

## Infant Formula Trends

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Examination of InfoScan data from 1994 to 2000 shows recent trends in infant formula in terms of volume sold, dollar sales, and retail prices. The data also allow for a comparison of the rate of increases in infant formula prices to the rate of inflation, and for an examination of the retail markup.

### Volume of Infant Formula Sold

According to the Infoscan data, the total volume of infant formula sold in the United States (measured in reconstituted ounces) decreased by 10 percent between 1994 and 2000 (fig. 6-1). Most of this decrease occurred between 1994 and 1997; since 1997, the volume of infant formula sold in this country has remained relatively stable at about 27 to 28 billion ounces per year.<sup>1</sup>

Most infant formula is sold in supermarkets (69 percent in 2000) (fig. 6-1). However, since 1994, the proportion of infant formula sold by mass merchandisers has increased slightly relative to both supermarkets and drugstores. In 2000, mass merchandisers accounted for about 28 percent of total volume sold compared with 24 percent in 1994. Drugstores accounted for less than 4 percent in 2000.

Over three-quarters (76 percent) of all infant formula sold in the United States in 2000 was milk-based, up slightly from 1994 (fig. 6-2). Soy-based infant formula accounted for about 20 percent of all formula sold in 2000, down slightly from 1994. Other-based formula, accounting for the remaining 4 percent of all formula sold in 2000, consists mostly of protein hydrolysate formula, a type of hypoallergenic infant formula produced for infants with food protein allergies.<sup>2</sup>

One of the more dramatic trends in the infant formula market in recent years has been the increase of formula sold in powdered form. Powdered infant formula accounted for 62 percent of all formula sold in 2000 up from only 44 percent in 1994 (fig. 6-3). Over the same period, liquid concentrate decreased from 42 to 27 percent of all formula sold, and ready-to-feed decreased from 14 percent to 11 percent. The increased use of powdered formula has been attributed in part to the increase in breastfeeding. Powdered infant formulas “are commonly used to make up an occasional formula feeding for breastfed infants and many mothers may have continued to use powdered formulas after cessation of breastfeeding” (Fomon, 2001).

Infant formula is available in a variety of container sizes, especially formula in powdered form which is sold in containers ranging in size from just over one ounce to 96 ounces. The vast majority (80 percent in 2000) of all powdered infant formula is sold in 12- to 16-ounce containers (fig. 6-4). However, the volume of powdered infant formula sold in large containers—24 or more ounces—is on the rise, increasing from only 4 percent in 1994 to 19 percent in 2000.

Sales of “specialized” infant formula account for a relatively small percentage of all formula sold; however, its use has been increasing significantly in recent years. The proportion of infant formula

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<sup>1</sup> A possible factor contributing to the decrease in the volume of infant formula sold was the continuing increase in breastfeeding rates during this period. In addition, the number of live births in the United States decreased by almost 2 percent between 1994 and 1997 before increasing in 1998, 1999, and 2000 (U.S. Department of Health and Human Services, various years).

<sup>2</sup> “Other-based” infant formula also includes formula from which the base could not be ascertained from the data. This category of unknown base infant formula accounted for less than 1 percent of all infant formula sold in 2000.

that is specialized increased from 3 percent in 1994 to over 8 percent in 2000 (fig. 6-5). It is not clear if this increase is due to research leading to new product formulation, emerging nutritional needs, or a change in marketing strategies by increasing product differentiation.

## Dollar Sales of Infant Formula

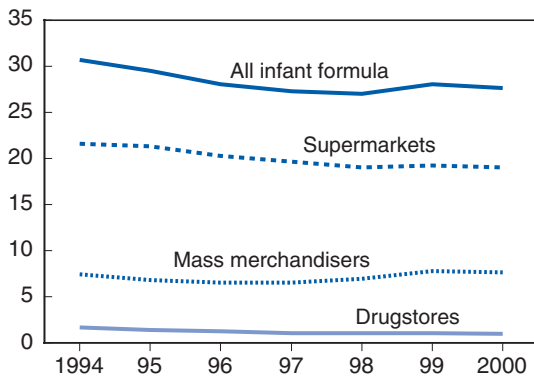
Although the volume of infant formula sold decreased between 1994 and 2000, total dollar sales in nominal terms (i.e., not adjusted for inflation) increased by almost 13 percent over the same period to total over \$2.9 billion in 2000 (fig. 6-6). Over half (57 percent) of this increase in total dollar sales was due to specialized formula, which increased by 149 percent over the 1994-2000 period. Sales of standard formula were much flatter, increasing only 6 percent during the same period.

Similar to the results found for volume sales of infant formula, most of the total dollar sales of infant formula in 2000 was for powdered formula (55 percent of total dollar sales), milk-based formula (73 percent of total), and formula sold in supermarkets (71 percent of total).

Figure 6-1

### Volume of all infant formula sold in the United States by outlet

Billion reconstituted ounces

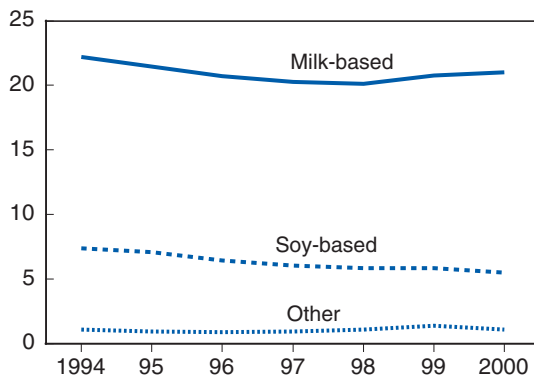


Source: ERS analysis of InfoScan data.

Figure 6-2

### Volume of infant formula sold in the United States by product base

Billion reconstituted ounces

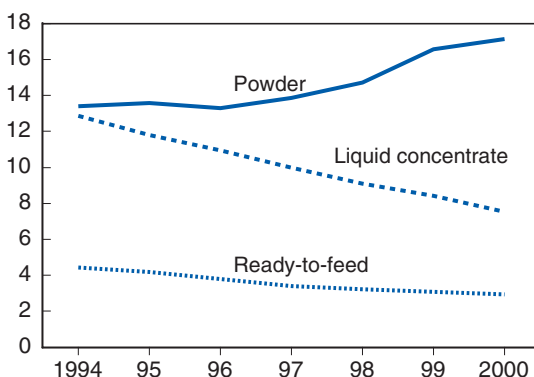


Source: ERS analysis of InfoScan data.

Figure 6-3

### Volume of infant formula sold in the United States by physical form

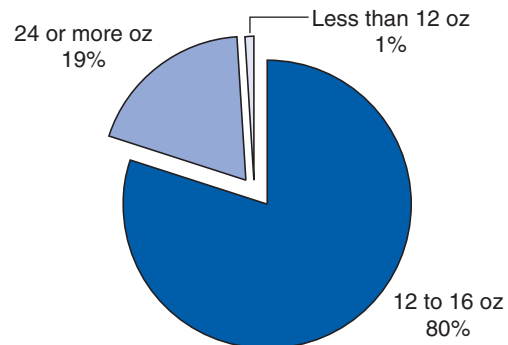
Billion reconstituted ounces



Source: ERS analysis of InfoScan data.

Figure 6-4

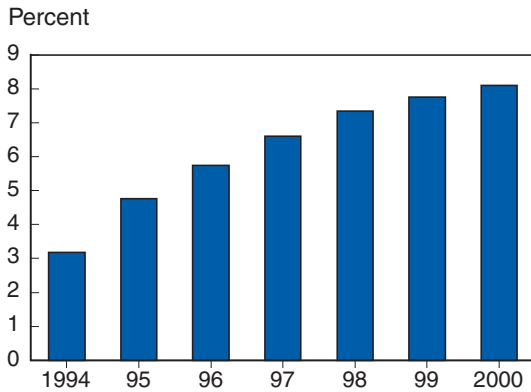
### Powdered infant formula sold in the United States by size of container, 2000



Source: ERS analysis of InfoScan data.

Figure 6-5

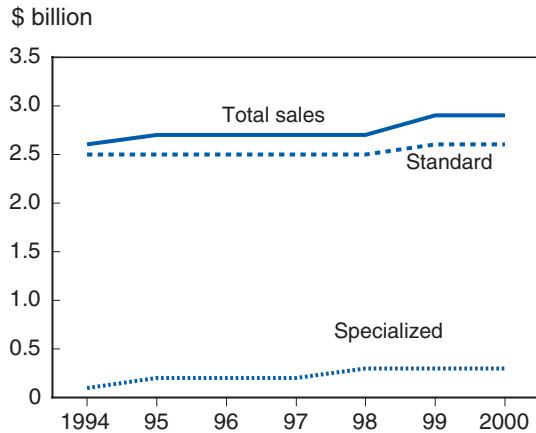
**Specialized infant formula as a percentage of all infant formula sold in the United States**



Source: ERS analysis of InfoScan data.

Figure 6-6

**U.S. dollar sales of infant formula by type**



Source: ERS analysis of InfoScan data.

**Retail Price of Infant Formula**

The increase in dollar sales of infant formula at the same time that the volume of formula sold was declining reflects the increase in retail prices over this period. In general, the different types of infant formula followed the same general trend of increasing prices over time.<sup>3</sup>

The average retail price of infant formula (on a reconstituted basis) differed by physical form. In 2000, ready-to-feed infant formula was on average 53 percent more expensive than powdered formula, and liquid concentrate was 25 percent more expensive than powdered. This basic price relationship among product forms held fairly constant over the entire analysis period (fig. 6-7). The average retail price of powdered infant formula also differed by can size, with larger cans having lower prices per 26 reconstituted ounces than smaller sized cans (fig. 6-8).

Retail prices also differed by outlet. Compared with the price of formula sold in supermarkets in 2000, formula sold in drugstores was 19 percent more expensive, while formula sold by mass merchandisers was 16 percent less expensive (fig. 6-9).

The retail prices of the two major product bases of infant formula differed only slightly. Soy-based formula averaged 5-8 percent more than milk-based formula over the 1994-2000 period (fig. 6-10). However, infant formula composed of other bases (predominantly protein hydrolysate formulas) were considerably more expensive than either the milk- or soy-based formula.

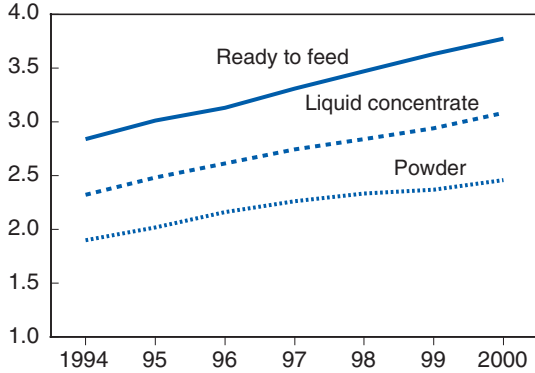
The price of specialized infant formula was significantly higher than standard infant formula throughout the study period. For example, in 2000, the average retail price of specialized infant formula was 35 percent greater than that of standard infant formula (fig. 6-11). The higher price of specialized infant formula may be the result of smaller market volume and higher manufacturing costs (Hansen et al., 1988). Although the price of most specialized formula is greater than that of standard infant formula on average, there are some exceptions. For example, infant formula marketed to toddlers 1 year of age and older is often priced less than standard infant formula. This price rela-

<sup>3</sup> Product mix will affect the average price of infant formula across the various subgroups of formulas. For example, average prices can differ across outlets (supermarkets, mass merchandisers, drug stores) not only when outlets charge different prices for the same infant formula product but also when outlets sell different product mixes (i.e., combinations) of infant formula products. Each of the average prices cited in this section are based on different product mixes.

Figure 6-7

**Average U.S. price of infant formula by physical form**

\$ per 26 reconstituted ounces

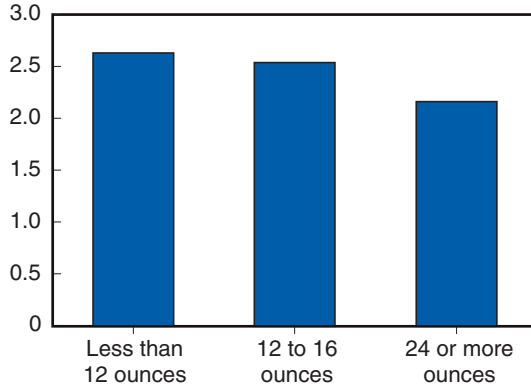


Source: ERS analysis of InfoScan data.

Figure 6-8

**Retail price of U.S. powdered infant formula by can size, 2000**

\$ per 26 reconstituted ounces

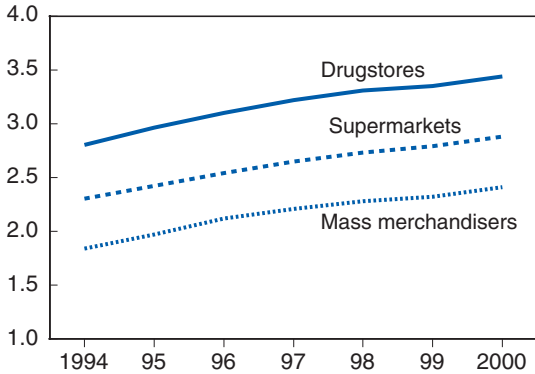


Source: ERS analysis of InfoScan data.

Figure 6-9

**Average U.S. price of infant formula by outlet**

\$ per 26 reconstituted ounces

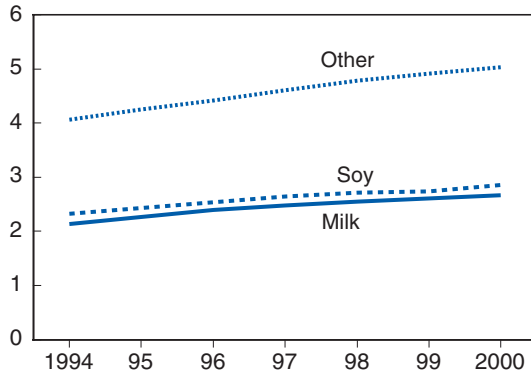


Source: ERS analysis of InfoScan data.

Figure 6-10

**Average U.S. price of infant formula by product base**

\$ per 26 reconstituted ounces

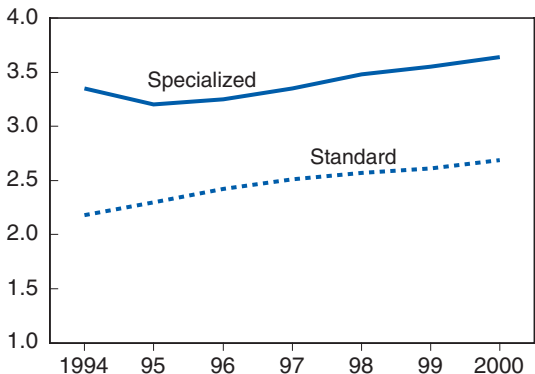


Source: ERS analysis of InfoScan data.

Figure 6-11

**Average U.S. price of infant formula by type**

\$ per 26 reconstituted ounces



Source: ERS analysis of InfoScan data.

relationship may be due in part to toddler formula competing with the much cheaper cow's milk for a place in the toddler's diet.

The rest of this chapter examines increases in retail infant formula prices relative to inflation and the relationship between a brand's retail and wholesale prices. Because the retail price of infant formula varies by a wide range of factors (e.g., product base, physical form, outlet, and even size of container), it was necessary to narrow the focus of the study to similar infant formula products, otherwise the inclusion of infant formulas with different price structures could bias the results of the study. Therefore, the remainder of this report

examines retail prices for each of the four major infant formula types (milk-based powder, milk-based liquid concentrate, soy-based powder, and soy-based liquid concentrate) represented by one specific product per manufacturer as determined by the universal product code (UPC) with the largest volume of sales in 2000 for that manufacturer (table 6-1).<sup>4</sup> (The analysis excluded both specialized formulas and ready-to-feed formulas since they account for a relatively small portion of the infant formula market.) The selected infant formula products, all of which were iron-fortified, accounted for the majority of infant formula sold by each manufacturer in that specific category. The price data represent only supermarkets, which account for 69 percent of all infant formula sold by volume in 2000.

## **Increases in the Retail Price of Infant Formula Relative to Inflation**

In 1999, the members of the House Committee on Appropriations stated that they were “concerned that since rebates began, infant formula costs appear to have risen far greater than inflation” (H.R. 106-157). Up to now, this report’s discussion of the retail prices of infant formula has been in nominal terms only, that is, not adjusted for inflation. This section looks at the increase in infant formula prices relative to the *Consumer Price Index (CPI) for All Items*.<sup>5</sup> The *CPI for All Items* is a broad, comprehensive price index that is used to measure the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. It is the most widely used measure of inflation, or general price changes, in the United States. The study also used indexes for two other groups of consumer expenditures. The *CPI for Food At Home*, the Nation’s principal indicator of changes in retail food prices, was used since most infant formula is sold in retail food stores. Lastly, the *CPI for Nonprescription Drugs and Medical Supplies* was used since most infant formula is produced by pharmaceutical companies and all formula must conform to regulatory standards enforced by the Food and Drug Administration.

Figures 6-12 through 6-14 show the average annual rate of increases in both wholesale and retail prices for the four major types of formula by the three larger manufacturers (resulting in 12 cases) during the 1994-2000 period.<sup>6</sup> Although the increases in retail prices varied by manufacturer and type of formula, they exceeded the average percentage increase in both the *CPI for All Items* and the *CPI for Food At Home* in all cases except one (Carnation soy-based powder). With the exception of the two Carnation soy-based formulas, the increase in retail prices exceeded the *CPI for Nonprescription Drugs and Medical Supplies* as well. That is, regardless of type of formula and manufacturer, the average annual increase in the retail price of infant formula during the study period nearly always exceeded price inflation regardless of which of the three price indexes was used. In addition, the data indicate that in all 12 cases the annual rate of increase in retail prices exceeded the annual rate of increase in wholesale prices. Note that retail infant formula prices were rising faster than overall food prices even before the rebate program began nationwide in 1989.<sup>7</sup> Since little information is publicly available on the operating costs associated with retailing infant formula (e.g., shelving, overhead, etc.), it is not possible to determine the extent to which

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<sup>4</sup> In other words, one infant formula product per manufacturer for each of the major types of infant formula was chosen as the standard of measurement for comparison purposes.

<sup>5</sup> Specifically, this analysis uses the *Consumer Price Index for All Urban Consumers (CPI-U) for the U.S. City Average for All Items*, not seasonally adjusted, constructed by the U.S. Department of Labor, Bureau of Labor Statistics (BLS).

<sup>6</sup> Since Wyeth dropped out of the market in 1996, and PBM Products did not enter the market until 1997 and accounted for only 1 percent of the infant formula market in 2000, neither were included in this comparison of formula prices to the CPI and the following analysis of the retail markup.

<sup>7</sup> The rapid increase in the retail price of infant formula during the 1980s has been cited as one of the primary reasons the infant formula rebate system was first implemented (U.S. GAO, 1990).

**Table 6-1—Specific powder and liquid concentrate infant formula products included in the analysis of retail prices**

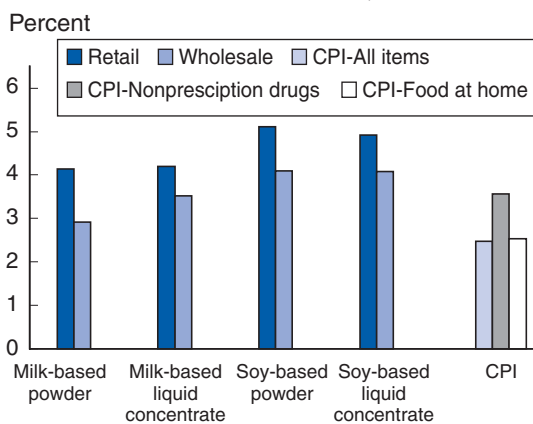
Products	Wholesale price per 26 reconstituted ounces as of September 2000
	<i>Dollars</i>
Milk-based powder:	
Mead Johnson—Enfamil with iron in 16-oz cans	2.50
Ross—Similac with iron in 14.1-oz cans	2.54
Carnation—Good Start in 12-oz cans	2.07
PBM—16-oz cans	1.28
Milk-based liquid concentrate:	
Mead Johnson—Enfamil with iron in 13-oz cans	2.94
Ross—Similac with iron in 13-oz cans	2.91
Carnation—Good Start in 13-oz cans	2.27
Soy-based powder:	
Mead Johnson—Prosobee in 14-oz cans	2.86
Ross—Isomil with iron in 14-oz cans	2.73
Carnation—Alsoy in 14-oz cans	1.89
PBM—16-oz cans	1.32
Soy-based liquid concentrate:	
Mead Johnson—Prosobee in 13-oz cans	3.22
Ross—Isomil with iron in 13-oz cans	3.19
Carnation—Alsoy in 13-oz cans	2.10

Notes: PBM infant formula is sold under a number of different store brand labels. During the study period, PBM sold infant formula in powdered form only. Wholesale prices represents the price per truckload of formula, except for formula sold by PBM which represents the average price of formula sold.

Source: Wholesale prices were obtained from each company's Trade Price Catalogs, except for PBM's prices which were obtained by personal communication. The conversion of wholesale prices into prices per 26 reconstituted ounces were conducted by ERS.

Figure 6-12

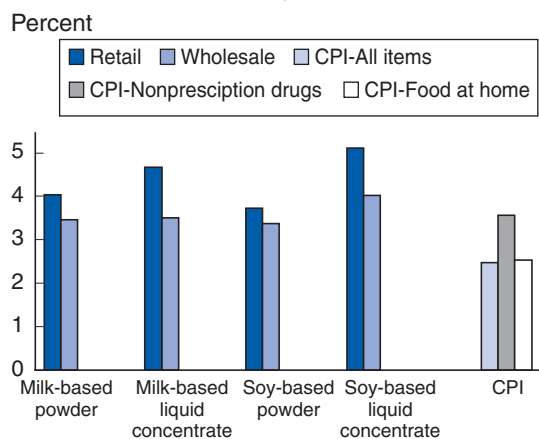
**Average annual rate of increase in prices for Mead Johnson infant formulas, 1994-2000**



Source: ERS analysis of InfoScan data.

Figure 6-13

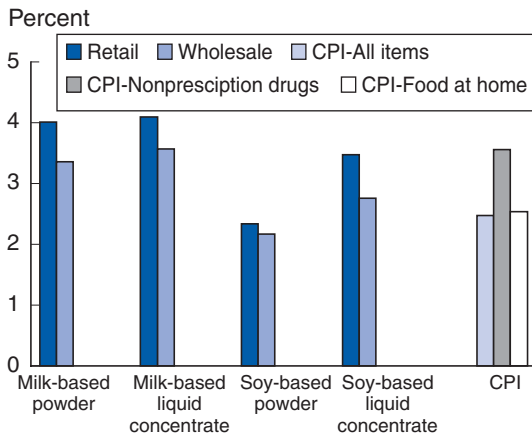
**Average annual rate of increase in prices for Ross infant formula, 1994-2000**



Source: ERS analysis of InfoScan data.

Figure 6-14

**Average annual rate of increase in prices for Carnation infant formulas, 1994-2000**



Source: ERS analysis of InfoScan data.

the increase in retail infant formula prices above the increase in wholesale prices is attributable to increased retailing costs.

**Retail Markup**

Infant formula manufacturers publish wholesale price lists for their products. The listed prices are set at the national level, and vary only by volume, with larger volume purchases (up to a truckload of formula) receiving a bulk discount.<sup>8</sup> For example, both Mead Johnson's and Ross' listed wholesale per unit price (as of September 2000) for a 13-ounce can of milk-based liquid concentrate decreased by about 14-15 percent as the quantity of formula purchased increased from less than 10 cases up to a truckload. It is not known whether

manufacturers offer undisclosed or off-schedule discounts to customers based on other factors. The listed wholesale prices include delivery of the product to the buyer, generally to a warehouse. Retailers incur additional costs of transporting the formula from the warehouse to their stores.

Infant formula manufacturers do not set retail prices: retailers establish the retail price. Although wholesale prices are a major determinant of retail prices, retailers consider additional factors such as the cost of transporting the formula to the store, shelf space, overhead, product movement, and other local supply and demand factors, as well as retailer profit. Some retailers may also use infant formula as a loss leader, whereby they price the product below cost for the purpose of attracting people into their store where the shoppers buy additional items at full markup, making up for the store's loss on infant formula.

The difference between the wholesale and retail price is referred to as the retail markup. The average annual retail markup, on a percentage basis, of the major brands of infant formula by type during the 1994-2000 period is shown in fig. 6-15.<sup>9</sup> Although all categories of formula had positive markups, the size of the markups in percentage terms varied by manufacturer. Carnation brands of infant formula had a higher percentage markup than did Mead Johnson and Ross brands. Because the wholesale prices of Carnation are generally lower than the two other brands, retailers tend to mark them up more and still price them lower than the Ross and Mead Johnson brands. For three of the four types of infant formula, Ross formulas had the lowest percentage markups.

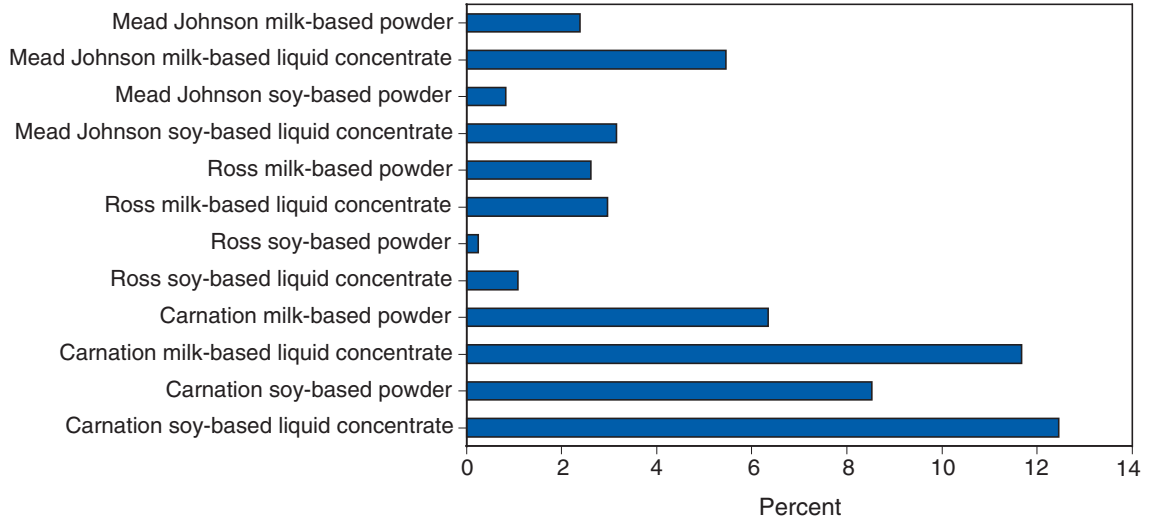
In addition to the differences by manufacturer, the size of the markup also differed by product form, as liquid concentrate forms of formula (both milk- and soy-based) had higher markups than powdered forms of the same brand and product base of formula. Since liquid concentrate is more expensive than powdered infant formula, purchasers of liquid concentrate infant formula (i.e., the mothers of infants) may be less sensitive to price than purchasers of powdered infant formula.

<sup>8</sup> Large retail stores that purchase larger volumes of infant formula than smaller stores will therefore pay lower per unit costs for the formula.

<sup>9</sup> The percentage retail markup is the difference between the retail and wholesale price as a percentage of the retail price.

Figure 6-15

**Average annual percentage retail markup of infant formula sold in supermarkets by type and manufacturer, 1994-2000**



Note: The average percentage retail markup is the difference between the retail and wholesale price as a percentage of the retail price.

Source: ERS analysis of InfoScan supermarket data.