

The Infant Formula Market

The infant formula market is highly concentrated: three manufacturers produce the vast majority of all infant formula sold in the United States. ERS analysis of scanner-based data on supermarket retail sales during the second quarter of 2004 (the latest data available at the time of the study) found that two companies—Mead Johnson and Ross—accounted for 89 percent of the market as determined by volume of sales (fig. 3).¹² Nestlé accounted for another 10 percent of the market.

¹² An analysis of the infant formula market in 2000 found that supermarkets accounted for about 69 percent of all infant formula sold, mass merchandisers 28 percent, and drugstores 3 percent (Oliveira et al., 2004).

Infant Formula Types

For infants who are not breastfed, infant formula may be the sole source of nutrition during the first months of life. Conventional milk-based infant formula, containing lactose (a carbohydrate in cow's milk) and cow-milk proteins, is the most widely used formula. Soy-based formulas, free of cow-milk proteins and lactose, are an alternative protein source for infants with milk-based allergies or with symptoms of lactose intolerance. They are also used by parents seeking a vegetarian diet for their infants. These milk- and soy-based formulas are available in three different forms:

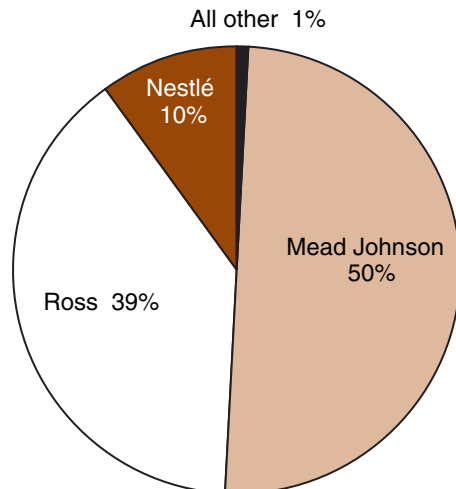
- Powder—the least expensive formula, it must be mixed with water and stirred,
- Liquid concentrate—must be mixed with an equal amount of water, and
- Ready-to-feed—the most expensive form of formula, it does not require mixing.

Milk- and soy-based formulas are available in a wide range of package sizes and in two different iron levels: added iron and low iron. The American Academy of Pediatrics recommends that formula-fed infants receive an iron-fortified formula as a way of reducing the prevalence of iron deficiency anemia (1999). Iron-fortified infant formula is routinely issued in WIC; all low-iron infant formula issued through WIC requires medical documentation. Infant formulas supplemented with two fatty acids found in small concentrations in breast milk—docosahexaenoic acid (DHA) and arachidonic acid (ARA)—are available to consumers, as are unsupplemented forms of formula.

A wide range of infant formulas in addition to the standard milk- and soy-based formulas used for routine infant feeding is also available on the market. Most of these formulas are designed for infants with unique nutritional needs. For example, milk-based lactose-free formulas are available for infants sensitive to lactose. Hypoallergenic formulas are available for infants with food protein allergies. Infant formulas are available for infants with other special nutritional needs (e.g., low-birth-weight and premature infants) and medical disorders, such as phenylketonuria (PKU).

Figure 3

Share of infant formula sold in U.S. supermarkets by manufacturer, 2nd quarter of 2004



Note: Market share was determined by volume of sales based on stores with annual sales over \$2 million. "All other" includes store brand infant formula where manufacturer was not identified. Source: ERS analysis of ACNielsen Scantrack data.

Milk- and soy-based formulas accounted for most of formula sold by volume. Over three-quarters (77 percent) of all infant formula sold was milk-based, while soy-based formula accounted for 17 percent. Formulas that use another product base, primarily protein hydrolysate, accounted for the remaining 6 percent of all formula sold.¹³

The use of formula in powdered form has increased markedly in recent years. Between 1994 and 2000, powder increased from 44 percent to 62 percent of all formula sold by volume on a reconstituted basis (Oliveira et al., 2004). Over the same period, liquid concentrate decreased from 42 percent to

27 percent of all formula sold, and ready-to-feed decreased from 14 percent to 11 percent. Data from the second quarter of 2004 indicate that this trend is continuing: powder accounted for 70 percent of dollar sales, compared with 23 percent for liquid concentrate and 7 percent for ready-to-feed.¹⁴

An important development in recent years has been the introduction of infant formulas supplemented with the fatty acids docosahexaenoic acid (DHA) and arachidonic acid (ARA). Ross first introduced these formulas into their product lines in 2002, with Mead Johnson and Nestlé following in 2003. While some studies have suggested that the addition of these fatty acids to formula may improve visual function and the mental development of infants, other studies have not found such a relationship. Citing the lack of data on the fatty acids' effectiveness, the American Academy of Pediatrics (AAP) Committee on Nutrition has recommended that the Academy not take an official stand at this time (AAP Committee on Nutrition, 2002). The share of total sales of infant formula attributed to DHA- and ARA-supplemented formulas has increased rapidly since their introduction (fig. 4). By the second quarter of 2004, supplemented formulas accounted for almost two-thirds (63.6 percent) of total dollar sales of formula in supermarkets.

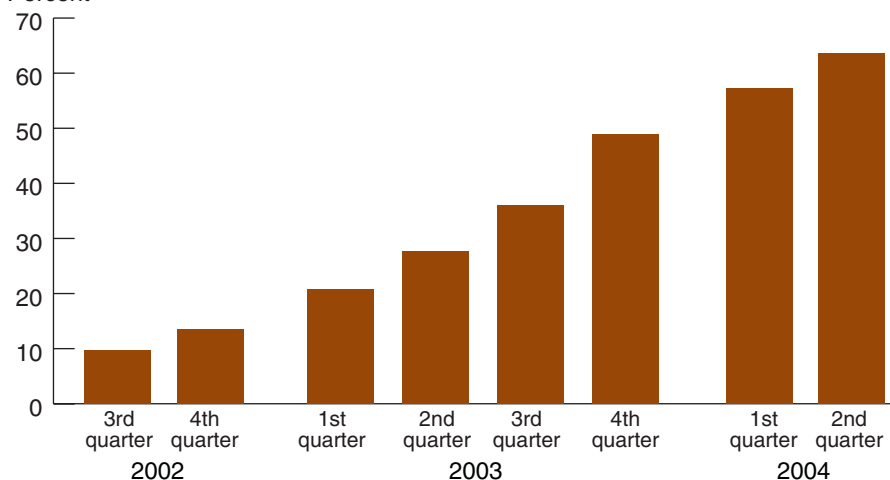
¹³ Protein hydrolysate formulas make milk proteins more digestible and less allergenic and provide alternative sources of protein to children who are allergic to milk and soy proteins.

¹⁴ The increased use of powdered formula has been attributed in part to the increase in breastfeeding. Powdered 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 the cessation of breastfeeding" (Fomon, 2001).

Figure 4

Sales of DHA- and ARA-supplemented formula as a share of total infant formula sales in supermarkets

Percent



Source: ERS analysis of ACNielsen Scantrack data.

Wholesale Price of Infant Formula

This section examines the wholesale prices of infant formula produced by the three major manufacturers—Mead Johnson, Ross, and Nestlé. Because both the can sizes and reconstitution factors for formula in powder form differ across the three manufacturers, all prices were converted to a standard unit—26 ounces of reconstituted formula. This volume was chosen because it is the ready-to-feed equivalent of a 13-ounce can of liquid concentrate. This conversion allows one to easily compare prices for different package sizes and product forms. All three manufacturers offer liquid concentrate in 13-ounce cans that reconstitute to 26 ounces.

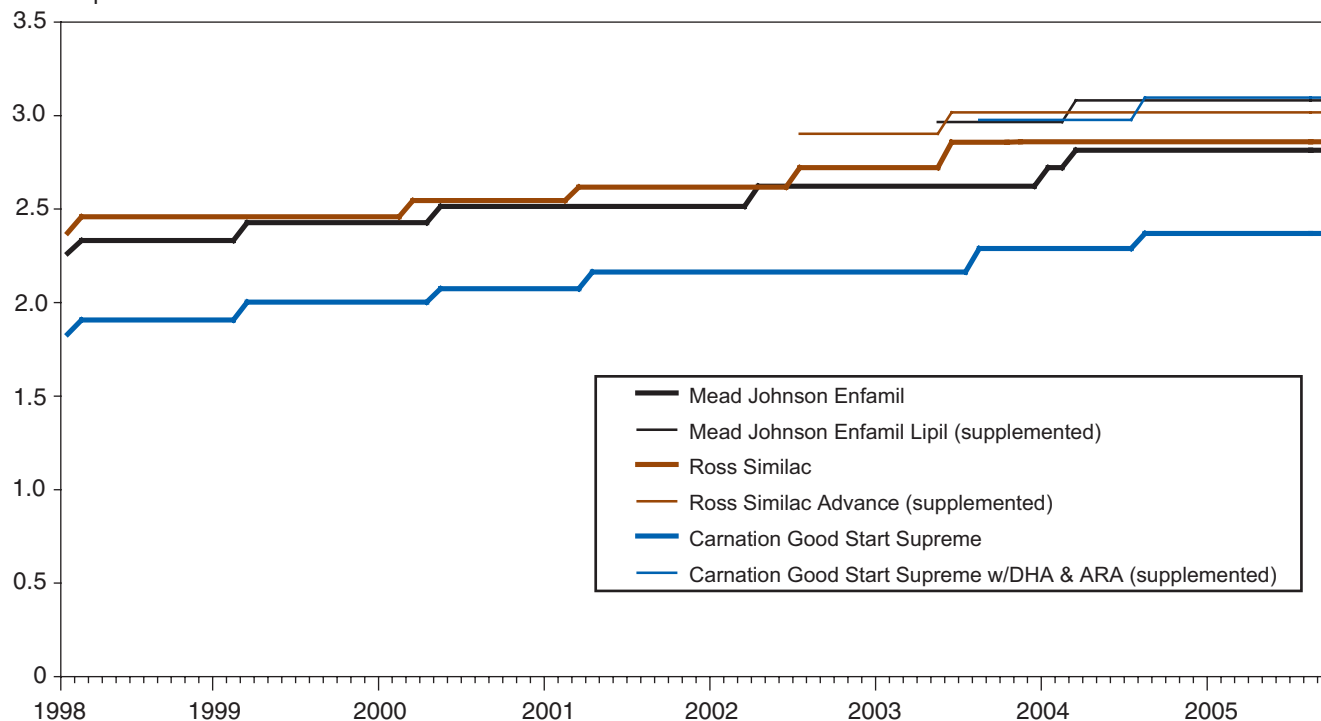
Figures 5 and 6 show the wholesale price of milk-based powder and liquid concentrate in nominal terms (i.e., not adjusted for inflation) between January 1998 and August 2005 for both the new DHA- and ARA-supplemented formulas and the unsupplemented formulas.¹⁵ During this period, each manufacturer raised the wholesale price of its unsupplemented formula (both powder and liquid concentrate) five or six times and the wholesale price of their supplemented formula once. In general, wholesale prices for Mead Johnson and Ross unsupplemented formulas were similar, and both were higher than that of Nestlé. For all three manufacturers, supplemented formulas were more costly than the unsupplemented formulas, and comparable in price among all three companies.

While nominal (i.e., not adjusted for inflation) wholesale prices have risen over time, have they increased faster than inflation? The answer depends on two factors: the set of goods used to measure inflation and the reference period. For example, the Consumer Price Index for all items (CPI-U)—the most widely used measure of inflation, or general price changes—is a broad, comprehensive price index that measures the average change over time in prices paid by urban consumers for a market basket of consumer goods and services. More specific measures to compare infant formula prices against inflation include the CPI for food at home and the CPI for

¹⁵Wholesale prices represent the manufacturers' lowest national wholesale price per unit for a full truckload of infant formula as reported in each manufacturer's price list catalog. Wholesale prices were obtained from wholesalers' price lists through August 2005.

Figure 5
Wholesale prices of milk-based powder by brand, 1998-2005

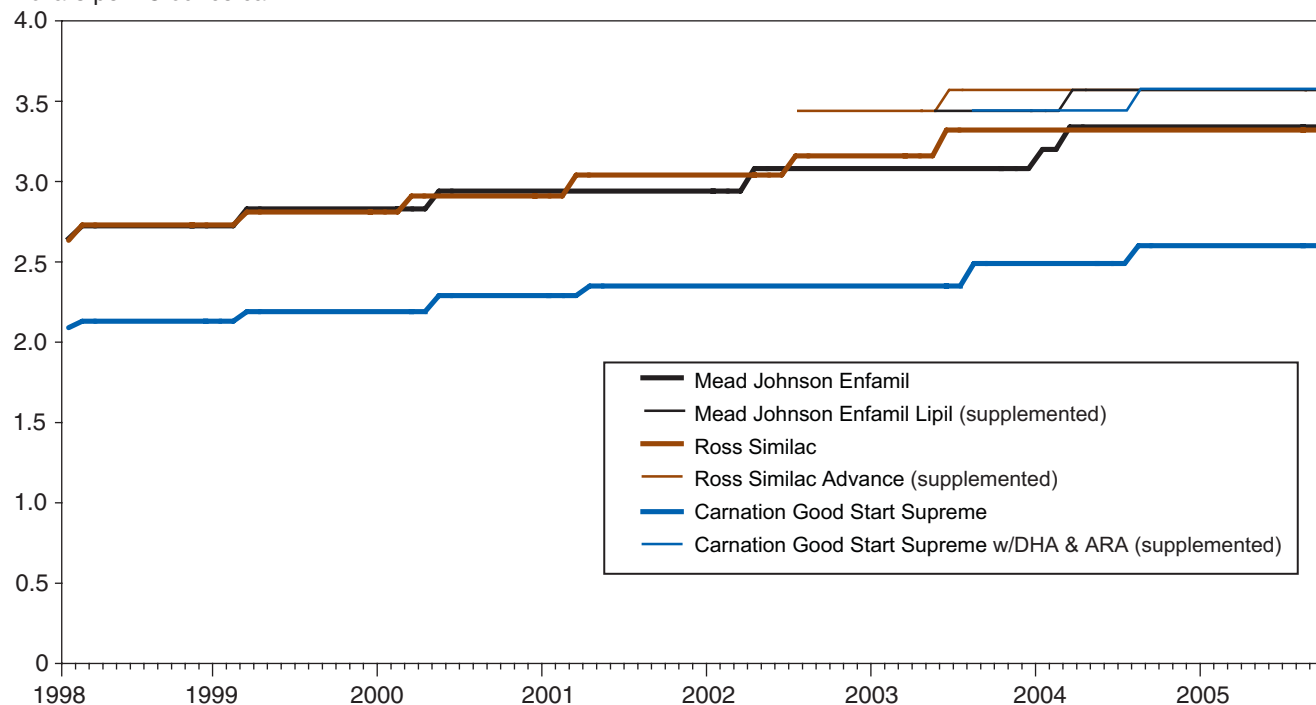
Dollars per 26 reconstituted ounces



Source: Infant formula manufacturers' product price list catalogs.

Figure 6
Wholesale prices of milk-based liquid concentrate by brand, 1998-2005

Dollars per 13-ounce can



Source: Infant formula manufacturers' product price list catalogs.

nonprescription drugs and medical supplies.¹⁶ The reference period used here for price comparisons is January 1998 to August 2005. Results indicate that the wholesale price of powdered unsupplemented formula by Mead Johnson, Ross, and Nestlé increased by 24.4 percent, 20.5 percent, and 29.4 percent, respectively, and the corresponding wholesale prices of unsupplemented formula in liquid concentrate increased by 26.3 percent, 26.0 percent, and 24.4 percent.¹⁷ During the same period, the CPI for all items increased by 21.5 percent, the CPI for food at home increased by 17.7 percent, and the CPI for nonprescription drugs and medical supplies increased by 3.3 percent. Thus, during the period January 1998-August 2005, the wholesale price of most unsupplemented formulas increased faster than overall as well as specific measures of inflation.¹⁸

Infant Formula Products in This Analysis

During the study period, each of the three manufacturers submitted rebate bids based on one of two milk-based infant formulas with iron in their product line, depending on whether or not the formula was supplemented with DHA and ARA. All analyses of wholesale and retail prices described in this report are based on these same formulas, shown below:

	Powder can size as of August 2005*
Unsupplemented formulas:	
Mead Johnson—Enfamil	14.3 oz
Ross—Similac	12.9 oz
Nestlé—Good Start Supreme	12 oz
Supplemented formulas:	
Mead Johnson—Enfamil LIPIL	12.9 oz
Ross—Similac Advance	12.9 oz
Nestlé—Good Start Supreme DHA & ARA	12 oz

*The can size of some brands of powdered infant formula changed during the study period. All three manufacturers sold liquid concentrate in 13-oz. cans.

¹⁶The argument for using the CPI for food at home, the Nation’s principal indicator of changes in retail food prices, is that most infant formula is sold in retail foodstores. The argument for using the CPI for nonprescription drugs and medical supplies is that most infant formula is produced by pharmaceutical companies and all formula must conform to regulatory standards enforced by the Food and Drug Administration.

¹⁷ Supplemented formulas were not available in 1998.

¹⁸ The period of analysis is important in calculating rates of inflation. Manufacturers’ wholesale prices are unchanged for months at a time, and determining whether the real wholesale price of formula has increased over a period of time depends on the length of time covered and whether it includes one or more increases in wholesale price. For example, the real wholesale price of formula will increase markedly over a relatively short time period if there was an increase in the wholesale price during that period. Conversely, real wholesale prices will fall if the chosen reference period is between increases in nominal wholesale prices, since nominal wholesale price is fixed during the period while a price index typically rises month by month.