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The U.S. Food Marketing System: Recent Developments, 1997-2006

Steve W. Martinez

Abstract

Major recent developments in the U.S. food system include the increasing presence of nontraditional grocery retailers, such as supercenters and drugstores, and competitive responses by traditional grocers, such as supermarket chains. These developments have contributed to sharp increases in concentration in the grocery retail sector, changing conventional relationships among retailers, wholesalers, and manufacturers. In such a competitive domestic food market, food companies are attempting to differentiate themselves from the competition by reporting voluntary activities that demonstrate social responsibility and by more-tailored advertising campaigns and product offerings.

Keywords: Food marketing system, food manufacturing, food distributors, concentration, corporate social responsibility, competitive strategies

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Contents

Summary

A main development in the U.S. food marketing system is the influx of stores that have not traditionally sold food but that increasingly offer food items. With the growing trend for eating out, traditional food retailers also face competition from the foodservice industry.

What Is the Issue?

The products and services provided by the food marketing system (which includes manufacturers, wholesalers, and retailers) account for over 80 percent of consumer expenditures on food. Developments in this system have important implications for the cost, quality, and variety of food products. Hence, agribusiness operators, policymakers, and consumers alike are interested in how competition within the industry affects industry performance. Heightened competition has contributed to consolidation and sharp increases in grocery retail concentration, changing conventional relationships within the food marketing chain. Competition has also generally put short-term downward pressure on food prices. This report examines these structural changes and selected performance dimensions of the U.S. food system over the past 10 years.

What Did the Study Find?

The study shows that nontraditional food retailers increased their share of food sales for at-home use from 17.1 percent in 1994 to 31.6 percent in 2005. These companies were able to position themselves within the food industry by creating new shopping formats that appealed to consumers and by lowering costs. The study also found that foodservice facilities (restaurants, for example) continued to increase their share of all food sales, from 46.1 percent in 1994 to 48.5 percent in 2005, by offering new products and services.

In response to competition from nontraditional food retailers and the foodservice segment, conventional grocery retailers are employing their own cost-cutting and differentiation strategies. Cost-cutting tactics include supply chain initiatives such as data-sharing activities. For instance, through UCCnet, an Internet platform, food retailers and suppliers can exchange information that facilitates product delivery and reduces out-of-stock items and excess inventory. Another cost-saving strategy is to restructure operations to focus on the most profitable stores and geographic areas.

A main cost-cutting strategy of traditional grocery retailers over the past 10 years has been to consolidate through mergers and takeovers. This development may, in turn, lead food processors to consolidate to meet the large-scale needs of grocery retail chains. Some large wholesalers—concerned about the ability of the smaller, independent food retailers that they supply to compete with retail chains and stay in business—are vertically integrating into retailing by acquiring stores of their own.

Primary differentiation strategies include expanded project offerings—new food product introductions continue to set records, outpacing nonfood packaged goods—along with updated store designs and technologies to improve service. Food companies are also adopting some less conventional methods, focusing on new ways of image enhancement—for instance, publicizing their initiatives to advance social agendas beyond those required by law. The companies are also using new advertising approaches. A shift from TV advertising to other venues, such as magazines, the Internet, and video games, reflects a move from mass to individualized marketing. This trend is also reflected in new product labels designed to appeal to consumer self-image (for instance, with "upscale" terms such as *premium* and *gourmet).*

How Was the Study Conducted?

This study examined recent major developments in the U.S. food marketing system, using data from the U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis, Food Institute, Marketing Intelligence Service's Productscan Online,data base, company annual reports and Web sites, and various trade publications.

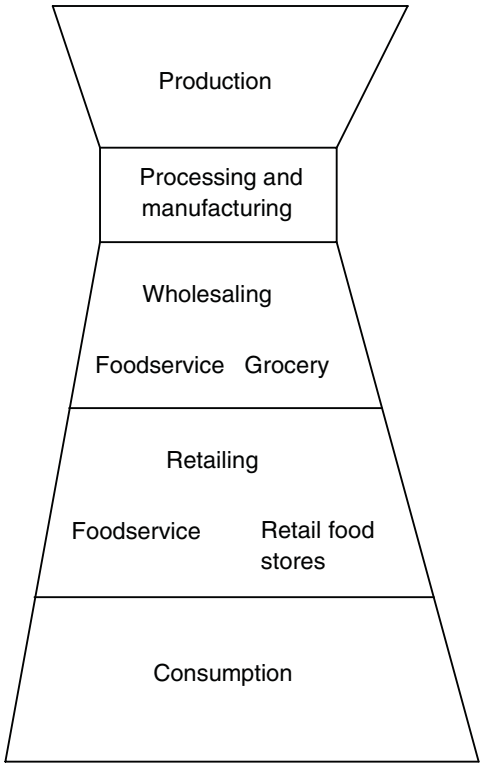
Introduction

The U.S. food marketing system comprises five broad stages of economic activity: production, processing and manufacturing, wholesaling, retailing, and consumption (see box, "Economic Stages of the U.S. Food Marketing System"). The food manufacturing and distribution stages serve as the bridge between production and consumption, coordinating the delivery of farm products in the form, place, and time preferred by consumers. Vertical coordination between stages of the system is achieved through a variety of methods, including spot markets, contracts, alliances, and vertical integration, varying by specific food industry. In 2001, the food and fiber marketing system contributed 12.3 percent to the U.S. gross domestic product and employed 23.7 million people, or 16.7 percent of total U.S. employment. According to calculations based on U.S. Census Bureau data, the food marketing system also accounted for 9 percent of the value of all merchandise exported by the United States in 2005. The activities and services provided by food manufacturers and distributors accounted for about 81 percent of consumer food expenditures in 2002, while the farm value component accounted for the remainder.

The objective of this report is to assess recent developments in the U.S. food marketing system. The report covers many of the same topics as an earlier Economic Research Service (ERS) report, *The U.S. Food Marketing System, 2002* (Harris et al., 2002). However, unlike the previous report, the current report is organized by topic area rather than by stages of the marketing system. In addition, it focuses more on key developments, using the most recent data available.

The report is organized into three sections: (1) Changes in food distribution channels, including the growing diversity of retail outlets selling food and the globalization of food markets—the influx of retailers not traditionally involved in selling food is one of the most important developments in the U.S. food system; (2) changes in market structure related to consolidation, mergers and acquisitions, and methods of vertical coordination; and (3) differentiation strategies in relation to the corporate social responsibility movement, new product introductions, and advertising that has the capacity to influence food consumption behavior and nutrition.

Economic Stages of the U.S. Food Marketing System



The U.S. food marketing system is generally composed of five broad stages. Over 25,000 food and beverage processors purchase output from more than 2.1 million farms. Domestic and foreign food processors handle over 90 percent of the value of U.S. farm production, with the remainder reaching consumers in unprocessed form (Connor and Schiek, 1997).

Processed and packaged products are then sold to over 32,559 wholesalers, 112,662 food and beverage retailers, and 377,717 foodservice companies for distribution to over 111 million households. Grocery wholesalers deliver products to retail food stores, such as supermarkets, whereas specialized foodservice wholesalers distribute to foodservice outlets. The foodservice and grocery retail segments compete for the consumer's food dollar, but the wholesalers that supply them do not compete directly with each other. Foodservice distributors serve more locations with smaller order sizes, as the number of items typically required by a foodservice establishment is considerably smaller than the number offered through grocery stores.

Sources: U.S. Census Bureau (2004, 2005); National Agricultural Statistics Service, USDA (2006).

Competition from Nonfood Stores and Responses by Food Retailers

As food companies strive to grow or maintain market share in a slowly growing domestic food economy, distribution channels for marketing food products in the United States are changing. Over the past 10 years, the food industry has seen an influx of companies not traditionally involved in food sales, led by Wal-Mart supercenters, along with continued growth in the foodservice segment. In addition, global food marketing channels continue to expand through processed food exports and imports and foreign direct investment.

We begin by discussing various strategies of companies as they seek a competitive advantage within the food industry.

Strategies Companies Use for Positioning Themselves

In order to compete, a firm must establish a sustainable competitive advantage. In his theoretical framework for explaining competitive advantage, Porter (1990) posits two basic types of advantage: lower costs and differentiation. Lower costs result from a firm's ability to produce and market products more efficiently than the competition. Differentiation refers to the ability of firms to provide consumers with unique and superior products and service at a premium price. While it is possible for companies to follow both strategies, this is complicated by the additional costs of providing unique quality and services. Nonetheless, companies must be attentive to both types of advantage, while emphasizing one. For example, a company that produces high-quality products but neglects costs can see its price premium offset by higher expenses.

Another important choice is the company's competitive scope, or breadth of the company's target within an industry. A company must choose the products to produce, channels to market the products, types of customers and geographic areas to target, and the industries in which to compete. Segments within an industry have particular needs that require different strategies and capabilities. For example, regular milk and more expensive organic milk are sold to consumers with different tastes and preferences. Companies in the dairy industry may choose different competitive scopes, with some producing both organic and regular milk, for example, while others specialize in organic milk.

Companies may gain competitive advantage by expanding globally or by competing in related industries. For example, Pepsi-Cola and Coca-Cola relied on their extensive bottling and distribution channels and brand-building capabilities to gain important advantages in bottled water production (see "Structural Changes in Food and Beverage Processing," p. 21). A global strategy is one in which a firm sells its product in many nations, using an integrated worldwide approach.

To gain competitive advantage, a company must choose the type of advantage it wishes to achieve and the scope for obtaining it. For conceptualizing, combinations of advantage type and scope form four basic strategies (fig. 1). For example, companies that choose a broad scope may follow a cost-leader strategy by offering a variety of products at lower prices and less-than-superior quality. Alternatively, companies may follow a differentiation strategy by offering a variety of products at premium prices. Firms choosing a narrow target may follow either a cost-focus or focused-differentiation strategy. Under a cost-focus strategy, companies offer basic products at lower prices than those following a cost-leadership strategy. Finally, the focused-differentiation strategy involves specialized products that command premium prices.

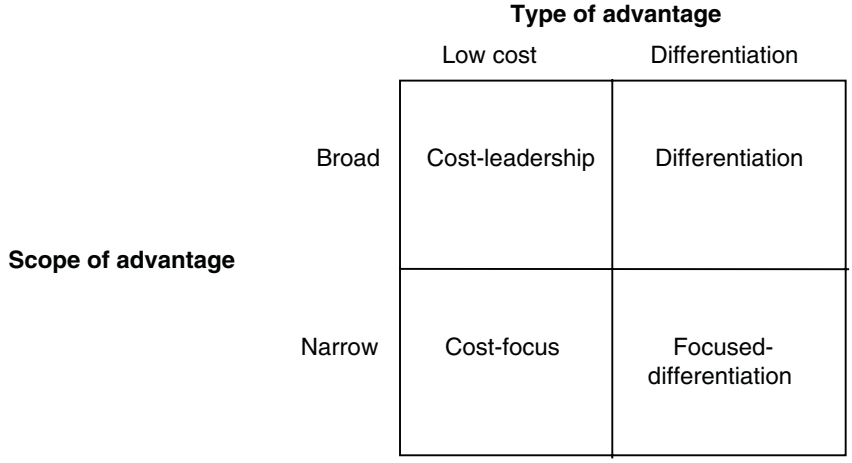
Although industry structure limits the range of approaches, different strategies can successfully coexist in many industries. There may also be variations in how to focus or differentiate within the same strategy. Changes in industry structure, or developments that establish new bases for competing, offer firms opportunities to substantially shift their competitive position.

A "stuck in the middle" strategy refers to companies that follow all positioning strategies simultaneously. These companies are destined to fail because the incompatible nature of the different strategies will result in below-average performance (Porter, 1990).

Strategic Positioning by Nontraditional Food Outlets

By segmenting consumers based on their preferences, nontraditional food retail outlets, including supercenters, warehouse clubs, drugstores, and dollar stores, position themselves through pricing strategy and product variety. Supercenters follow a cost-leadership strategy, offering a wide variety of food and nonfood merchandise at lower prices than traditional stores such as supermarket chains. By competing in both the food and drug industries, drugstores follow a differentiation strategy. Dollar stores have also emerged as formidable competitors to traditional food retailers by appealing to bargain and low-income shoppers with a cost-focus strategy.

Figure 1
Types of competitive strategies



Source: Porter, 1990.

Growth of Nontraditional Grocery Retailers

Nontraditional outlets increased their share of U.S. food-at-home expenditures (i.e., food purchased to be prepared and consumed at home) from 17.1 percent in 1994 to 31.6 percent in 2005 (table 1). Most of this growth was due to supercenters and warehouse club stores, which together took in 17.1 percent of food-at-home expenditures in 2005, up from 3.9 percent in 1994. Warehouse clubs compete by catering to small businesses and middle- to upper-income consumers with a limited variety of products and a grocery section dedicated to large-size packages and bulk sales (Brady and Cavanaugh, 2005; Hamstra, 2005).

Other types of nontraditional food outlets have recently emerged as competitors in the food industry (table 2). Drugstores, such as Walgreens and CVS, accounted for 4.8 percent of all food and nonfood grocery sales in 2005, although drug sales remain their core business (Veiders, 2005). Food sales by drugstores reached $7.25 billion in 2004, up 36 percent from 5 years earlier (Alexander, 2004). Each store offers a small assortment of food and beverages, accounting for approximately 5 percent of sales, but with the large number of stores operated by each company (e.g., CVS with 6,100 stores, Walgreens with 5,251, and Rite Aid with 3,323), this adds up to significant food sales. Further, food and beverage sales earn higher margins for the company than drug sales. Customers are attracted by the pharmacy and the convenience of food product offerings.

Dollar stores are driving sales growth by opening new stores and adding grocery items.[1] Products are often priced at $1 or $2, with grocery products accounting for between 20 and 80 percent of total sales (Brady and Cavanaugh, 2005).

[1]In 2005, Dollar General, the leading dollar store, ranked 18th in U.S. grocery sales ("SN's Top 75," *Supermarket News*, http://www.supermarketnews.com/, accessed October 13, 2005).

Table 1
Share of food-at-home expenditures by type of outlet[1]

	1994	2001	2005
Traditional grocery retailers		*Percent*	
Supermarkets	59.2	62.7	58.2
Convenience	3.1	2.9	2.9
Other grocery	16.6	3.5	3.6
Specialty food stores	2.8	2.3	2.7
Total traditional	81.7	71.4	67.4
Nontraditional grocery retailers			
Supercenters (e.g., Wal-Mart, Super Target, Super Kmart, Meijer, Fred Meyer) and warehouse clubs (e.g., Costco, Sam's, BJ's)	3.9	11.7	17.1
Mass merchandisers (e.g., traditional Wal-Mart, Target, and Kmart stores)	1.8	2.2	1.8
Other stores (e.g., Walgreens, Dollar General)	9.0	9.6	8.7
Home-delivered and mail order	2.4	4.1	4.0
Total nontraditional	17.1	27.6	31.6

[1]Excludes sales by farmers, processors, wholesalers, and others, which have accounted for approximately 1 percent of food-at-home expenditures.

Source: ERS, http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/table16.htm, accessed July 13, 2006.

Table 2
Share of grocery sales by nontraditional outlets[1]

	1994	2001	2005	2010[2]
			Percent	
Warehouse club	4.8	8.5	7.1	7.3
Supercenters	2	9.9	13.6	20.7
Dollar stores (e.g., Family Dollar, Dollar General, Dollar Tree, Fred's, 99 Cents Only)	na	na	1.7	2.1
Drugstores (e.g., Walgreens, CVS, Rite Aid)	na	na	4.8	4.5
Mass merchandisers	na	na	5.7	5.4
Internet (e.g., FreshDirect)	na	.12	na	na
Military commissaries	na	na	.5	.5
Other (mini-club, deep discount drugstore)	2	.60	na	na
Total nontraditional	8.9	19.14	33.4	40.5

na=Not available.
[1]Sales include food and nonfood grocery items, health and beauty items, greeting cards and magazines, alcohol, and tobacco.
[2]Forecast.

Sources: Caffarini and Cavanaugh, 2006; Griffith, 2002; Rogers, 2000.

Competition for food sales is widening to include some of the Nation's largest retail companies. In 2003, Sears, Roebuck and Co. introduced its Sears Grand stores, which sell clothing, appliances, tools, and a limited array of grocery products such as dairy, lunch meats, and frozen food. Sears Grand, with large freestanding buildings close to residential areas, emphasizes convenience over selection. A "dollar section" of packaged foods was also added. Sears purchased stores from Kmart, which had recently emerged from bankruptcy, and converted some to Sears Grand stores. In 2005, Sears merged with Kmart to become the Nation's third-largest retailer, referred to as Sears Holdings Corporation. Home Depot, the second-largest U.S. retailer behind Wal-Mart, is testing convenience stores with gas stations adjacent to Home Depot stores.

Wal-Mart's Influence

Supercenters have led the growth in grocery sales by nontraditional outlets (table 2). Primarily through its supercenters, Wal-Mart has emerged as a prominent player in the food industry (Stewart and Martinez, 2002). Within 12 years after opening its first supercenter in 1988, Wal-Mart became the Nation's leading grocery retailer (Appendix A, Appendix table 1). By offering food at lower prices with very low profit, Wal-Mart can attract customers who also buy the store's more profitable general merchandise.

Wal-Mart's tremendous growth is largely due to efficiencies in managing its supply chain to lower costs (Irwin and Clark, 2006). Through an innovative logistics system and collaboration and data-sharing with suppliers, Wal-Mart streamlines the flow of products to consumers and tailors products to individual stores, based on customer preferences in the community where that store operates (Zwiebach, October 2005). Wal-Mart requires manufacturers to manage their own store inventories and makes available its private, invitation-only "Retail Link" system to exchange information with its suppliers over the Internet in a secure environment (Sparks and Wagner, 2003). About 30,000 of its suppliers are using Retail Link to track how well their products are selling by region or store, to review inventory levels, and to assist Wal-Mart in optimizing its inventory holdings. Many of Wal-Mart's

products are not stored at the warehouse, but are moved from supplier truck to store-delivery truck through a process called cross-docking.

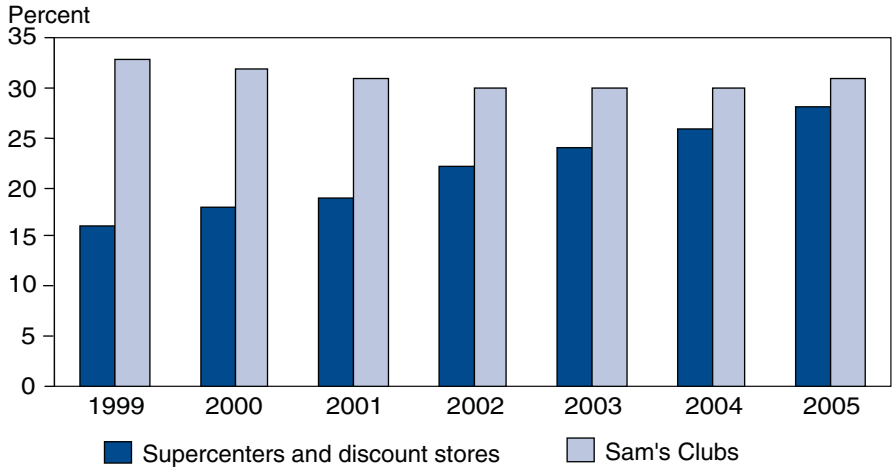
Wal-Mart has been the prime mover of radio frequency identification (RFID) technology in the United States (Martinez and Stewart, 2003). Items are tagged with an electronic product code (EPC), the digital enhancement of the bar code, containing detailed product data, manufacturing date, expiration and tracking data, and other information. Instead of manually scanning a bar code, an EPC reader automatically transfers the data to a database using radio waves. In 2004, the company introduced the technology in some of its stores and distribution centers, focusing on tagged pallets and cases of higher priced, fast-moving merchandise (Covert, 2005; Sullivan, 2005). By 2007, the company intends to expand its RFID rollout from 500 to 1,000 stores and to double the number of participating suppliers to 600.

The RFID technology has the potential to move products from producer to consumer more quickly, which is especially important for perishable products like fresh fruits and vegetables (Parks, 2005). The technology can reduce instances of "out-of-stock." A study of the effect of RFID on stores by researchers at the University of Arkansas found a 32-percent annual reduction in out-of-stock merchandise for products selling at a rate of 0.1 to 2 units a day (Collins, 2006). The research data also showed a 62-percent reduction for goods selling at a rate of 6 to 15 units a day. For slower and faster moving items, no improvement in product availability was found.

The share of grocery and tobacco sales at Wal-Mart's discount stores and supercenters has been growing steadily, approaching that of the company's own Sam's Clubs, the second-largest wholesale club behind Costco (fig. 2). In addition, while many food retailers achieve growth through acquisitions, Wal-Mart expands by opening new stores (table 3). Wal-Mart continues to open new, smaller supermarket stores, referred to as "Neighborhood Markets," close to its supercenters to serve as a fill-in stop between customers' trips to the supercenters. The company is also expanding its offerings of private label food items.[2]

[2]A store's private label can be the store's own name or a brand name created exclusively by the retailer for that store.

Figure 2
Share of sales by Wal-Mart's supercenter and discount stores and Sam's Club for grocery and tobacco products



Source: Annual company reports submitted to the Securities and Exchange Commission.

Table 3
Wal-Mart growth

	Unit	1995	2005
Number of distribution centers[1]	Number	30	99
Total number of U.S. stores:	Number	672	2,349
Supercenters[2]	Number	239	1,713
Sam's Clubs[3]	Number	433	551
Neighborhood markets[4]	Number	0	85
New store openings in the United States[5]	Number	97	435
International stores	Number	276	1,587
Total sales	Bil. dol.	82.5	285
Percent of U.S. GDP	Percent	1.32	2.43
Total U.S. employees	Million	0.7	1.3
Percent of U.S. employment	Percent	0.59	0.99

[1]In 2005, approximately 19 percent of Wal-Mart's merchandise was shipped directly to stores from suppliers, up from 16 percent in 1995. The remainder was shipped from Wal-Mart's distribution centers, of which 34 are grocery distribution centers.
[2]Nearly 2,200 Supercenters are expected to be operating by the end of 2006 (Zwiebach, October 2005).
[3]These are Wal-Mart's warehouse club stores.
[4]These are Wal-Mart's supermarket stores.
[5]Includes discount stores relocated or expanded to supercenters.

Sources: Annual reports filed with the Securities and Exchange Commission.

Given its immense and growing size, Wal-Mart is changing the traditional relationship between manufacturer and retailer (Greenhouse, 2004). The company is the biggest customer of many of the Nation's leading food processors, and its share is slowly growing (table 4). Regarded as a tough negotiator, Wal-Mart is said to be capable of extracting concessions from suppliers (Connor and Schiek, 1997). As manufacturers' revenue becomes more dependent on Wal-Mart, they are willing to invest in technology to increase efficiency and to satisfy Wal-Mart's requests.[3] To do business with Wal-Mart, manufacturers must comply with company mandates, such as tagging cases with RFID tags and delivering case-ready meats that are prepackaged and priced (Martinez and Stewart, 2003).[4] As manufacturers commit their resources to serving Wal-Mart, they may provide less support for retailers that are unable to provide the same sales growth (Zwiebach, April 2004).[5]

Foodservice Gains

Grocery retailers are also facing formidable competition from the foodservice channel as consumers slowly increase their share of food expenditures from foodservice outlets. In 2005, the food-away-from-home market captured 48.5 percent of total food expenditures, compared with 46.1 percent in 1994 (U.S. Department of Agriculture, Economic Research Service). To continue building market share, foodservice companies are following a differentiation strategy, offering new products and services that cater to the lifestyles of today's health-conscious, time-pressed, and demanding consumers.

In addition to their traditional food offerings, foodservice companies have responded to consumers' diet and health preferences with a host of new products. Facilitated by advances in fresh-cut produce technology, McDonald's introduced sliced apples as a substitute for fries in Happy Meals in 2004. The Nation's largest fast food company procured more than

[3]A study by Global Insight (2005) found evidence that, over the 1985-2004 period, Wal-Mart's investments in innovative distribution and inventory increased the national economy's productivity by helping Wal-Mart suppliers operate more efficiently.

[4]All of Wal-Mart's supercenters and Neighborhood Markets now sell case-ready meats, which Wal-Mart touts as enabling streamlined distribution from manufacturer to customer and providing greater quality control and tracking capabilities. Other factors that have contributed to the growth of case-ready meats in the United States include the move toward branded meat products, retailer preference for more uniform meat cuts, and improved meat-case merchandising without the labor cost of meat cutters.

[5]In addition to its influence over suppliers, other contentious issues raised by Wal-Mart's increasing presence in the economy include low employee wages and shifting of health care benefits onto States as the company pursues a cost-leadership strategy.

Table 4
Percent of manufacturer revenue from sales to Wal-Mart, 2002-2004

Manufacturer	2002	2003	2004
		Percent	
Procter and Gamble	17	18	17
Dean Foods[1]	10.6	13.4	14.6
General Mills	12	13	14
Kellogg Company	12	13	14
Kraft Foods	12.2	12	14
Campbell Soup	12	12	13
Tyson Foods[2]	Less than 10	Less than 10	12
Pepsico[3]	Less than 10	10	11

[1]Dairy division. In 2002, the second-leading customer accounted for 7.5 percent of sales.
[2]According to Tyson's 2004 annual report filed with the SEC, "Any extended discontinuance of sales to this customer could, if not replaced, have a material impact on the Company's operations; however, the Company does not anticipate any such occurrences due to the demand for its products."
[3]In all of North America, Wal-Mart accounted for 14 percent of Pepsico's sales revenue in 2004, up from 12 percent in 2003.

Sources: Annual reports filed with the Securities and Exchange Commission.

54 million pounds of fresh-cut apples, becoming the largest consumer of apples in the foodservice industry (Enis, 2005). More recently, the company introduced an apple, grape, and walnut salad. Mineral coatings and modified-atmosphere packaging are extending the shelf-life of fresh-cut items, allowing a wider variety of offerings. New chicken products were recently launched by several of the leading fast food chains, among them McDonald's Premium Chicken Sandwiches and Chicken Selects, Burger King's Chicken TenderCrisp sandwich, Wendy's Chicken Temptations sandwiches, and KFC's new roasted chicken menu. In response to consumer demand for low-carbohydrate foods, full-service chains, such as Applebee's and TGI Friday's, have developed low-carb menus, while fast food chains, such as Hardee's and McDonald's, offer burgers without the bun.

Companies continue to offer consumers a variety of large-portion items that are high in fat and calories. For example, in 2004, Hardee's introduced a 1,420-calorie "Monster Thickburger." A nutritional calculator on Hardee's Web site allows consumers to analyze the nutritional content of all its menu items, including calories, calories from fat, and sodium.

McDonald's is providing consumers with on-the-spot nutritional and product-sourcing information. In February 2006, the company introduced product packaging that displays the nutritional content of most of its products. Five icons provide information about the calorie, protein, fat, carbohydrate, and sodium content compared with daily nutrient recommendations (Muirhead, 2005). By the end of 2006, the company expected to have the nutrition labeling in 20,000 of its 30,000 restaurants. It also added to its Web site an "open door" tour with information on how its products are produced, beginning at the farm.

Some limited-service chains are following a focused-differentiation strategy by catering to consumer preferences for "casual indulgence" with more "upscale" items. Some of the fastest growing chains are those offering specialty products and gourmet ingredients. From 2004 to 2005, Starbucks,

the world's leading retailer of specialty coffee, had the third-largest percentage increase in sales among limited-service chains and the second-largest increase in units (Technomic Information Services, Inc., 2006). The company now ranks as the sixth-largest foodservice chain (Appendix A, Appendix table 1). Panera Bread and Quiznos Sub also ranked among the 10 fastest growing chains in terms of both sales and units. Panera Bread sells all-natural specialty breads, while Quiznos Sub is an upscale chain serving sandwiches made from proprietary bread and special ingredients, such as Tuscan basil mayonnaise and spring-mix lettuce. Mainstream chains are following suit with their own unique product offerings. Through a partnership with a coffee processor, McDonald's is offering "Newman's Own Organics Blend" of Fair Trade Certified, organic specialty coffees (American Institute of Food Distribution, Inc., October 31, 2005). Chick-Fil-A recently introduced its "Café Blends Coffee" premium line.

Full-service restaurants are differentiating themselves by expanding their takeout business (Technomic, Inc., 2005). In 2004, their takeout sales were estimated to be nearly 10 percent of total sales. Over the previous 3 years, takeout sales in full-service restaurants grew about 8 percent per year, roughly twice the rate of their total sales. Many of these restaurants have added reserved parking spaces and special entrances for takeout orders, and some, such as Outback Steakhouse, are adding drive-up service.

Strategic Responses by Traditional Grocery Outlets

Traditional food retailers that follow a "stuck-in-the-middle" strategy will likely continue to lose market share to nontraditional retail outlets and food-service companies. Traditional outlets that have higher costs than Wal-Mart, fail to differentiate from the competition, and fail to compete in a narrower market segment lack any competitive advantage.

Much has been written in the popular press about conventional supermarkets caught between the "big box" stores (e.g., supercenters) and specialty stores that target a specific consumer segment, such as the "fresh format" stores (Brady and Cavanaugh, 2005). These are stores exceeding 20,000 square feet that follow a focused-differentiation strategy by emphasizing perish-ables, with ethnic, natural, and organic assortments that differ from those of traditional retailers. From 1999 to 2004, sales at the two largest publicly traded fresh format stores that specialize in organic and natural foods, Whole Foods and Wild Oats, grew by 159 and 45 percent (annual reports filed with the Securities and Exchange Commission), compared with a 13-percent increase for the entire U.S. grocery store industry (U.S. Census Bureau). Over the same period, sales by United Natural Foods, a leading wholesale distributor of organic and natural foods, increased by 95 percent, compared with a 16-percent increase for all merchant food wholesalers, excluding manufacturers' sales branches and offices.

Conventional outlets are responding with a number of competitive strategies to retain market share. Establishing a competitive position requires an understanding of what factors influence costs, which attributes are preferred

by consumers, and how cost factors and attributes vary by customer segment (Besanko et al., 1996). Strategies for standing out from the competition, lowering costs, and streamlining product delivery are discussed next.

Differentiation Strategies

Traditional grocery stores are differentiating from the competition with expanded product offerings, new store layouts, and innovative in-store technologies. Mainstream supermarkets accounted for the largest share of the organic foods market in 2004, with 37 percent of total sales, followed by independent natural food stores (28 percent) and natural food supermarket chains (19 percent).[6] Some supermarkets are opening their own organic and natural food stores and producing their own corporate-brand organics. For example, Supervalu recently opened its first Sunflower Market banner store that features organic, minimally processed products with no preservatives. Some of these products are sold as private label under the "Nature's Best" brand. Other companies offering their own corporate-brand organic products include Kroger (Naturally Preferred), Giant Food (Nature's Promise), and Shaw's (Wild Harvest).

[6]The organic market increased by 19 percent in 2004 and is expected to double by 2007 (Tarnowski, 2005; Lempert, 2005).

Private labels are one way that retailers have diminished the market power of manufacturers, differentiating themselves with store-brand products of better value than national brands (Kinsey, 2001). As Wal-Mart and supercenters increase their private label products, traditional retailers are introducing or expanding their own private label programs. Sales of private label products in supermarkets rose by 0.9 percent in 2004, compared with national brand growth of 0.6 percent. Private label share of supermarket sales is growing slowly, increasing from 14.0 percent in 1994 to 16.1 percent in 2004, but this represents about $10 billion of additional sales. Examples include H.E. Butt's Central Market Organic and All-Natural line of food products, Albertsons' Essencia premium line, Publix's line of branded Hispanic products, and Food Lion's Butcher's Brand Premium Beef. Premium brands project an image of higher quality based on superior food ingredients or packaging (Connor and Schiek, 1997). Food Lion's premium beef, for example, is sourced from Midwestern producers that comply with the company's standards for beef quality, including marbling and aging.

Major food chains and manufacturers are forming innovative partnerships as retailers attempt to differentiate themselves with their own line of products (Forbes.com, 2004). Private label processors include large national brand manufacturers that use their expertise and excess plant capacity to supply store brands; small manufacturers who specialize in particular product lines and produce store brands almost exclusively, often owned by corporations that also produce national brands; and regional brand manufacturers that produce private label products for specific markets (Private Label Manufactures Association, 2006). Large manufacturers, such as McCormick, Del Monte, and Birds Eye, usually do not cannibalize their national brands with store-brand versions of their own products (ConsumerReports.org, 2005). For example, Del Monte produces soup for retailers, but not fruit products. When companies do make national and store brands of the same product, the products may have different attributes. For example, the quality of farm

output in the ingredients may vary by growing conditions and region. In addition, retailers that emphasize costs may prefer a lower priced version and lower quality ingredients.

To benefit from the growing popularity of dollar stores, some grocers are adding more dollar merchandise (i.e., goods priced at one dollar). More than 27 percent of new grocery stores had aisles designated for dollar merchandise in 2004, compared with 6 percent in 2002 (Adamy, 2005). In 2002, Save-A-Lot, a small discount grocery store chain owned by Supervalu, bought a dollar store chain to get more dollar merchandise into its stores, including videos, jewelry, and household goods. Winn-Dixie is also adding more dollar merchandise to improve sales.

As supermarkets compete with the foodservice sector, their annual sales of prepared food are growing at about 4-4.5 percent, compared with 2-2.5 percent for their other food items (Rogers, 2005). For example, they are offering a variety of precooked, precut, or premarinated meats for warming or cooking.

In addition to supercenters and wholesale clubs, mainstream supermarkets such as Kroger and Albertsons are adding fuel pumps to entice motorists to purchase food and other products when they buy gas, and some stores offer discounts on fuel for purchasing promotional items. According to a 2006 Food Marketing Institute survey, a third of member grocers had fuel pumps, compared with 6 percent in 2003 (Showalter, 2006).

New store designs offer consumers an upscale shopping experience. Stop & Shop Supermarkets rents space to Dunkin' Donuts and Boston Market and is redesigning its health and beauty section to emphasize "health and relaxation." Safeway is opening "lifestyle" stores, sophisticated shopping venues with high-quality produce, soft lighting, and classes on topics such as flower arranging (Adamy, 2005). Safeway-owned *Dominick's Lifestyle* stores feature an expanded section of organic foods and an upscale bakery, deli, wine, and floral section. The stores also have a Starbucks coffee shop with sofas and plush chairs. *Kroger Marketplace*, twice as big as a regular Kroger store, features a Starbucks and Donato's Pizza stand. Building on Kroger's acquisition of Fred Meyer, a large supercenter selling groceries and merchandise, the new stores offer furniture, linen, electronics, toys, and household appliances in addition to grocery items. A&P, the 11th-ranked supermarket chain, is expanding its upscale Fresh Market concept, featuring natural and organic produce and restaurant-style hot and chilled foods.

Innovative, timesaving technologies offer another means for traditional grocers to differentiate from the competition. One of the fastest growing technological applications in new grocery stores is self-checkout lanes. In 2005, nearly 56 percent of food retailers used self-checkout systems, up from 38 percent in 2004 (American Institute of Food Distribution, Inc., October 3, 2005). The technology has become so ingrained that it is no longer considered a major initiative by food retailers (Garry, January 31, 2005).

Biometric technology allows customers to pay at checkout by scanning a finger to match the fingerprint on record, which releases payment from a bank account or credit card. According to the 2004 *Supermarket News*

annual survey of corporate and information technology, executives at 68 food retail and wholesale companies, representing 36,000 supermarkets, 25 percent of the companies planned to use or test biometric technology in 2005, up from 15 percent in 2004 (Garry, January 31, 2005). Stop and Shop Supermarkets, owned by Ahold, is introducing the "Shopping Buddy" into some of its stores, an updated version of the VideOcarts introduced a dozen years ago (Garry, November 2005). The computerized self-scanning device attaches to the front of a shopping cart and provides a wide range of information, some of it targeted to the individual loyalty-card shopper. Shoppers can scan and bag items in the aisle, locate products, check prices, order deli items without standing in line, and maintain a running total of items in their cart. The screen also informs shoppers of favorite items on sale as they approach those items in the aisle. By swiping their loyalty card at checkout, the cashier can total their purchases without scanning individual items.

Cost-Lowering Strategies

In addition to consolidation through mergers and acquisitions (see section "Structural Changes in Food Distribution"), traditional food retailers are reducing costs through supply chain initiatives and restructuring of operations. They are attempting to improve inventory control and consumer response by emulating Wal-Mart's supply chain management practices (McKinsey Global Institute, 2001).[7] A 1992 industry-wide initiative, known as Efficient Consumer Response (ECR), was an attempt by retail grocers to adopt Business-to-Business (B2B) e-commerce practices similar to Wal-Mart's to streamline inventory ordering and reduce costs. However, the initiative waned due to computer systems that were either nonexistent or incompatible with those of suppliers (Mohtadi and Kinsey, 2005). The effort was further hampered by retailers' reluctance to share sales information with manufacturers, adoption of technologies that proved unprofitable, and perceived unequal sharing of ECR benefits across the supply chain.

[7]Some traditional retail outlets, such as Giant Eagle and Raley's, are limiting promotional discounts in favor of everyday low prices, similar to the approach of Wal-Mart and other discount retailers (Adamy, July 2005).

ECR, however, paved the way for many efficient management practices and led to a new B2B Internet platform, referred to as UCCnet (Kinsey, 2000). UCCnet is a division of GS1 US, formerly the Uniform Code Council (UCC), which is the organization best known for developing bar codes containing a Universal Product Code (UPC). To increase consistency in product and invoice data used by food distributors and suppliers, UCCnet was the primary driver of data synchronization between retailers and manufacturers in the United States (Seifert, 2002; Garry, March 2005). In 2004, 29 percent of retailers and wholesalers surveyed by *Supermarket News* were involved in data synchronization with trading partners, 29 percent were planning to participate in 2005, and 33 percent were considering it (Garry, January 31, 2005). By allowing retailers and suppliers to electronically exchange information and services in a secure environment, UCCnet facilitates the delivery of products to reduce out-of-stocks and excess store inventory.

A global data system was needed, and in 2004 the Global Data Synchronization Network (GDSN) was introduced. The GDSN allows certified data pools, such as UCCnet, Transora, and WorldWide Retail Exchange (WWRE), to exchange standard product data registered in the GS1 Global Registry.[8] The GS1 Global Registry is a centralized directory that validates

[8]In 2005, mergers between UCCnet and Transora, and between WorldWide Retail Exchange and GNX (referred to as Agentrics LLC), were announced (Garry, June 2005).

and stores basic item and participant information. It also serves as a "pointer" to the appropriate data pool for obtaining information on a specific item or party. From January to June of 2005, the number of trading partners participating increased by 16 percent, and registered items (Global Trade Item Number) increased by 62 percent.[9] In June 2005, there were 10 certified data pools, with 252 manufacturers and 17 retailers synchronizing data (Garry, June 20, 2005). By May 2006, 5,000 trading partners, mostly manufacturers, were using the GDSN (Garry, June 5, 2006).

[9]One factor driving participation in the GDSN is the emergence of RFID technology and electronic product code, which requires synchronized data (Garry, January 17, 2005).

Food retailers have also moved forward with global scanning standards. To facilitate global trade, the UCC selected January 2005, referred to as "Sunrise 2005," as the deadline for North American retailers to become capable of scanning the 13-digit European Article Number (EAN) bar code and storing the code in their database. A 2005 Food Marketing Institute survey of information technology executives at 28 food retail and wholesale companies, representing 6,724 U.S. supermarkets, found that all retailers were capable of scanning the EAN (Food Marketing Institute, 2005). All of the companies had dedicated funds for complying with the scanning standards.

The 2004 *Supermarket News* annual survey of food retail and wholesale companies found that 21 percent of companies planned to launch or test RFID in 2005, compared with only 3 percent in 2004 (Garry, January 31, 2005). In 2004, Albertsons asked its top 100 suppliers to begin placing RFID tags on cases and pallets. Publix recently initiated an RFID pilot program through a partnership with the University of Florida (Parks, 2005).

Some of the larger chains are restructuring their operations to improve efficiencies and services, cut costs, and maintain competitive prices. Strategies include closing older stores and focusing on core market areas and assets. In 2005, Winn-Dixie, the Nation's 10th-largest grocery retailer, filed for bankruptcy protection to reposition itself for future growth. The company announced a plan to sell a third of its stores so that it can focus on its strongest markets. The company is also closing some of its distribution centers and selling its dairy, pizza, and beverage/condiment manufacturing plants.

In 2005, A&P announced plans for a major strategic restructuring, including initiatives to improve labor productivity and reduce operating and administrative costs. Shortly afterwards, the company moved away from self-distribution by entering into an agreement to transfer its U.S. distribution operations to C&S Wholesale Grocers. This is expected to reduce costs by harnessing C&S's logistics expertise and purchasing efficiency.

Global Competitive Strategies

In a slowly growing domestic market, firms may gain competitive advantage or offset domestic disadvantages by following a global strategy (Porter, 1990). Advances in information, communication, and transportation technology, along with various trade agreements, have increased access to international markets. In addition, globalization of processing and distribution are associated with rising incomes and international travel, which influence the diversity of consumer food preferences. A global strategy involves an

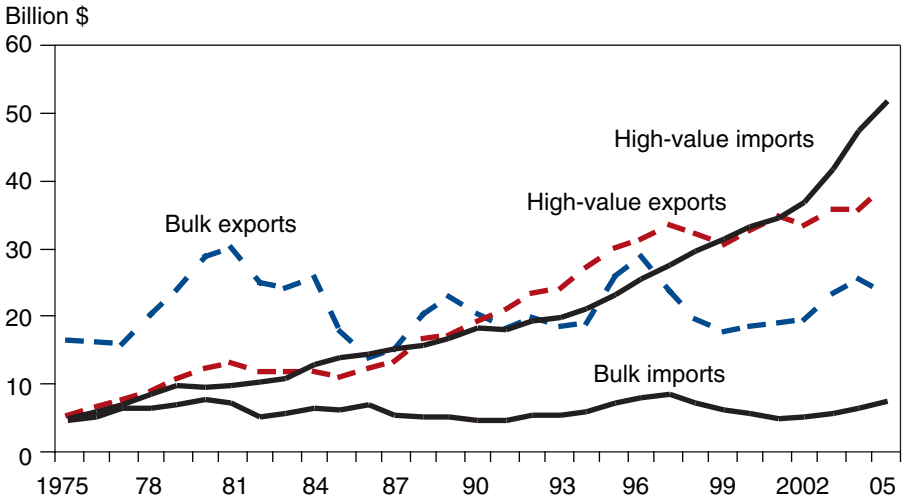
integrated approach to selling products abroad, including information on where best to locate and how to coordinate activities across nations to lower costs or differentiate from global competitors.

Processed Food Trade

International trade has been the fastest growing marketing channel for food processors since the 1970s (Connor and Schiek, 1997). In 1991, U.S. exports of high-value products surpassed bulk agricultural product exports (e.g., wheat, corn, and tobacco) (fig. 3). High-value products are processed products not yet ready for final consumption (e.g., wheat flour, soybean meal and oil, and animal hides) and those requiring little or no additional processing (e.g., meats, fresh fruits and vegetables, and nuts). Leading products include red meats, fresh and processed fruits and vegetables, poultry meat, and nuts, which together accounted for 39 percent of all high-value exports in 2005. With an export-based global strategy, food processors can pursue growth opportunities in rapidly expanding economies.

U.S. imports of food products provide more food choices for U.S. consumers, but also bring added competition to the U.S. market. From 1995 to 2005, imports of high-value food products grew at an average annual rate of 8.4 percent, compared with a 2.9-percent increase in high-value exports. The United States has operated at a processed-food trade deficit every year since 2002, widening from $3.3 billion in 2002 to nearly $12 billion in 2005. About 26 percent of all U.S. agricultural imports are classified as noncompetitive, including tropical products that cannot be

Figure 3
U.S. exports and imports, 1975-2005



Source: Foreign Agricultural Service, USDA.

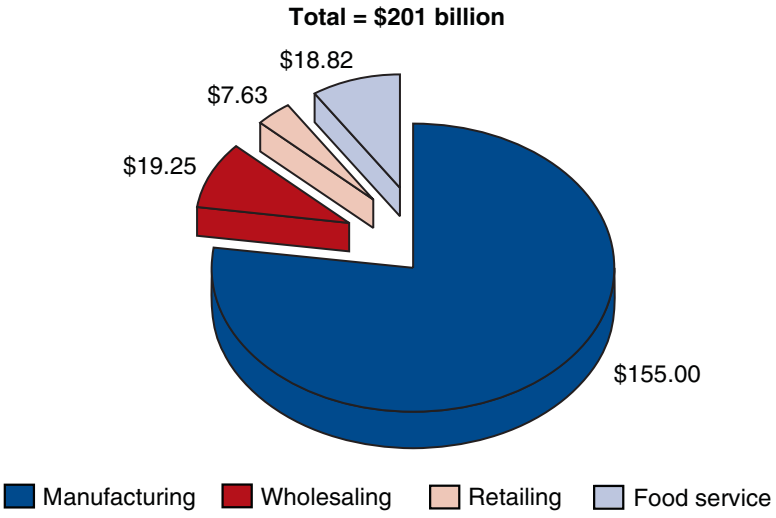
produced profitably in the United States (e.g., coffee and bananas) (FAS/USDA). Imports also include products that compete directly with domestic production, such as wine and beer, red meats, snack foods, and processed fruits and vegetables.

Foreign Direct Investment

Most global strategies integrate trade and foreign direct investment (Porter, 1990). In 2001, food manufacturing companies accounted for over 75 percent, or $155 billion, of foreign sales at U.S. food facilities abroad (fig. 4). Sales by U.S.-owned manufacturing plants located in foreign countries have outpaced the value of processed food exports in recent years (fig. 5). Advantages of foreign direct investment compared with international trade include lower transportation costs, greater insight into local consumers and policies, and circumvention of tariffs and domestic market restrictions (e.g., environmental, antitrust) (Connor and Schiek, 1997).

Retailers accounted for most sales by foreign food companies located in the United States, followed closely by manufacturers (fig. 6). U.S. sales by retail foreign affiliates, including Ahold (Netherlands) and Delhaize Group (Belgium), were 10 times greater than sales by U.S. retailers located abroad. In addition to U.S. imports of processed food, foreign manufacturers located in the United States are a source of competition for U.S. food manufacturers.

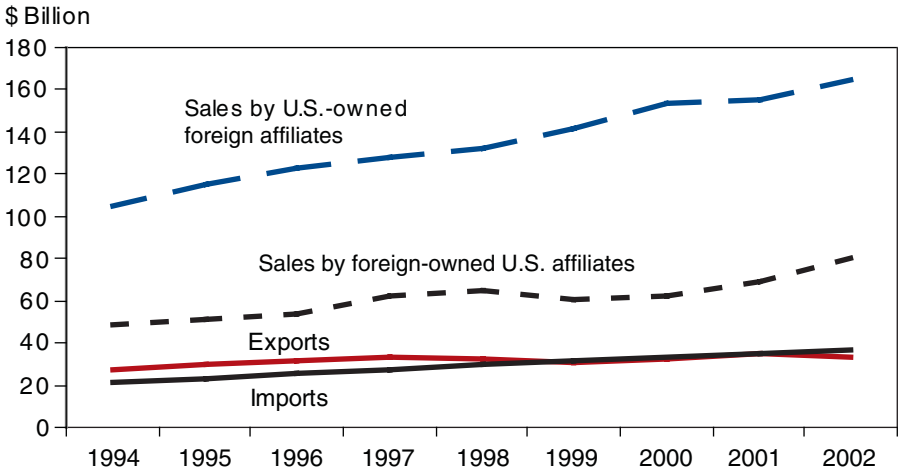
Figure 4
Sales by U.S. food firms located in foreign countries ($ billion), 2001



Source: Bureau of Economic Analysis. U.S. Department of Commerce.

Figure 5

U.S. processed food exports and imports, and sales by foreign and U.S. affiliates, 1994-2002

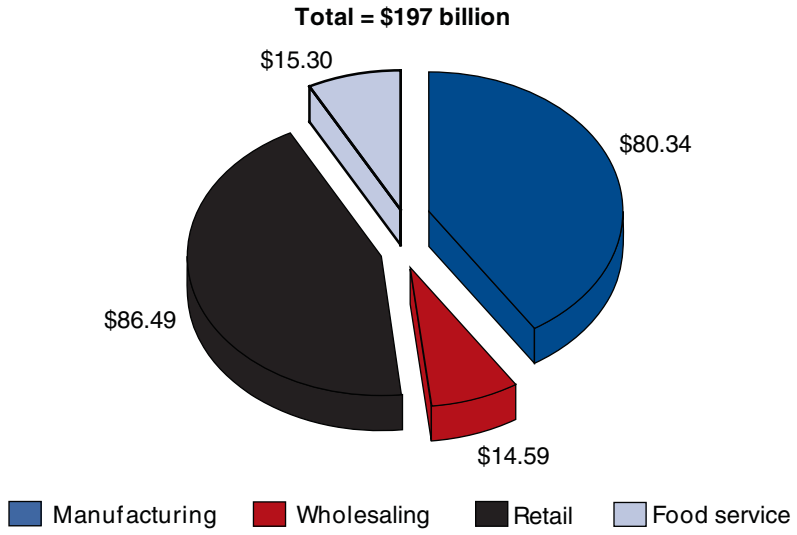


Note: Includes food manufacturing affiliates only.

Source: Bureau of Economic Analysis, U.S. Department of Commmerce.

Figure 6

Sales by foreign food firms located in the United States ($ billion), 2001



Source: Bureau of Economic Analysis. U.S. Department of Commerce.

Increases in Food Retail Concentration Resonate Throughout the Food Industry

One widely used measure of market structure is market concentration, or the degree to which economic activity is concentrated in the hands of a few large firms. Many factors contribute to increasing concentration in the U.S. food system. For instance, a firm that follows a lower cost strategy may exploit economies of scale and scope to lower average costs relative to rivals producing smaller quantities of the same product. Economies of scale allow larger volumes to be produced at lower per unit production costs. Economies of scope exist if a firm achieves cost savings as it increases the variety of goods it produces. Economies of scale and scope not only affect the size of firms, but also influence business strategies, such as decisions on merging with another firm or on whether market expansion can be achieved through long-term cost reductions (Besanko et al., 1996). For example, Wal-Mart's demand for low-cost products may influence merger decisions by manufacturers needing to achieve economies of scale and increased efficiency in order to supply Wal-Mart (Hopkins, 2003).

Other factors that can increase concentration include the exit of firms unable to compete with larger, more efficient firms, the cost of new technology, consolidation to offset market power as concentration increases at other stages of the food marketing system, and slow overall demand growth. When demand is falling, new facilities may be discouraged. Consolidation may also be encouraged by the prospect of other economies resulting from size, such as increased access to capital for research and advertising, volume-based price reductions on production inputs, or price premiums for large volumes of specific outputs.

Structural Changes in Food Distribution

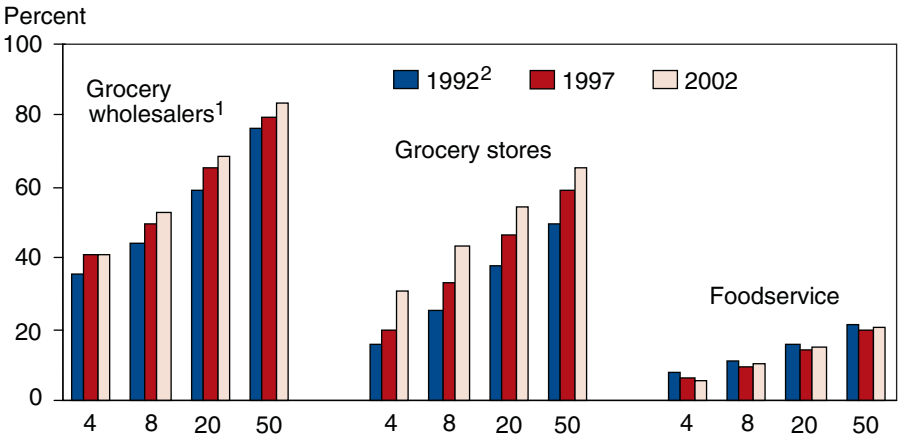
Concentration ratios published by the U.S. Census Bureau provide useful summary indicators of the importance of large firms in the food system, as classified under the six-digit North American Industrial Classification System (NAICS) (Appendix B). In grocery retailing, consolidation led to sharp increases in national concentration from 1997 to 2002 (fig. 7).[10, 11] Mergers and acquisitions can have profound effects on the number and size of companies. In 1998 and 1999, some notable supermarket mergers and acquisitions occurred (Bjornson and Sykuta, 2002; Harris et al., 2002). They included:

- The $12.75-billion acquisition by Kroger of sixth-ranked Fred Meyer, which had previously acquired Smith's Food & Drug Centers and Quality Food Centers.
- Fourth-ranked Albertsons' $12-billion acquisition of second-ranked American Stores Company.
- Ahold's purchase of Giant Food, Inc.

[10]ERS also calculates grocery concentration ratios on an annual basis, including grocery product sales by Wal-Mart supercenters (Harris et al., 2002). (http://www.ers.usda.gov/Briefing/FoodMarketStructures/foodretailing.htm). These ratios are slightly higher than those for grocery stores published by the U.S. Census Bureau, and trends over time are similar.

[11]While national retail concentration ratios provide useful information on the size of the largest food retailers over time, retailers serve consumers in smaller local markets, where concentration can be much higher. ERS analysis of the 100 largest U.S. cities in the 1990s found that increases in local market concentration have been slight (Kaufman, 2000). In the 100 largest U.S. cities, average market share of the four largest food retailers rose from 69 percent in 1992 to 72 percent in 1998.

Figure 7
Percent of U.S. grocery wholesale, retail, and foodservice sales by the 4, 8, 20, and 50 largest food companies



[1]General-line grocery merchant wholesalers, excluding specialty and limited-line merchant wholesalers and manufacturers' sales branches and offices.

[2]Based on Standard Industrial Classification (SIC) system.

Source: Census Bureau, U.S. Department of Commerce.

Safeway made several smaller acquisitions, including Vons Companies in 1997, Dominick's Supermarkets in 1998, Randall's Food Markets and Carr-Gottstein Foods Company in 1999, and Genuardi's Family Markets in 2001 (Bjornson and Sykuta, 2002; Sharkey and Stiegert, 2006).

A number of forces heightened competition among larger traditional grocery retailers and led to consolidation through mergers to capture economies of scale (Kaufman, 2000). These forces included increased consumer spending for prepared foods and meals away from home and the growth of food sales by nontraditional competitors such as Wal-Mart. Bureau of Labor Statistics data indicate that labor productivity (i.e., output per worker) in grocery stores increased from 1997 to 2002, following general declines after the mid-1980s (table 5). This may reflect consolidation in the retail grocery sector, more rapid adoption of new technology, and other cost-cutting moves in response to strong price competition from the nontraditional outlets. As discussed earlier, nontraditional outlets are important because of the efficiencies they can trigger in other retailers, in addition to the options they provide consumers. Leibtag (2006) found that the entry and expansion of lower priced nontraditional stores led to further food expenditure savings because of the increased competition that they generate.

Past studies have examined the effect of mergers and acquisitions on operating efficiencies and food prices. Bjornson and Sykuta (2002) analyzed the effect of acquisitions by Albertsons, Kroger, and Safeway on their financial performance over the 1993-1999 period. They found improved cost control and buying efficiencies for Kroger and Safeway, while Albertsons showed signs of inefficiencies from its acquisitions. They also found that gross margin increased for each firm, but they were unable to distinguish how much of the increase was due to greater market power or to improved operating efficiencies and product offerings. A more recent study by Sharkey

Table 5
Number of food establishments and companies, real sales, and worker output, 1992, 1997, and 2002

	Grocery wholesalers[1]		Grocery stores		Foodservice	
Number of establishments:						
1992[2]	3,740		104,105		433,608	
1997	3,390		96,542		486,906	
2002	3,212		95,514		504,430	
Number of companies:						
1992[2]	3,133		72,274		331,488	
1997	2,802		68,006		365,588	
2002	2,812		67,757		377,717	
Real sales (percent change):						
1992[2] to 1997	-10.1		-3.9		15.6	
1997 to 2002	15.0		1.7		12.5	
Output per worker (percent change per year[3]):	Food	All[4]	Food	All[5]	Food	All[6]
1992	3.5	3.4	-0.8	1.6	-0.2	na
1997	-0.6	3.2	-1.5	3.2	-0.1	na
2002	0.6	4.4	1.0	4.6	0.8	na

na=Not available.
[1]General-line merchant wholesalers, excluding specialty and limited-line merchant wholesalers and manufacturers' sales branches and offices.
[2]Census year 1992 is based on the Standard Industrial Classification (SIC) system.
[3]Average annual change since the previous Census year.
[4]All wholesaling.
[5]All retailing.
[6]Not available for all accommodations and food services.

Sources: Compiled by ERS from data from Bureau of Labor Statistics and Census Bureau, U.S. Department of Commerce.

and Stiegert (2006) examined the effect of supercenters and retail consolidation on food prices in major metropolitan areas from 1993 to 2003. They found that if supermarkets did experience efficiency gains from the mergers, cost savings were not passed on to consumers.

As table 5 shows, a decline in grocery stores from 1997 to 2002 was accompanied by stagnant growth in real grocery store sales, relative to the foodservice sector. An expanding foodservice sector and continual growth in the number of foodservice companies and establishments have kept concentration levels in check.[12] Small foodservice establishments can stay competitive by differentiating themselves by their menu offerings and service (Connor and Schiek, 1997).

Rising concentration in the grocery retail segment is of concern to manufacturers because it makes them dependent on fewer retailers for maintaining their market share. Growing retail concentration could indicate a shift in bargaining power from manufacturers to grocery retailers (Kaufman, 2000; Connor and Schiek, 1997). If food processors must sell their products to a few large distributors, the bargaining power of distributors may increase.

Manufacturers and large retailers offering a broad assortment of items find it advantageous to negotiate directly, reducing the power and influence of traditional wholesalers. Self-distribution is the preferred method of coordination for large grocery chain stores. In 2001, 81.9 percent of chain stores

[12]As with food retailing, the relevant foodservice market is local, and local market concentration can be much higher. Foodservice facilities operate in small-sized markets, such as those in neighborhoods, airports, and malls, and national trends have little to do with how prices are set. While there are over 500,000 foodservice outlets, many operate under a centralized decision process, which could have a role in price-setting behavior.

(with "chain" defined by the grocery industry as 11 or more stores under the same ownership) were self-distributing (American Institute of Food Distribution, Inc., Food Institute Report, February 3, 2003).[13, 14]

Structural Changes in Food and Beverage Processing

Concentration at the food manufacturing stage is of special concern to farmers because manufacturers are the primary purchasers of agricultural products. Concentration of ownership has been steadily increasing. According to the Census Bureau, the top 50 processors accounted for 53 percent of food processing sales in 2002, up 15 percentage points, or 39 percent, since 1972 (table 6).

Every manufacturing establishment, or plant, is owned by at least one company. Large companies usually own several operating establishments and often operate plants in several industries (Connor and Schiek, 1997). If ownership is consolidating, the number of companies will fall faster than the number of plants. When firm divestitures outweigh mergers, the number of companies could increase, even though the number of plants is steady or falling.

An increase in the number of manufacturing plants and companies from 1997 to 2002 continues a trend dating back to 1987 (table 6). According to analysis of plant entry patterns by Connor and Schiek, most new production since the mid-1980s stems from the entry of small, startup plants typically

[13] Ron Marshall, chairman of fifth-ranked food wholesaler Nash Finch, predicted that the number of food wholesalers will likely shrink by more than two-thirds over the next 5 to 7 years and will eventually shrink to a dozen general-line wholesalers serving a national market or multiple regions (American Institute of Food Distribution, Inc., *Food Institute Report,* June 13, 2005).

[14] Mohtadi and Kinsey (2005) note that two types of market structure of the food supply chain likely exist. In one case, the increase in large self-distributing grocery chains, along with other trends, suggest a shift toward retail bargaining power relative to manufacturers. On the other hand, 31 percent of supermarkets are small independent retailers with less than 10 stores, over half of which own only 1 store. In the latter case, market power likely remains with the manufacturer.

Table 6
Number of food processing plants and companies, sales concentration, and productivity changes, 1963-2002

Census year[1]	Plants[2]	Companies[2]	Top 50 share of shipment value	Output per worker		Multifactor productivity[3]	
				Food	All[4]	Food	All[4]
	Number	*Number*	*Percent*	*Percent per year[5]*			
1963	37,521	32,617	32	2.8	2.7	1.4	3.0
1967	32,517	26,549	35	3.2	2.9	0.8	1.5
1972	28,193	22,172	38	3.1	3.6	1.2	1.9
1977	26,656	20,616	40	3.2	3.0	-1.1	-0.3
1982	22,130	16,813	43	3.2	1.5	2.1	0.2
1987	20,624	15,692	47	2.0	3.5	-0.2	2.4
1992	20,798	16,075	50	1.1	2.7	-0.3	0.1
1997	21,805	17,221	51	0.9	3.8	0.0	1.9
2002	23,338	18,696	53	2.5	3.7	-1.0	1.7

[1] Based on Standard Industrial Classification (SIC) system prior to 1997.
[2] Excludes retail bakeries, which were included under NAICS in 1997 and 2002.
[3] For 2002, average change in multifactor productivity index is from 1997 to 2001, the last year available.
[4] All manufacturing.
[5] Average annual change since the previous Census year.

Sources: Compiled by ERS from Connor and Schiek (1997), Bureau of Labor Statistics, and Census Bureau, U.S. Department of Commerce.

owned by small new companies in rapidly growing niche markets. Small plants accounted for most of the net increase in food manufacturing plants in 2002, but their share of shipment value remained below 5 percent (table 7). Many of the smallest plants are open for only a few weeks of the year, often operating with unpaid family labor.

In general, consolidation and investment in optimum-sized processing plants are expected to lead to productivity increases, assuming that the acquiring firms are more efficient operators.[15] Annual average increases in food processing productivity from 1997 to 2002, as measured by labor productivity (output per worker), reached its highest level since the early 1980s. However, since the early 1980s, there has been a general reduction in the growth of labor productivity and multifactor productivity, which compares output growth to changes in all input requirements. Connor and Schiek (1997) offer several possible explanations for this finding. First, the upward trend in new products (see section, "New Product Introductions," p.33) may require shorter production runs and more time for factory line changeover, and may also increase the emphasis on new products at the expense of new process development. Second, an increase in quality control and quality assurance programs may also have led to additional costs and inputs. Third, to the extent that quality improvements lead to higher product prices, price deflators in productivity calculations will overstate purely inflationary changes because quality improvements are not recognized, leading to an underestimate of the change in real output and productivity.

[15]Ollinger et al. (2006) analyzed mergers and acquisitions over the 1977-82 and 1982-87 periods in specific manufacturing industries, including the meat and poultry slaughter and processing, dairy, flour, feed, and oilseeds industries. They found that acquired plants were highly productive and became even more productive after the merger. The 1997-2001 period was an especially active time for mergers and acquisitions by food manufacturers (see the section "Recent Mergers, Acquisitions, and Divestitures in the Food Industry," p. 27).

Specific Food Processing Industries

Consolidation can vary widely across food and beverage manufacturing industries, as defined by the NAICS industry classifications. However, the NAICS system is less than ideal for measuring concentration because some industries are defined too narrowly, while other definitions are overly broad. For example, products from the beet sugar and cane sugar refining industries are near-perfect substitutes, which suggests that combining these industries for analysis would provide a more accurate assessment of concentration. On the other hand, the animal slaughtering industry provides an imperfect measure of concentration because output from cattle and hog slaughter plants is combined. Despite these weaknesses, Census industry classifications are the only publicly available source of food processing sales concentration.[16]

[16]Private market research companies, such as A.C. Nielsen and Information Resources, Inc., provide more narrowly defined product market definitions (Conner and Schiek, 1997). For example, while NAICS has one classification for the breakfast cereal industry, private companies distinguish between ready-to-eat and cooked breakfast cereal.

Table 7
Size distribution of food processing plants, 1997 and 2002

Size (employees)	1997				2002			
	Plants		Value of shipments		Plants		Value of shipments	
	Number	*Percent*	*Million $*	*Percent*	*Number*	*Percent*	*Million $*	*Percent*
1-19	17,576	66.8	17,143	4.1	19,179	68.7	19,973	4.4
20-99	5,509	21.0	81,237	19.2	5,478	19.6	83,665	18.2
100 or more	3,217	12.2	323,988	76.7	3,258	11.73	55,149	77.4
Total	26,302	100.0	422,368	100.0	27,915	100.0	458,787	100.0

Source: Compiled by ERS from data from U.S. Census Bureau, 2002 and 1997 Economic Census, Manufacturing, General Summary.

In 2002, the latest Census year, the average national market 4-firm concentration ratio (i.e., CR4—the percent of shipment value accounted for by the four largest firms) across 44 food and beverage manufacturing industries was 50.2 percent, up only slightly from 49.8 in 1997.[17] Five industries had relatively low levels of national concentration (CR4 less than 30), while eight had high levels (CR4 greater than 70) (table 8). The soybean processing industry was the only highly concentrated industry in 2002, with a net increase in plants between 1997 and 2002 (Appendix A, Appendix table 2). Soybean processing is particularly important to agriculture, providing a major feed ingredient, product exports, and food uses such as cooking oil (Ollinger et al., 2005). The increase in soybean processing plants in 2002, and the decline in plant size (output per plant) and worker productivity, run counter to long-term trends from 1977 to 1997 (table 9).

[17]The average CR4 excludes eight local markets and "all other miscellaneous food." For industries serving localized markets, such as fluid milk, ice cream, ice, bakeries, animal feed, soft drinks, and snack foods, local concentration is likely much higher. For the category "all other miscellaneous food," the CR4 is meaningless.

Table 8
National 4-firm concentration ratios[1] (CR4) for food and beverage manufacturers, 2002

CR4<30 (Low)[2]		CR4>70 (High)[3]	
Industry	**CR4**	**Industry**	**CR4**
Fresh and frozen seafood processing	20	Breweries	91
Meat processed from carcasses	24	Malt manufacturing	91
Perishable prepared food	24	Beet sugar	80
Fruit and vegetable canning	24	Soybean processing	80
Spice and extract manufacturing	29	Breakfast cereal	78
		Other snack food[4]	75
		Distilleries	71
		Specialty canning	71

[1]CR4 = The percent of shipment value accounted for by the four largest firms.
[2]Excludes animal feed and retail bakeries, which are local market industries, and "all other miscellaneous food." CR4 is meaningless for the miscellaneous food product category.
[3]In 2002, concentration was not provided for cane sugar refining and flavoring syrup and concentrate to avoid disclosing individual company data. In 1997, CR4 for these industries was 99 and 81, respectively.
[4]Excludes roasted nuts and peanut butter.

Source: U.S. Census Bureau, U.S. Department of Commerce.

Table 9
Number and size of plants, labor productivity, and concentration in soybean processing, flour milling, and fluid milk processing, 1972-2002

	1972	1977	1982	1987	1992	1997	2002
Soybeans							
Number of plants	94	121	114	106	99	93	117
Output per plant (million bushels)	7.6	7.8	9.8	11.1	12.9	17.2	13.8
Labor productivity (1,000 bushels)[1]	78	101	126	168	172	235	221
CR4[2]	52	50	61	71	71	79.6	79.9
Flour							
Number of plants	457	407	360	358	371	382	340
Output per plant (1,000 cwt)	548.0	677.6	808.1	954.1	999.5	1,055.2	1,160.9
Labor productivity (1,000 cwt)[1]	15.6	17.7	19.3	25.7	28.3	31.6	33.9
CR4[2]	32	33	40	44	56	48.4	53.6
Fluid milk							
Number of plants	2,507	1,924	1,190	946	779	608	524
Output per plant (million pounds)	Na	27.9	43.5	57.0	70.6	90.1	103.5
Labor productivity (1,000 pounds)[1]	Na	573	664	745	868	950	979
CR4[2]	17.0	17.0	16.0	21.0	22.0	21.3	42.6

[1]Annual output per employee.
[2]Four-firm concentration ratio.

Sources: Ollinger et al. (2005) and ERS calculations based on U.S. Census data.

Most of the additional soybean processing plants were in the small-size category (1-19 employees), which accounted for a slightly larger share of shipment value, from 1.6 to 2.3 percent. According to plant entry and exit patterns from 1972 to 1992, plant size of oilseed (including soybean, wet-corn milling, and cottonseed) processing entrants was about 50 percent of the industry mean size, and 60 percent of these plants exited within 5 years (Ollinger et al., 2005).

Over the 1997-2002 period, nearly two-thirds of food manufacturing industries became more concentrated (Appendix A, Appendix table 2). Eighteen had sizeable increases in concentration, each exceeding 10 percent (table 10). Industries with processing operations that serve local markets, with the exception of retail bakeries, also had fewer firms. Firms serving local markets have historically exited at a faster rate than other food processors, which suggests that merger activity has been more intense in these industries (Connor and Schiek, 1997).

Table 10
Change in concentration, sales (volume) growth, and number of plants and firms, selected industries,1997-2002[1]

Type of Industry	CR4			Entire Industry		
	1997	2002	Amount of change	Sales (volume) growth[2]	Change in number of plants	Change in number of firms
	Percent			*Percent*		
11-15 percent increase in CR4:						
Cookie and cracker	60	67	11	0	-7	-9
Flour milling	48	54	11	-2	-11	-16
Dry pasta	57	65	13	-13	-27	-27
Poultry processing	41	46	14	16	14	21
Frozen fruit, juice, and vegetable	34	39	15	-9	-8	-15
16-30 percent increase in CR4:						
Commercial bakeries (L)	39	46	18	-6	-5	-6
Distilleries	60	71	18	-4	37	52
Meat processed from carcasses	20	24	19	5	3	3
Bottled water	52	63	21	59	66	84
>30 percent increase in CR4:						
Fats and oils, refining and blending	37	48	31	-6	-9	-16
Malt	69	91	32	-31	-21	-16
Dried and dehydrated food	30	42	40	62	17	18
Retail bakeries (L)	3	4	48	22	5	3
Ice cream and frozen dessert (L)	32	48	49	17	-9	-11
Fresh and frozen seafood	14	20	50	15	-10	-9
Ice (L)	24	43	76	24	-15	-17
Seafood canning	26	46	76	48	-16	-18
Fluid milk (L)	21	43	100	-2	-14	-22

CR4 = Four-firm concentration ratio.
L = Local market industry.
[1]Industries listed are those with a change in the 4-firm concentration ratio (CR4) based on value of shipments, exceeding 10 percent from 1997 to 2002.
[2]Estimated from growth in the volume of shipments, deflated by producer price indexes, or taken directly from quantities obtained from other sources.
Sources: Compiled by ERS from U.S. Census Bureau data, Rodwan, 2003, *ERS Wheat Situation and Outlook*, *ERS Poultry Yearbook*, and NASS Agricultural Statistics for relevant years.

Falling demand (i.e., reduction in sales volume) was associated with the disappearance of plants and firms in seven of the industries, including flour milling and fluid milk (table 10). In flour milling, increases in average plant size, worker productivity, and concentration were consistent with historical trends (table 9). Increases in concentration beginning in the early 1970s reflect the growing presence of multiplant grain companies, such as Cargill (Ollinger et al., 2005). However, declining per capita flour consumption, which fell to 137 pounds in 2002 after peaking in 1997 at 147 pounds, is a recent development. Declining consumption may reflect, in part, the increasing numbers of health-conscious people following low-carbohydrate diets, along with technological advances that extended the shelf life of bread, with less flour required to meet the same level of demand (Vocke et al., 2005).

The fluid milk industry had the largest percentage increase in CR4 among all of the food and beverage industries. The industry's extraordinary increase in concentration has come amid dramatic structural changes in the dairy industry. In 2002, there were 33 percent fewer fluid milk processing plants than in 1992, processing 46 percent more milk per plant. Suiza Foods emerged as a prominent player in the 1990s by purchasing 20 fluid milk firms, while Dean Foods acquired 14 fluid milk firms in 1997 and 1998 (Ollinger et al., 2005). In 2001, a merger between Suiza Foods and Dean Foods, the Nation's number one and two dairy processors, resulted in a company accounting for 30 percent of the U.S. fluid milk market (USDA, 2004). Rapid consolidation in milk production was also taking place. From 1994 to 2004, the number of dairy farms decreased by 45 percent, but milk production per farm doubled (USDA/NASS).

Declining per capita consumption of fluid milk, which fell from 223 to 207 pounds over the 1994-2004 period, is one factor influencing consolidation. Other factors include scale economies and meeting the large-scale needs of an increasingly consolidated grocery retailing sector (USDA, 2004; Connor and Schiek, 1997).

Among the industries with increases in concentration exceeding 10 percent, bottled water was one of two with demand growth (i.e., sales volume growth) exceeding 50 percent. From 1997 to 2002, per capita consumption increased by 53 percent, from 14.1 to 21.5 gallons (Rodwan, 2003). U.S. consumers now drink more bottled water than any other beverage, with the exception of carbonated soft drinks (Beverage Marketing Corporation of New York, 2006). Since 1998, however, per capita consumption of carbonated soft drinks has fallen slightly, while bottled water consumption continues to set new records.

An increase in the concentration of bottled water production can be traced to a small number of companies following a cost-leader strategy. Diversification by firms into multiple product markets may affect the costs of entry when products are related through economies of scope in production, distribution, or marketing. Leveraged by their extensive bottling and distribution networks, Pepsi-Cola and Coca-Cola recently entered the bottled water industry and quickly ranked among the top four processors. The companies also relied on their own brand-building capabilities. Pepsi introduced Aquafina in the mid-1990s, and by 1999 the company had become the fourth-

largest producer, with a 5.5-percent market share. In 1999, Coke introduced the Dasani brand, supported by the largest advertising budget in the industry (Beverage Marketing Corporation of New York, 2000). By 2002, market shares of Pepsi and Coke bottled water had reached 11 percent and 10 percent, respectively. The other two leading companies, European-based Nestle and Groupe Danone, also continued to grow market share through North American mergers and acquisitions and constructing plants.

Spotlight on the Pork and Beef Industries

Consolidation in beef and pork slaughter has been of special interest to policy officials, given the historically high and growing rates of concentration. The pork industry, in particular, has experienced rapid structural changes in recent years, epitomizing the industrialization of agriculture.

The U.S. Department of Agriculture provides information on market structure that is more recent and that enables more precise meat slaughter classifications than U.S. Census Bureau data. Fewer and larger hog slaughter plants continue to account for an increasing share of annual slaughter (table 11). The four largest hog slaughter firms have increased their share of slaughter by 20 percentage points over the past 10 years, reaching 64 percent in 2004. While this share remained stable from 1996 to 2002, it increased by 9 percentage points in 2003, following Smithfield Foods' acquisition of Farmland Foods (see the next section, "Recent Mergers, Acquisitions, and Divestitures in the Food Industry").

Increasing consolidation in hog slaughter is linked to dramatic structural changes in hog production. Since the 1980s, particularly since 1989, U.S. hog production has been shifting to highly specialized large-scale farms (Martinez et al., 1997). Hogs on farms with more than 1,000 head increased from 37 percent of the swine population in 1987 to 56 percent in 1994, and to 89 percent in 2004. From 1994 to 2004, the percentage of hogs produced

Table 11
Decline in hog and cattle slaughter plants, percent of animals slaughtered in large plants, and slaughter concentration, 1994 and 2004

	Number of slaughter plants			Percent slaughtered in large plants[1]		Share of slaughter by the 4 largest firms[2]	
	1994	2004	Percent change	1994	2004	1994	2004
Hogs	830	664	-20.0	62	78	44.5	64.1
Cattle	882	689	-21.9	46	52	68.7	69.2

[1]Large hog slaughter plants are those slaughtering at least 2 million head annually. Large cattle slaughter plants are those slaughtering at least 1 million head annually. The definition of large plants is not directly comparable for hogs and cattle because a 1-million-head cattle plant produces much more meat than a 2-million-head hog plant.
[2]Concentration in cattle slaughter is approximately 10 percentage points lower than for steer and heifer slaughter, but they exhibited similar trends over the past 10 years. The four-firm concentration ratio for steer and heifer slaughter, which accounts for about 80 percent of cattle slaughter, fell slightly, from 81.7 in 1994 to 79.6 in 2004.

Source: Compiled by ERS from USDA/NASS and USDA/GIPSA data.

on farms with 2,000 or more hogs increased from 38 to 79 percent (USDA/National Agricultural Statistics Service (NASS)).[18] Concentration in hog production, however, is considerably less than at the slaughter stage. In 2005, sows owned by the top four hog producers accounted for 23 percent of the U.S. breeding herd inventory (Freese, 2005; USDA/NASS).

Marketing contracts and packer-owned hogs are the preferred methods of vertical coordination between large packers and producers. In January 2006, 70 percent of all hogs were sold through marketing contracts, and 20 percent were owned and slaughtered by the same packer (Grimes and Plain, 2006). This suggests that only 10 percent of hogs are "negotiated purchase and negotiated sales," also referred to as spot market transactions, compared with 87 percent in 1993.[19]

In the cattle slaughter sector, relatively high concentration is coupled with continued consolidation into fewer and larger plants, albeit at slower pace than in the hog sector.[20] The decline in the number of cattle slaughter plants has matched the decline in hog plants. The share of hogs slaughtered by large plants (i.e., at least 2 million head annually) increased by 16 percentage points from 1994 to 2004, while the share of cattle slaughtered by large cattle slaughter plants (i.e., at least 1 million head annually) rose by 6 percentage points over the same period.[21] Unlike that of hog slaughter, the 4-firm concentration ratio for cattle slaughter has been fairly stable, hovering around 70 percent since the mid-1990s.

For the four largest steer and heifer packers, the percentage of slaughter that was contracted or packer-owned fell from 44.4 percent in 2002 to 38.5 percent in 2003. This was the first year since 1999, when 32.4 percent were contracted or packer-owned, that the share had fallen (USDA/GIPSA).

Recent Mergers, Acquisitions, and Divestitures in the Food System

This section highlights major mergers and acquisitions since 2002, the latest year available for Census industry concentration ratios. After an active period of food mergers and acquisitions from 1997 to 2001, merger activity in the food system declined beween 2002 and 2006 (fig. 8). Manufacturers found performance results disappointing and decided to focus on their core assets and top-selling product lines. Recent major acquisitions, which include those in the meat and confectionery industries, have been as follows:

- In 2003, two notable meat-processor mergers occurred: Smithfield Foods, the world's largest pork packer and 10th-largest North American food processor, acquired the pork operations of Farmland Industries, referred to as Farmland Foods, the Nation's 8th-largest packer. Also, a group of investors led by U.S. Premium Beef acquired Farmland National Beef, the fourth-largest beef processor, from Farmland Industries (American Institute of Food Distribution, Inc., *The Food Institute Report*, January 19, 2004).
- In 2004, the largest food-related deal was Wm. Wrigley Jr. Company's purchase of Kraft Food's confectionery brands, including Life Savers

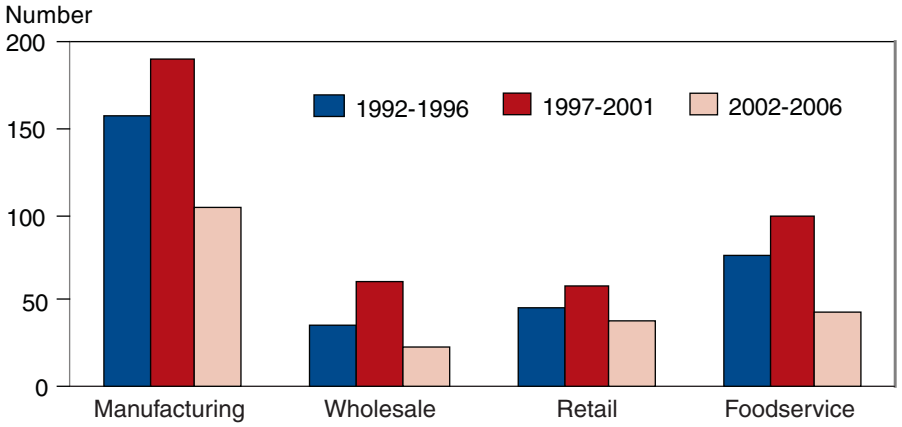
[18]ERS research found size economies to exist in hog production, even for the industrial-sized hog farms (5,000 or more hogs) (McBride and Key, 2003).

[19]Several ERS studies have analyzed the growth in hog contracting. These studies have found that through contracts, packers can gain greater control over hog quality attributes and ensure a steady supply of uniform animals, while producers are assured of a market outlet. Policy concerns include volatile and thinly traded spot markets, proprietary nature of contract information, and the ability of smaller, independent producers to compete with contract producers (Martinez, 1999; Martinez and Zering, 2004).

[20]Using data from 1963 to 1992, ERS research found that economies of scale were one factor that led to consolidation in hog and cattle slaughter (MacDonald et al., 1999).

[21]According to analysis by MacDonald and Ollinger (2005), the rate of cost reductions related to consolidation in the beef industry slowed after 1992 because of reduced consolidation and smaller cost advantages of the largest sized plants.

Figure 8
Annual average mergers and acquisitions by type of food operation, 1992-2006



Source: Compiled by ERS from data from American Institute of Food Distribution, Inc.

and Altoids, which was valued at $1.46 billion. The purchase was completed in 2005. Also in 2004, the 5th-largest pork processor, Hormel, acquired 11th-ranked Clougherty Packing.

- In 2005, the merger between beef packers American Foods Group Inc. and Rosen's Diversified, Inc., referred to as American Foods Group, LLC, solidified the sixth-ranked position of American Foods Group Inc.
- In 2006, mergers were announced between two leading chicken processors and between two leading pork processors. A $1.1 billion merger agreement between the second- and third-largest chicken processors, Pilgrim's Pride and Gold Kist, will create the world's largest chicken company, ahead of Tyson Foods. According to data contained in *Feedstuffs 2007 Reference Issue and Buying Guide*, the top four companies will account for 58 percent of chicken slaughter after the merger, up from 53 percent. Smithfield Foods, the largest pork processor, announced a proposed merger with Premium Standard Farms (PSF), the sixth-largest pork processor. Smithfield and PSF are also the largest and second-largest hog producers. If the merger is approved, the combined company will account for 20 percent of hog production and 31 percent of hog slaughter, and its own hogs will account for 54 percent of hogs slaughtered by the company (Kilman, 2006).

Major supermarket mergers and acquisitions have also slowed as companies integrate assets obtained in earlier merger activity. In 2003, most supermarket activity involved national chains who were attempting to increase their share in certain geographic markets through small acquisitions (American Institute of Food Distribution, Inc., January 19, 2004). In 2004, Albertsons, the 3rd-largest grocery retailer, acquired JS USA Holdings, the 11th-ranked supermarket, which operates under the Shaw's and Star Markets banners.

In 2003, the Nation's largest grocery wholesaler, Fleming, divested the bulk of its operations after its largest customer, Kmart, filed for bankruptcy protection in the face of stiff competition from Wal-Mart and Target.

Shortly after declaring bankruptcy in 2002, Kmart ended its supply contract with Fleming, which accounted for about 20 percent of Fleming's revenue. Fleming's financial problems also mounted because of competition from supercenters and conflicts with suppliers related to the company's restructuring efforts (Zwiebach, September 2005). In April 2003, Fleming filed for bankruptcy protection and subsequently closed distribution centers and divested the bulk of its food distribution and retail operations. Volume from Fleming's 32 distribution centers was replaced by over 100 suppliers in over 200 supply locations (Lempert, 2003). Following the divestitures, the share of general-line grocery sales by the top four wholesalers fell from 34 percent in 2001 to 27 percent in 2004 (Appendix A, Appendix table 3).

In 2006, the 11th-ranked grocery wholesaler, Associated Wholesalers, Inc. (AWI), acquired 9th-ranked White Rose Foods. The combined company is expected to benefit from complementary strengths in different product categories and to lessen AWI's exposure to Wal-Mart and other grocery retailers.

Given uncertainty that independent retailers served by general-line wholesalers can compete with larger chains, some of the largest grocery wholesalers are vertically integrating into retailing. For example, in 2005, Roundy's, formerly the eighth-ranked grocery wholesaler, changed its name to Roundy's Supermarkets to better reflect the company's retail focus. The company also sold part of its distribution business to Nash Finch and Supervalu. In 2006, Supervalu, formerly the ninth-largest grocery retailer and second-largest grocery wholesaler, along with a consortium of investors that included CVS Corp., a leading drugstore chain, acquired Albertsons for $17.4 billion. The deal boosted Supervalu to the third-ranked position among grocery retailers, behind Wal-Mart and Kroger. This trend in vertical integration by wholesalers is expected to continue.[22]

[22]Local independent and regional retail grocers may join together to own and control wholesale establishments, providing scale economies to compete with the large retail chains. In addition to buying goods at lower costs, these grocery wholesale cooperatives provide other services, such as advertising, technology, and risk management. They rank among the largest cooperatives, food and nonfood, and grocery wholesalers in the Nation. Those included among the top 10 grocery wholesalers are Wakefern, Associated Wholesale Grocers, and Unified Western Grocers (Appendix A, Appendix table 1).

Food Companies Expand Corporate Responsibility Reporting and Customized Marketing

Understanding, influencing, and meeting consumer demands are key functions of food marketing, with implications for the types of food products offered. Monitoring progress in these areas is important for appraising the outcomes of competitive strategies in the food marketing system. An intensely competitive environment increases the costs of competing, such as expenditures on new products and advertising. In this section, we describe some differentiation strategies used by food firms, including responsiveness to societal needs, introduction of new products, and advertising to influence consumption patterns.

The Corporate Social Responsibility Movement

One of the most striking global developments in business over the past 10 years has been the emergence of the "corporate social responsibility" (CSR) movement as part a firm's product differentiation strategy (Conley and Williams, 2005; Siegel and Vitaliano, 2006). The idea behind CSR is that the responsibility of a corporation extends beyond providing a financial return to its shareholders. Proponents of CSR argue that company objectives should broaden to include sustainable growth, equitable employment practices, and long-term social and environmental well-being. In addition, they believe that other groups should be included in corporate decisions, not only employees, but also residents affected by the decisions, governments, and organizations that are advocates for environmental and social causes. CSR shifts the emphasis from traditional government regulation of corporate conduct to the promotion of corporate disclosure of activities that address social and environmental issues. (See box, "The Five Stages of Corporate Responsibility," p. 31.)

One indication of the importance of the CSR movement in the United States is voluntary reporting by corporations of their social and environmental activities. Many of the largest companies have started producing social, environmental, or sustainability reports—a combination of social, environmental, and financial information. In 2005, 32 of the 100 top U.S. companies published stand-alone CSR reports (KPMG Global Sustainability Services, 2005). Many of the companies producing social and environmental reports have changed the way that they interact with nongovernmental organizations (NGOs), such as Greenpeace. Instead of relating as adversaries, they are partnering with NGOs to identify issues, conduct discussions with stakeholders around the world, produce and audit reports, and address specific problems.

The growing importance of CSR is also evident in the rise of M.B.A. programs that provide training in CSR. For example, more than half of the 100 M.B.A. programs surveyed worldwide by Aspen Institute and World Resources Institute require courses in corporate responsibility, compared with a third of M.B.A. programs in 2001 (Alsop, 2005). Major companies, such as McDonald's, have begun forging close relationships with business

The Five Stages of Corporate Responsibility

What factors motivate food companies to engage in socially beneficial activities that extend beyond government mandates? In a 2005 *Harvard Business Review* excerpt, Zadek (2005) describes five stages as companies move toward greater social responsibility.

1. *Defensive stage*. Companies are faced with unexpected criticism from sources such as media and social activists. Typical response is to deny the allegations or a relationship between the company's practices and negative outcomes.
2. *Compliance stage*. Corporate policy is formed and observed, and is usually made visible to critics. Compliance is viewed as a cost of protecting the company's reputation and avoiding litigation. For example, the current public policy debate on obesity highlights food companies' aim for compliance, while the public expects far greater commitment.
3. *Managerial stage*. Companies realize that the problem cannot be deterred by simple compliance or public relations strategies.
4. *Strategic stage*. Companies learn how establishing strategies to address responsible business practices can give them a competitive advantage. One example is food companies that seek greater awareness of how their products affect consumer health.
5. *Civil stage*. Leading companies promote industry guidelines and actions to address societal concerns. For example, companies may engage in educational initiatives to promote healthy lifestyle choices, or refrain from sales promotion strategies that could adversely affect social welfare. In a 2005 press release, Kraft Foods announced an initiative to advertise more nutritionally healthy products in media primarily viewed by children ages 6-11.

Source: Zadek, 2005.

schools offering these courses. In 2005, McDonald's started a research fellowship at the University of California at Berkeley for six students to study social, environmental, and financial aspects of the beef supply chain.

Web sites and annual reports of the top five companies in main sectors of the U.S. food system, food manufacturers, foodservice companies, and grocery retailers, reveal substantial variation in the nature and extent of CSR reporting by food companies (table 12). At the time of this writing, all 15 of these companies did some CSR reporting. CSR activities were discussed under headings such as "Community," "Environment," "Nutrition, Health, and Wellness," and "Diversity." Eight companies provided both a Web site link devoted to CSR reporting and a dedicated CSR report, while two companies had only a devoted link. Reports were titled as either "corporate responsibility reports" or "sustainability reports," and ranged from 19 pages (ConAgra) to 88 pages (McDonald's). CSR reporting included discussions of company principles, goals, and accomplishments.

Table 12
Reporting of corporate social responsibility (CSR) activities by leading U.S. food companies

Company	Web site link devoted to CSR reporting	Dedicated CSR report
Foodservice:[1]		
McDonald's	X	X
Yum! Brands	X	
Wendy's	X	
Burger King		
Starbucks	X	X
Retail:		
Wal-Mart		
Kroger		
Albertsons		
Safeway		
Ahold	X	X
Manufacturing:		
Tyson Foods	X	X
Kraft	X	X
Pepsico[2]	X	X
Nestle	X	X
ConAgra Foods	X	X

[1]Excludes Subway, which is a privately held company, owned by Doctor's Associates.
[2]A CSR report is published as part of the company's annual report.

Source: Compiled by ERS from company Web sites and annual reports.

The extent of CSR reporting by leading companies, and the topic areas covered, varied by the company's role in the marketing chain. Ahold was the only grocery retailer with a link or report dedicated to CSR activities, whereas all five manufacturers and four foodservice companies had either a link or report. Furthermore, all five manufacturers had both a link and dedicated report, while only two foodservice companies did. More foodservice companies reported on animal welfare issues, while contributions to nutrition and healthy living were more commonly reported by both foodservice and manufacturing companies than by grocery retailers.

The Global Reporting Initiative (GRI), which began in 1997, is an independent institution with the goal of developing guidelines for CSR reporting. Several of the leading food companies use the GRI index, which provides standardized guidelines for reporting progress on corporate economic, environmental, and social performance. Pepsico, Tyson Foods, and Ahold include information on the GRI index in their CSR reports, while Albertsons presents the index as part of its "Company Profile." According to McDonald's "Worldwide Corporate Responsibility Report 2004," the company is committed to following GRI guidelines, but further work is needed on data collection systems and on improving the guidelines to better meet company needs. In its 2005 CSR report, Starbucks acknowledges not reporting in full accordance with GRI guidelines, but uses the principles and indicators as a basis for reporting. GRI indicators of a company's social responsibility commitment include its economic, environmental, labor, human rights, social (altruistic), and product responsibility practices.

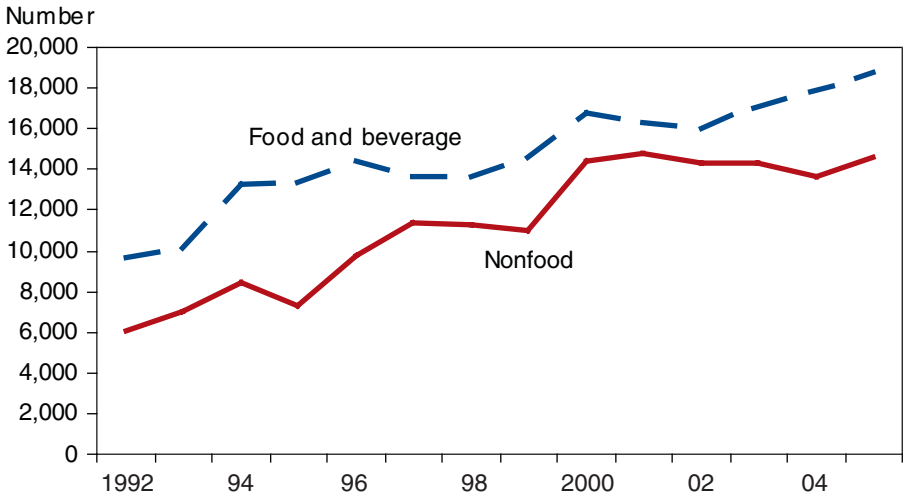
New Product Introductions

New products bringing benefits to consumers, such as improved flavor or more convenient packaging, may indicate technological improvements and increased productivity. Food companies introduce new products to boost sales and maintain or expand market share. Product introductions may prevent competitors' new products from taking away sales or may stimulate demand in poorly performing categories. Retailers are more likely to allocate shelf space to manufacturers providing new products on a regular basis.

U.S. food and beverage product introductions tracked by Marketing Intelligence Service have been trending upward since the early 1990s, exceeding those of nonfood grocery items (fig. 9).[23] A record 18,722 new food and beverage products were introduced in 2005 (table 13). Categories with the largest share of new products included candy, gum, snacks, beverages, condiments, and dairy. The increase in the share of new beverage products over the past 10 years is especially notable, along with the decline in the share of new condiments.

A growing share of new product introductions may suggest greater innovation for a category. However, new products may be variations of existing ones (e.g., new variety or package). Typically, over 90 percent of new food and beverage introductions are classified by Marketing Intelligence Service as "not innovative" (table 13). This suggests that food firms use new product introductions as a differentiation strategy, to offer a fresh image rather than truly novel benefits. Further, failure rates for new products are exceptionally high, exceeding 90 percent for some categories, which suggests that firms have difficulty in developing products that appeal to enough people to warrant continued distribution (Connor and Schiek, 1997). Nonetheless, some new products involve technological progress that delivers truly new benefits to consumers.

Figure 9
New product introductions of consumer packaged goods, 1992-2005



Note: Nonfood items include health and beauty aids, household products, pet products, and miscellaneous items (e.g., tobacco, car care, lighters).

Source: Marketing Intelligence Service, Ltd., Productscan Online, 2006.

[23]Marketing Intelligence Service's Productscan Online is a worldwide new product database that includes content from two Marketing Intelligence Service, Ltd., publications: *Product Alert* and *International Product Alert.*

Table 13

New food and beverage product introductions, selected years, 1995-2005

	1995	1998	2001	2004	2005
			Total		
New products	13,338	13,654	16,333	18,063	18,722
Type of product			*Percent of total*		
Candy, gum, snacks	25	23.8	32.5	30.5	27.7
Beverages	19.2	21.6	22.8	21.2	25.1
Condiments	18.2	14.2	13.8	13.9	10.2
Dairy	8.2	7.9	6.7	6.1	7.2
Baking ingredients	4.8	3.2	3.0	3.3	6.0
Processed meat	3.2	4.3	5.1	4.4	5.0
Meals and entrees	5.2	5.1	3.5	4.9	4.7
Bakery foods	5.6	5.2	2.8	5.3	4.1
Fruit and vegetables	3.0	5.1	2.8	3.3	3.4
Pasta and rice	2.9	4.8	2.3	2.2	2.2
Soups	1.9	2.1	1.8	1.5	1.6
Cereals	1.1	1.4	1.0	1.2	1.4
Desserts	.7	.5	.7	.6	0.8
Meal replacements and special diet foods	.6	.6	.5	.8	0.4
Baby food	.3	.2	.7	.7	0.3
Classification:					
Innovative[1]	8.4	7.1	7.4	8.8	5.4
Formulation[2]	5.2	4.4	4.9	6.1	3.4
Merchandising[3]	0	.1	.3	.4	0.3
New market[4]	0	0	0	0	0.0
Packaging benefit	1.4	.9	1.4	1.5	0.9
Positioning[5]	1.8	1.7	.7	.6	0.5
Technology[6]	0	0	.1	.2	0.3
Not innovative	91.6	92.9	92.6	91.2	94.6

[1]Products classified as innovative are those deemed by Marketing Intelligence Service to be the first to offer breakthrough features and benefits. Examples include icing marketed in microwaveable pouches, and a hot sauce with an adjustable cap that can be used to vary the spiciness.
[2]Products containing new ingredients that offer benefits not previously provided.
[3]Products marketed in a new way, such as unique display or packaging options.
[4]New products that do not compete with any existing product categories.
[5]New products presented for new users or uses compared with existing products.
[6]New product with added consumer benefits resulting from the new technology.

Source: Marketing Intelligence Service, Productscan Online, 2006.

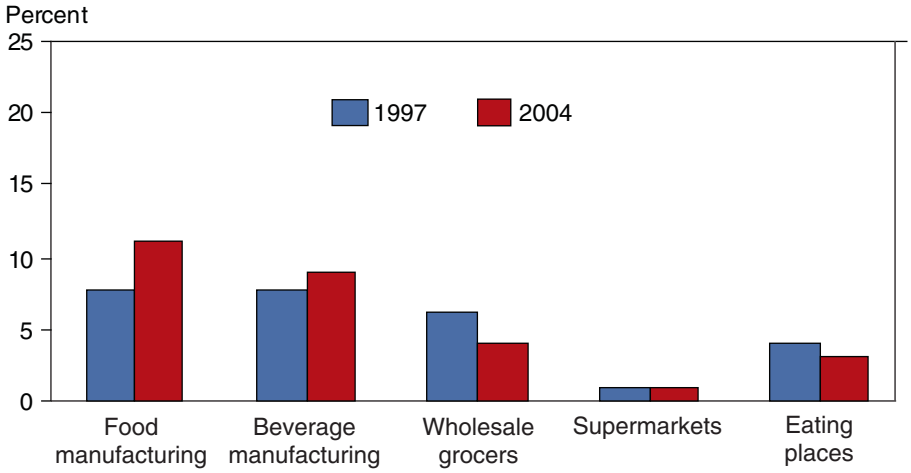
Advertising

Food advertising can influence consumption behavior by encouraging customers to try new products, maintaining brand loyalty, and capturing new customers (Connor and Schiek, 1997). Advertising expenditures as a percent of sales, or advertising intensity, decrease as one moves further down the supply chain (fig. 10). Advertising expenditures by manufacturers have accounted for a growing share of sales since 1997, which is not the case for other participants in the food marketing system.

The size of advertising expenditures by food companies indicates the degree of effort to influence consumer purchases. In 2004, food and beverage manufacturers ranked among the top 10 ad-spending industries, along with real estate agents, TV broadcast stations, and motion picture/video tape production (AdAge.com, 2005). In 2001, advertising expenditures by food and tobacco manufacturers accounted for 38 percent of all food and nonfood manufacturer advertising, up from 36 percent in 1994 (Internal Revenue Service, 2004, 1997). In 2004, several leading food manufacturers ranked among the top 50 companies in ad spending, including Altria Group, the parent company of Kraft Foods and Philip Morris ($1.4 billion), Pepsico ($1.3 billion), Nestle ($1 billion), Anheuser-Busch ($0.8 billion), and Mars ($0.7 billion). Several retailers and foodservice companies also ranked among the top 50, including McDonald's ($1.4 billion), Wal-Mart ($0.8 billion), and Yum Brands ($0.8 billion), whose subsidiaries include KFC, Pizza Hut, and Taco Bell.

In 2004, manufacturers of food and beverages (excluding alcohol) spent by far the largest share of their media budgets on TV advertising (69 percent), followed by ads in magazines (25 percent) and on the radio (2 percent) (*Advertising Age*, 2005). However, the share spent on TV advertising has declined, while magazine ads have increased: in 1990, manufacturers spent 80 percent of their media advertising for brand foods on TV ads, with 11 percent going to magazine ads (Connor and Schiek, 1997). The decline

Figure 10
Advertising expenditures by food companies as a share of total sales, 1997 and 2004



Source: AdAge.com.

may reflect new TV commercial-skipping technologies, such as TiVo, and fragmentation of consumers across a wide variety of advertising venues, including cable TV, Internet sites, and video games (Vranica, 2005). Alternative advertising venues may improve the ability to identify and reach target customers. In 2004, cable networks accounted for 19 percent of the $6.8 billion in measured media advertising expenditures by food and beverage manufacturers (*Advertising Age*, 2005).

The Internet accounts for only 1 percent of manufacturer advertising expenditures, but it is becoming increasingly important in targeting children (*Advertising Age*, 2005; Shields, 2005). Online advertising to children generally takes the form of games and contests built around the brands and their characters. On Wrigley's "Bubblegum.com" stand-alone gaming site, young viewers can play carnival toss with "Hubba Bubba" bubblegum characters. Other examples include Post's Postopia.com and Frito-Lay's INNW.com.

Some companies are turning to video games, in-store advertising, and product placement in entertainment programs to tout their brands (Nelson and Ellison, 2005; Turner, 2005; Vranica, 2005). McDonald's uses video games to target 18- to 34-year-old males, who are spending less time watching TV. Kroger announced plans to offer in-store television broadcasts of promotions and new products that will allow manufacturers to air their commercials. Each store will have programs specific to its location. In 2005, 14 percent of retailers, including Wal-Mart, were already using this technology, and 30 percent intended to add screens within 2 years. Company brands are also appearing in films. For example, Pepsico's Mountain Dew financed a documentary on snowboarding, and the brand could be seen occasionally in the movie.

Advertising messages that tout a product's attributes are also conveyed on packages and in supporting literature. Based on new product tags or claims tracked by Marketing Intelligence Service in 2005, health- and convenience-related attributes accounted for 9 of the top 10 subject categories for ads on packages (table 14).[24] Six of these categories, including those stressing "natural," "organic," "single serving," "quick," "fresh," and "low or no fat," have ranked among the top 10 in every year since 2001.

The low-carbohydrate craze is testimony to the responsiveness of the food industry to changes in consumer preferences, as well as to the difficulty of anticipating consumer demands. Given the relative ease of altering products for the "low-carb" market, the number of companies offering low-carb-labeled products grew rapidly to include mainstream players such as Nestle, Sara Lee, Frito-Lay, and the Nation's second-largest food company, Kraft. Supermarkets also responded, with shelf tags, special low-carb sections, features in weekly circulars, and other advertising. In 2004, new product introductions with low- or no-carb labels rose to 983, or 5.5 percent of all new food and beverage product introductions, compared with 209 (1.3 percent) in 2003 and 101 (0.9 percent) in 2001 (Marketing Intelligence Service, Ltd., 2006). More recently, the popularity of the Atkins and other low-carb diets has waned, punctuated by the July 2005 bankruptcy of Atkins Nutritionals. In 2005, 399 "low- or no-carb" products were introduced, down 60 percent from 2004.[25]

[24]In 2005, Marketing Intelligence Service's Productscan Online data base listed a total of 100 U.S. food and beverage product claims or tags.

[25]Diets, such as the Atkins, usually exhibit sensational ups and downs, but come and go afterwards, rather than totally disappearing, as a true fad does (Knowledge@Wharton, 2005).

Table 14

Number of new product introductions in the top 10 product claim categories for 2001 to 2005[1]

Tag or claim[2]	2001	2002	2003	2004	2005
			Number		
Upscale	695	905	1589	1,568	2,106
Natural	1,063	1,245	1,380	1,364	1,612
Single serving	782	1,119	1,127	1,111	1,277
Fresh	479	578	556	599	692
Organic	378	443	559	533	670
Low or no fat	518	586	656	617	646
Quick	377	443	521	511	571
No preservatives	368	421	578	551	550
Low or no sugar	227	283	395	619	544
High-vitamin	381	422	483	509	532
Total new product claims	11,149	13,769	16,374	17,922	19,544
			Percent of total		
Upscale	6.2	6.6	9.7	8.7	10.8
Natural	9.5	9.0	8.4	7.6	8.2
Single serving	7.0	8.1	6.9	6.2	6.5
Fresh	4.3	4.2	3.4	3.3	3.5
Organic	3.4	3.2	3.4	3.0	3.4
Low or no fat	4.6	4.3	4.0	3.4	3.3
Quick	3.4	3.2	3.2	2.9	2.9
No preservatives	3.3	3.1	3.5	3.1	2.8
Low or no sugar	2.0	2.1	2.4	3.5	2.8
High-vitamin	3.4	3.1	2.9	2.8	2.7

[1]Does not include associated stock keeping units (SKUs) (e.g., variations in size and form). According to Marketing Intelligence Service, the SKU count report may produce erroneous results because a single new product introduction can have multiple SKUs and each of these SKUs may or may not have certain package tags.

[2]A new product may have multiple tags or claims.

Source: Marketing Intelligence Service, Productscan Online, 2006.

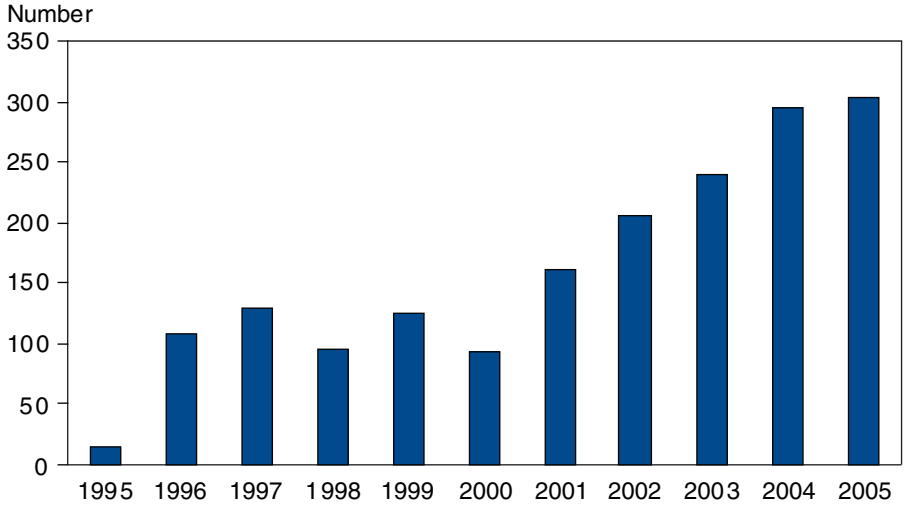
While the low-carb craze is apparently fading, a Federal law requiring manufacturers to list trans-fat on food labels by 2006 has sparked reformulation of products to reduce trans-fat. In 2005, 458 "no- or low-trans-fat" products were introduced, compared with 238 in 2004, 64 in 2003, and 5 in 2001 (Marketing Intelligence Service, Ltd., 2006). This reformulation is likely to continue as processors work with farmers and suppliers to increase production of low-linolenic soybean oil, and other healthier cooking oils. which can be used to reduce trans-fatty acids (just-food.com, 2005).

Through an agreement with Monsanto, a leading supplier of agricultural products, Kellogg will become one of the first food manufacturers to use low-linolenic soybean oil. To supply low-linolenic soybeans, farmers will need to change their production methods. Kellogg is encouraging farmers to produce the soybeans under contract with participating processors. The success of specialty soybean marketing will hinge on several factors, including market demand and volume, identity preservation, access to appropriate distribution channels, and mutual trust, cooperation, and information-sharing at each level of the supply chain (Darroch et al., 2002).

"Upscale" ranked as the leading new product claim category in 2003, 2004, and 2005, surpassing "natural" and "single serving." Examples include premium ice cream, uniquely processed coffee, gourmet jam and dessert topping, and Certified Angus Beef. In what sociologists refer to as a "post-modern consumer culture," the purchase of upscale food products allows consumers to express their individuality (Kinsey, 1994; Krasteva, 2003). As incomes rise and consumers continually seek new experiences and tastes, the market grows for new niche products that allow consumers to signify their independence and social position. Upscale products create an endless stream of niche-marketing opportunities for food companies, as new products must be continually introduced to replace those that become more mainstream. This reinforces the trend away from traditional mass marketing toward differentiated and customized products.

Advertising through "cobranding" has become an increasingly popular strategy for differentiating food products. Food processors typically pay a fee or royalty to place the logo of a popular food ingredient, container type, or media character—especially one that appeals to children—on a brand-name package (Connor and Schiek, 1997). The logos represent a strong image that is well recognized by consumers. In 2005, 302 cobranded products were introduced, compared with 16 in 1995 (fig. 11). Recent examples include products containing *Splenda* brand sweetener and carrying Splenda's logo, Tops brand of ice cream containing *Nestle Butterfinger* candy pieces, Hillshire Farm deli products packaged in *Glad Ware* containers, and *SpongeBob Squarepants* characters on packages of Keebler Animal Crackers.

Figure 11
Number of new cobranded* products, 1995-2005



*In cobranding, a company that produced a familiar ingredient used in a brand-name product is paid by the maker of the product to have the logo of the ingredient displayed on the package.

Source: Marketing Intelligence Service, 2006.

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Appendix A
Top 10 Companies in Each Stage of the Food Marketing System and Changes in Concentration in all Food and Beverage Manufacturing Industries and Grocery Wholesaling

Appendix table 1
Top 10 food marketing companies by stage of marketing[1]

Manufacturing[2]	Grocery wholesalers[3]	Foodservice wholesalers	Grocery retailers	Foodservice
Tyson Foods, Inc. ($23.9)	C and S Wholesale Grocers ($15.2)	Sysco Co. ($31.4)	Wal-Mart Stores ($98.7)	McDonald's Corp. ($26.9)
Kraft Foods, Inc.[4] ($23.3)	Supervalu, Inc. ($10.00)	U.S. Foodservice ($18.5)	Kroger ($58.5)	Yum! Brands[5] ($17.4)
Pepsico, Inc. ($21.2)	Wakefern Food Corporation ($9.0)	Performance Food Group ($5.7)	Albertsons, Inc. ($36.3)	Wendy's International, Inc. ($8.0)
Nestle ($19.9)	Associated Wholesale Grocers of Kansas City ($4.5)	Gordon Food Service ($3.7)	Safeway, Inc. ($32.7)	Burger King ($7.9)
Anheuser-Busch Cos., Inc. ($11.5)	Nash Finch Company ($3.9)	Food Services of America Inc. ($2.5)	Ahold USA, Inc.[6] ($23.8)	Doctor's Associates, Inc.[7] ($7.2)
Dean Foods ($10.5)	Unified Western Grocers ($2.9)	Reinhart Foodservice, Inc. ($2.1)	Publix Super Markets, Inc. ($18.5)	Starbucks Corp. ($5.8)
General Mills, Inc. ($9.8)	United Natural Foods ($2.3)	Maines Paper and Foodservice, Inc. ($2.0)	Delhaize America, Inc.[8] ($16.5)	Darden Restaurants, Inc.[9] ($4.8)
Smithfield Foods, Inc. ($9.6)	Purity Wholesale Grocers ($1.2)	Ben E. Keith Foods ($1.3)	H.E. Butt Grocery Co. ($10.4)	Allied Domecq[10]($4.5)
ConAgra Foods, Inc. ($8.2)	White Rose Foods ($1.2)	Shamrock Foods Co. ($1.3)	Supervalu, Inc. ($8.6)	Applebee's International, Inc. ($4.2)
Swift & Co. ($7.8)	Spartan ($1.2)	Cheney Brothers, Inc. ($0.6)	Winn-Dixie Stores, Inc.($7.1)	Brinker International[11] ($4.2)

[1]2005 sales in parentheses (billion dollars).
[2]Includes North American food sales.
[3]Excludes sales at company-owned retail stores.
[4]Subsidiary of Altria Group.
[5]Chains include KFC, Pizza Hut, Taco Bell, and Long John Silver's.
[6]Stores include Giant Food, Stop and Shop, and Tops Friendly Markets.
[7]Owner of Subway.
[8]Stores include Food Lion, Hannaford Bros., and Kash 'n Karry.
[9]Chains include The Olive Garden and Red Lobster.
[10]Chains include Dunkin' Donuts and Baskin-Robbins.
[11]Chains include Chili's Grill & Bar, Romano's Macaroni Grill, and On The Border.

Sources: Compiled by ERS from *Food Processing*, August 2006; *Supermarket News*; American Institute of Food Distribution, Inc., *The Food Institute Report*, April 3, 2006; *Progressive Grocer*, May 2006; Technomic Information Services, Inc., 2006; and company annual reports filed with the SEC.

Appendix table 2

Changes in number of plants, number of firms, and concentration in food and beverage manufacturing, 1997 to 2002

	Number of plants	Number of firms	CR4[4]
		Percent change	
Average change over all industries	4.5	6.3	11.4
Increasing concentration			
Fluid milk	-14	-22	100
Seafood canning	-16	-18	76
Ice	-15	-17	76
Fresh & frozen seafood	-10	-9	50
Ice cream and frozen desert	-9	-11	49
Retail bakeries	5	3	48
Dried & dehydrated food[2]	17	18	40
Malt	-21	-16	32
Fats & oils refining & blending	-9	-16	31
Bottled water	66	84	21
Meat processed from carcasses	3	3	19
Commercial bakeries	-5	-6	18
Distilleries	37	52	18
Frozen fruit, juice, & vegetable	-8	-15	15
Poultry processing	14	21	14
Dry pasta	-27	-27	13
Cookie & cracker	-7	-9	11
Flour milling	-11	-16	11
Dog & cat food	29	36	10
Nonchocolate confectionery	-17	-18	10
Creamery butter	3	3	10
Other animal food[1]	4	8	10
Soft drink	-16	-24	10
Wineries	74	77	8
Flour mixes & dough mfg. from purchased flour	-12	-13	8
Other snack food[3]	-19	-22	6
Specialty canning	-7	-6	6
All other miscellaneous food	96	102	4
Animal (except poultry) slaughtering	34	36	3
Rice milling	13	11	3
Frozen specialty food	1	-1	2
Dry, condensed, & evaporated dairy product	0	-5	1
Breweries	-29	-30	1
No change in concentration			
Cheese	-4	-8	0
Soybean processing	27	42	0

—Continued

Appendix table 2

Changes in number of plants, number of firms, and concentration in food and beverage manufacturing, 1997 to 2002 —Continued

	Number of plants	Number of firms	CR4[4]
		Percent change	
Reduction in concentration			
Tortillas	27	25	-2
Coffee & tea	14	20	-2
Perishable prepared food	38	35	-3
Wet corn milling	5	10	-4
Mayonnaise, dressing, & other prepared sauce	-8	-11	-4
Fruit & vegetable canning	-5	-4	-5
Breakfast cereal	-7	-4	-5
Beet sugar	-3	38	-6
Confectionery mfg'd. from purchased chocolate	26	27	-7
Sugarcane mills	-16	-15	-9
Rendering & meat byproduct processing	-3	-11	-9
Roasted nuts & peanut butter	13	11	-11
Chocolate & confectionery mfg'd. from cacao beans	-8	-10	-13
Other oilseed processing	-22	9	-14
Frozen cakes, pies, & other pastries	10	1	-21
Spice and extract	12	14	-34
Not disclosed			
Flavoring syrup & concentrate	-7	-3	ND
Cane sugar refining	11	17	ND

[1]Animal food, except dog and cat.

[2]Includes mixing of purchased dried and/or dehydrated ingredients for such products as soup mixes and bouillon.

[3]Excludes roasted nuts and peanut butter.

[4]Concentration as measured by the percent of shipment value accounted for by the top 4 companies.

Source: Compiled by ERS from U.S. Census Bureau data.

Appendix table 3

Top 10 wholesalers ranked by wholesale sales, 2001 and 2004

Company	2001 Sales derived from			Company	2004 Sales derived from		
	Wholesale	Retail	Total		Wholesale	Retail	Total
	Billion dollars				*Billion dollars*		
Fleming Companies, Inc.	13.3	2.3	15.6	C and S Wholesale Grocers	13.2	0.0	13.2
Supervalu, Inc.	10.8	9.5	20.3	Supervalu, Inc.	9.0	10.5	19.5
C and S Wholesale Grocers[1]	8.5	0.0	8.5	Wakefern Food Corporation	7.0	0.1	7.1
Wakefern Food Corporation	5.8	0.1	5.9	Associated Wholesale Grocers of Kansas City	4.3	0.5	4.8
Nash Finch Company	3.1	1.0	4.11	Nash Finch Company	3.1	0.8	3.9
Associated Wholesale Grocers (Kansas City)	3.0	0.2	3.1	Unified Western Grocers	3.0	0.0	3.0
Unified Western	2.9	0.2	3	Giant Eagle Grocers	1.9	3.3	3.0
Spartan Stores, Inc.	2.1	1.4	3.5	Roundy's, Inc.	1.8	3.0	4.8
Roundy's, Inc.	2.0	1.4	3.4	Purity Wholesale Grocers	1.4	0.0	1.4
Giant Eagle	1.6	2.9	4.5	Associated Wholesalers	1.3	0.1	1.4
Total grocery general line merchant wholesale sales[2]	112.3				122.7		
Top 4 percent of total	34.2				27.3		

[1]Excludes sales at its Grand Union stores.

[2]Excludes manufacturing sales branches and offices. Because general-line grocery wholesale sales, excluding specialty and limited-line wholesalers, are not available in non-Census years, they were assumed to account for 30 percent of merchant sales. This percentage is based on the 2002 census year.

Sources: *Supermarket News,* U.S. Census Bureau, and annual reports filed with the SEC.

Appendix B
Major Changes in Food Industry Census Classifications in 1997 and 2002

In 1997, the U.S. Census Bureau revised the coding system for industry classifications from the Standard Industrial Classification (SIC) code to the North American Industrial Classification System (NAICS). Major changes affecting the food industry include:

- Retail bakeries that make and sell products at the same location, and candy stores that make candy on the premises, which had been classified as retail establishments, are now classified as manufacturers.
- Cookie and donut shops, formerly classified as retail establishments, are now classified as "snack and nonalcoholic beverage bars" under the NAICS code for "foodservices and drinking places."
- Gas stations with convenience stores, which had been classified as food-stores, are now part of the gas station industry.
- Beer, wine, and liquor stores were moved from the "miscellaneous store" classification to a new "beer, wine, and liquor stores" classification, replacing the old SIC code for liquor stores.
- Beverage manufacturing was moved from the "food and kindred products" SIC code to a new "beverage and tobacco product" NAICS code.

In 2002, the NAICS codes were further refined, with significant changes in wholesaling.[26] Under the 1997 classifications, agents and brokers, who do not take title to the goods being sold but rather receive a commission or fee for their service, were classified as wholesalers in the "grocery and related products" industry. Beginning in 2002, agents and brokers were moved to the "wholesale electronic markets and agents and brokers" industry segment. In addition to agents and brokers, the wholesale sector is comprised of merchant wholesalers that sell products on their own account, including:

- Manufacturers' sales branches and offices, which are maintained by manufacturers for marketing their products.
- Merchant wholesalers, excluding manufacturers' sales branches and offices.

Because 1997 was the first year of the new classification system, 1997 and 2002 data were used to analyze changes in the number and size of companies and establishments.

[26]Detailed Census information is available at 5-year intervals.