from 28 percent to 50 percent during the decade. Warehouses added more labor saving technology and found more ef-

efficient ways to organize their inventory, delivery routes, and receiving and shipping schedules.

At the same time, two factors dampened labor productivity. While early supermarkets used abandoned buildings in low-rent areas, displayed merchandise on crates, and generally cut costs wherever possible, by the 1950's many store appointments, services, and promotional attractions were added. These additions increased the cost of doing business and adversely affected output per labor-hour.

The number of items handled by supermarkets has increased sharply since the 1920's when the typical grocery store handled about 850 different items. By 1950, supermarkets typically handled 3,750 items and by 1962, the number was up to 6,600. It is more efficient to handle two cases of the same product than one case each of two different products since different products must be stored and handled separately. Additional items increase warehouse and store size and thus increase distances traveled by workers as they move merchandise within the facilities.

The growth of chains, the sharp increase in supermarkets' share of sales, and the adoption of improved product handling techniques more than offset the negative effects of more items and services, so that labor productivity rose through the 1950's. Output per labor-hour in food wholesaling and retailing increased an average of 2.8 percent per year from 1929 to 1958.

The 1960's were also a time of productivity gains. The Bureau of Labor Statistics reported that output per labor-hour in food retailing rose at an average annual rate of 2.7 percent between 1958 and 1972. During the decade, supermarkets' share of grocery store sales rose from 50 percent to 63 percent. Chains' share of sales rose from about 45 percent in 1960 to about 54 percent in 1970. Firms also continued to develop improved labor-saving techniques for warehouses, stores, and trucking operations.

Late in the decade, supermarkets renewed their emphasis on keeping prices as low as possible. However, the number of items handled continued to increase, reaching 7,700 in 1970.

Recent Developments

Output per labor-hour in food stores dropped 6.8 percent between 1972 and 1974. Productivity improved 1.5 percent during 1975-77 and then fell 5.5 percent during the 1978-79 period. Changes in the structure of the industry and the variety of products and services offered to consumers probably account for the failure of the industry to maintain the productivity growth rates that were recorded between 1929 and 1972.

Population growth had slowed by 1970, especially in the industrial centers of the Northeast and North Central regions. Increased eating out took sales away from grocery stores, and recessions also adversely affected sales. However, retailers were slow to cut back on new store construction, so that excess capacity developed, and productivity fell.

Convenience stores were built rapidly during the 1970's. Convenience stores adversely affected labor productivity in the industry in two ways: first, in some instances, by taking sales away from existing supermarkets—reducing the supermarkets' productivity—second, by requiring more labor-hours per unit of product sold. When they capture a larger share of the industry, average productivity must fall.

Other developments during the 1970's also impaired grocery store productivity. Supermarkets' share of sales increased from 63 percent to 80 percent during the decade, and this would normally improve productivity. However, many nonfood items—toiletries, prescription drugs, general merchandise, etc.—which require more labor per dollar of sales were added.

Supermarkets added service departments for bakery, fish, and delicatessen products in which clerks prepare or wrap items upon request. Customer services that increase labor requirements such as longer hours, express checkout, and unit price information were also added.

The trend toward integrated wholesale-retail operations was virtually complete by 1970 (unaffiliated supermarkets are now very rare), so this source of increased productivity essentially disappeared. Similarly, except for convenience stores, small grocery stores had already been reduced to a small share of industry sales, thus ending another source of productivity gain by 1970. Average store size continued to increase, but much of the increase was due to sales of items that require more labor.

Some changes during the 1970's did contribute to improved productivity. For example, no-frills limited assortment box stores and warehouse stores have become popular in many areas. These stores have many characteristics of the early supermarkets. They offer limited product selection and few customer services in order to cut operating costs and prices. The limited selection allows them to handle full-pallet loads of many items, and much of the merchandise is displayed in their cut-open shipping cartons. What is lost in aesthetics and variety is gained in efficiency, and sales per labor-hour are much higher in no-frills stores than in other supermarkets. No-frills stores now account for about 5 percent of total grocery store sales.

Supermarkets have continued to seek productivity-enhancing changes in operating practices and technology. They have begun discontinuing some slow moving items, scheduling workers to better match daily and weekly labor needs, and reducing distances trucks travel to reach stores. Some firms have mechanized their warehouses to achieve labor reductions.

About 3,100 supermarkets now have Universal Product Code (UPC) scanners which reduce labor requirements at the checkout and provide information that permits more accurate labor scheduling throughout the store. Several retailers are no longer price-marking individual packages, using shelf tags instead. While this reduces labor requirements, some consumer

and labor organizations are resisting the change.

Changes in store characteristics and customer services may improve productivity in coming years for several reasons:

- No-frills limited assortment stores are expected to capture a larger share of industry sales.
- Full-service supermarkets are beginning to limit product selection and use bulk handling techniques to reduce per-unit operating expenses. At the same time, some warehouse stores are adding products and services, resulting in a melding of the two types of stores, which is likely to continue.
- Convenience store growth, which impeded industry productivity growth in the 1970's, will probably level off.

However, supermarkets that offer a large assortment of foods, nonfoods, and services are still increasing their share of sales, which may partially offset these potential increases in industry-wide labor productivity.

Prospects for the Future

Technological developments, improvement in coordination among manufacturers and distributors, and improved management of resources with existing technology offer promise for improved labor productivity in food wholesaling and retailing. UPC scanners are being put in about 100 additional stores each month. At the current rate of adoption, most supermarkets that could justify the technology will have scanners by 1990.

In many areas, wholesalers and retailers' trucks travel near manufacturers' warehouses while making deliveries to stores. Backhauling is the practice of sending these trucks to pick up purchased merchandise at the manufacturers' warehouses on the return trip. Manufacturers, under certain circumstances, have always been permitted to reduce the price of merchandise to reflect the savings they realize by not paying for the transport of the merchandise. Many

manufacturers were reluctant to grant backhaul allowances, however, because they were concerned that they would be accused of illegal price discrimination between customers who did and did not backhaul.

Backhauled merchandise accounted for 9.5 percent of affiliated wholesalers' purchases in 1976. Comparable data are not available for chains. During 1980, Congress clarified the law so manufacturers can grant backhaul allowances without fear of illegal price discrimination charges, provided they do not exceed actual transportation costs. As a result, several additional manufacturers have announced plans to grant backhaul allowances.

Food manufacturers and distributors are also working on other projects that could improve coordination and, in turn, productivity. Firms are attempting to reach agreement on standard-size pallets and shipping containers (mostly cartons). One size may be efficient for a manufacturer but inefficient for wholesalers, retailers, or transportation firms. Agreement on a few standard sizes will improve productivity immediately and increase the feasibility of some mechanized equipment that could further increase productivity.

Still another promising area for productivity gains is in computer technology. A pilot project is now underway linking a major wholesaler's computer with a few large manufacturers' computers. Information about the distributor's reorder needs and the manufacturers' terms of sale will be used in a computer program to arrive at a reorder quantity automatically. Documentation records, billing information, and shipping instructions will all be handled by computer. The program will eliminate much paperwork and streamline the ordering and billing of routine products. Buyers and sellers will still communicate directly on sales of other products. A consultant's report has indicated that computer-to-computer reordering is feasible, and could save the food industry \$300 million per year.

Computer technology is being applied to a vast number of different management decisions in food wholesaling and retailing.

Computers help firms decide whether to discontinue slow moving products, where to store merchandise most efficiently, how to route delivery trucks, whether to handle products through the warehouse or have them shipped directly to stores, and how much to charge for products.

Many warehouse functions are repetitive, making them candidates for automation. At the same time, many of these tasks are also complex (for example, handling packages of many sizes and shapes), making automation difficult and expensive. Recent developments in robot technology, and declining real costs of the equipment make it likely that robots will find an important place in food warehouses in the future.

Wholesalers are motivated to improve productivity because it affects their own profits and the profits of the retailers they serve. However, they occasionally must sacrifice some productivity to meet the needs of the stores for a wide array of products and business services.

Retailers must give even greater weight to providing customer services, often at the expense of productivity at both retail and wholesale levels. However, retailers who operate most efficiently can offer a more attractive combination of both services and prices. Given the incentives and opportunities that exist, labor productivity in the food distribution system should improve in the future. ■

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