

Packaging in Food Marketing

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Packaging and container costs for foods and beverages (alcoholic and non-alcoholic) average nearly one-third of the value of the food ingredients they protect. While the packaging and container value for less-processed foods is a small fraction of the raw food ingredient value, for a fourth of the food and beverage product industries the cost of the package exceeds the cost of the food ingredient.

About \$1 out of every \$11 consumers spend on food and beverages goes to pay for packaging, ranging from simple paper wrapping for butter to elaborate crush-proof cannisters and styrofoam beverage insulators.

Food and beverage industries use two-thirds of all packaging and containers in the United States. Well over half of all paper, metal, and glass packaging is used for wrapping, canning, and bottling edible products.

The basic purposes of packaging are to protect foods and aid in handling. Packaging shields processed foods from light, heat, oxygen, infestation, and other destructive forces. Packaging also permits foods, and especially beverages, to be handled, carried, stacked, and stored. Food packaging has other purposes as well. Most packages inform consumers as to ingredients, weight, nutrient composition, storage techniques, and cooking methods. Today's packaging not only preserves many foods for longer periods but also is less breakable and can be used in conjunction with large-scale mechanical handling equipment. In general, extensive packaging uses more materials but results in large retailer-wholesaler labor cost savings.

Packaging Materials

It took over 600 pounds of materials, on average, to package all items purchased by each American last year. Based on dollar value, paper, metal, glass, and plastic account for about 95 percent of the packaging materials used in food manufacturing. In 1980, the food and beverage industries used 62 percent of the paper, 71 percent of the metal, and 96 percent of the glass produced by the Nation for packaging and containers.

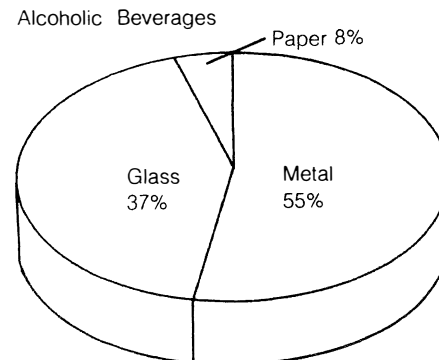
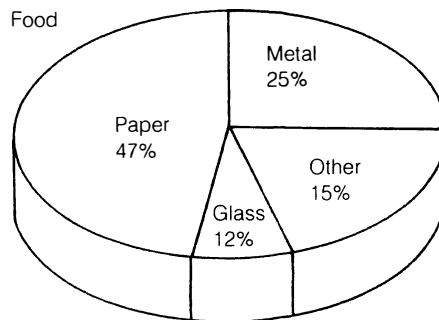
Packaging and Container Costs for Processed Food and Beverage Products, 1980

Type	All products	Food and non-alcoholic beverages	Alcoholic beverages	Food and alcoholic beverages	Food and alcoholic as percent of all products
		Billion dollars			Percent
Paper	23.2	13.9	0.4	14.3	62
Metal	14.2	7.4	2.7	10.1	71
Glass	5.4	3.6	1.8	5.2	96
Plastic	5.0	2.4	*	2.4	48
Wood	0.9	0.4	*	0.4	44
Textile	0.5	0.6	*	0.6	80
Other	2.6	1.1	*	1.1	42
Total	52.0	29.3	4.9	34.1	66

*Negligible

Source: Estimated from 1977 Census of Manufacturers, by applying a 1977-80 inflation factor.

Percentage of Packaging Materials Used for Food and Alcoholic Beverages



Source: ESS estimates

Changes in Food Marketing Costs

	1970-80	1979-80
	Percent Change	
Total Marketing Cost	247	14
Packaging and Containers	252	15
Paperboard Boxes and Containers	232	16
Metal Cans	288	11
Paper Bags	220	14
Plastic	301	19
Glass	222	12
Metal Foil	73	5
Transportation Service	261	19
Labor	239	10
Advertising	196	10
Fuel and Power	532	35

Source: BLS

Over 40 percent of the packaging materials for food and beverages are paper and paperboard containers. Metal accounts for about a third of food and beverage packaging, while glass makes up another 15 percent. Plastics, wood, adhesives, labels, and textiles comprise the other 13 percent of packaging for food.

Packaging Costs Compared with Raw Food Costs

In about one-fourth of all food and beverage industries, the packaging and container costs are more than the value of the food ingredient used in production. Beer packaging value is more than 5 times the value of the food component. Ready-to-mix desserts, chips, table syrups and other prepared foods, chewing gum, and soft drinks have a packaging value about twice the value of the raw agricultural ingredient. The ratio is about 1.5 for breakfast cereals, soups, baby foods, frozen entrees, and desserts. The value of packaging is about equal to the value of the food ingredient for canned fruits and vegetables, pet foods, and distilled spirits.

The packaging for cake mixes, condiments, wines, cookies, and crackers amounts to about 90 percent of the food value. For flavorings, the relative value is about 75 percent, while pasta and ice cream packaging is about 60 percent. For bread and candy the relative value of packaging is about half the food value.

Red meats, raw produce, cheese, sugar, butter, and cheese packaging value is only from 3 to 7 percent of the food ingredients.

Food Packaging Costs by Type of Food

Packaging costs vary widely among different food products. Fresh produce and meats, poultry, and fish, on which consumers allocate about 30 percent of their food and beverage budgets, account for less than 5 percent of packaging costs.

Beverages and highly processed foods account for the bulk of packaging costs. Beer and soft drinks account for almost one-fourth of packaging and container costs. If all other beverages are added, the figure rises to one-third.

When ranked by the total portion of

packaging costs each contributes to the consumer food bill, 10 of the 38 food and beverage products surveyed accounted for 60 percent. Yet these products account for only 35 percent of the consumer food and beverage bill. Included in this group are canned and frozen food, milk, and highly prepared foods.

By contrast, the 10 products which use the least packaging only account for 4.5 percent of food and beverage packaging costs, but they are 8 percent of the food and beverage budget. The food and beverage products in the middle represent only 36 percent of packaging costs, but almost 60 percent of expenditures.

Portion of Food and Beverage Packaging Expenditures for by Each Industry, 1977

Industry	Percent of total packaging costs for food and beverages	Industry	Percent of total packaging costs for food and beverages
Beer	13.0	Animal Feeds	2.8
Soft Drinks	10.8	Meats, unprocessed	2.7
Canned Fruits and Veg.	7.4	Candy	2.6
Prepared Foods	7.2	Breakfast Cereals	2.3
Fluid Milk	4.6	Frozen Fruits and Veg.	2.1
Soups, Baby, and Other	3.7	Fats and Oils	2.1
Frozen Dinners	3.6	Sausage and Lunchmeats	2.0
Pet Food	3.3	Cookies and Crackers	2.0
Bread and Cakes	3.3	Canned Milk	2.0
Relishes, Seasonings, and Spices	3.2		
Total	60.1	Total	20.6
Industry	Percent of total packaging costs for food and beverages	Industry	Percent of total packaging costs for food and beverages
Distilled Spirits	1.9	Dried Fruits and Veg.	0.7
Coffee	1.6	Sugar	0.7
Wines and Brandy	1.5	Frozen Seafood	0.7
Flavorings	1.5	Chocolate and Cocoa	0.5
Ice Cream	1.5	Chewing Gum	0.5
Poultry	1.2	Rice	0.5
Cheese	1.1	Canned and Cured Seafood	0.5
Flour Mix Products	1.0	Canned Poultry and Eggs	0.4
Starches and Corn Products	1.1	Pasta	0.3
Cake Mixes	0.9	Butter	0.1
Total	15.3	Total	4.5

Source: 1977 Census of Manufacturers

What Does Packaging Cost the Consumer?

Packaging is the third largest component of the consumer food bill, following the farm value and labor components. The \$34 billion spent on packaging materials by the food and beverage industries in 1980 accounted for about 9 percent of Americans' total expenditures on food consumed. On a per person basis, about \$150 each year is allocated to food and packaging materials.

About \$5 billion was spent on packaging for alcoholic beverages. If alcoholic beverages are excluded, packaging costs for 1980 were \$29 billion, or about \$128 per person yearly.

Over the past decade, food packaging and container costs have risen only slightly faster than all other food marketing costs combined. Transportation and energy costs have risen faster, other marketing costs more slowly, than food packaging costs.

The portion of consumers' food expenditures due to packaging costs has remained at about 9 percent during the decade.

Why the Increasing Packaging Costs?

Two trends are responsible for rising packaging costs—a greater amount and more elaborate packaging, and the increasing cost of packaging materials. Packaging and container prices were 2.5 times as high in 1980 as in 1970. The sharpest growth was for plastic prices, which were 3 times greater in 1980 than 10 years earlier, largely reflecting higher petroleum costs. The 1980 metal can prices advanced almost 190 percent of 1970 prices. Both paper and glass, which are less energy intensive, rose significantly less than the overall price index for packaging and containers. The lowest price increase was for metal foil, due largely to relatively stable aluminum prices. In the United States, hydroelectric power is primarily used to produce aluminum.

In addition to the packaging material becoming more costly, many foods are being more elaborately wrapped. Consumer desires for increased storability and labor-saving "convenience" have played an important role. Smaller households, fewer children, and dual-career situations may be responsible for the marketing of smaller package sizes. The impact of the desire for convenience is more difficult to judge, because some of the most convenient foods require the least packaging.

Efforts to save labor costs by mechanizing the handling of foods have required packages that are rigid, crush-proof, leak-proof, and easily stackable. Many foods that could be packed in cheap soft pouches or bags are put into cans or boxes because this saves labor or shelf space and simplifies storage equipment. Reductions in handling costs for wholesalers and retailers may run counter to the efforts by manufacturers to substitute lighter, cheaper packaging. Consumers too may bear some increased costs in the form of toting bulky packages and disposing discarded containers.

Because packaging is a minor form of advertising, some of the increase in packaging costs may be related to the general increase in food advertising expenditures—the pack-

Packaging Cost As a Percent of Food Ingredient Cost, 1977

Item	Packaging Cost greater than 100 percent of the Food Ingredients	Item	Packaging Cost 50-100 percent of the Food Ingredients
Beer	510	Cake Mixes	90
Prepared Foods	214	Relishes, Spices and Seasonings	88
Chewing Gum	193	Cookies and Crackers	86
Soft Drinks	189	Wines and Brandy	86
Breakfast Cereals	164	Flavorings	74
Soups, Baby, and other Specialties	147	Pasta	62
Frozen Dinners	141	Ice Cream	60
Pet Food	122	Bread	50
Distilled Spirits	101		
Canned Fruits and Veg.	101		
Item	Packaging Cost 10-50 percent of the Food Ingredients	Item	Packaging Cost less than 10 percent of the Food Ingredients
Candy	48	Poultry	7
Frozen Fruits and Veg.	42	Cheese	7
Dried Fruits and Veg.	39	Sugar	5
Canned Poultry and Eggs	36	Butter	4
Starch and Corn Products	33	Red Meats	3
Canned Milk	30		
Fats and Oils	22		
Canned and Cured Seafood	20		
Fluid Milk	16		
Chocolate and Cocoa	17		
Rice	17		
Frozen Seafood	13		
Animal Feeds	12		
Flour Products	11		
Sausage and Lunch Meats	10		
Coffee	12		

Source: 1977 Census of Manufacturers

LABOR PRODUCTIVITY in FOOD DISTRIBUTION

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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-