

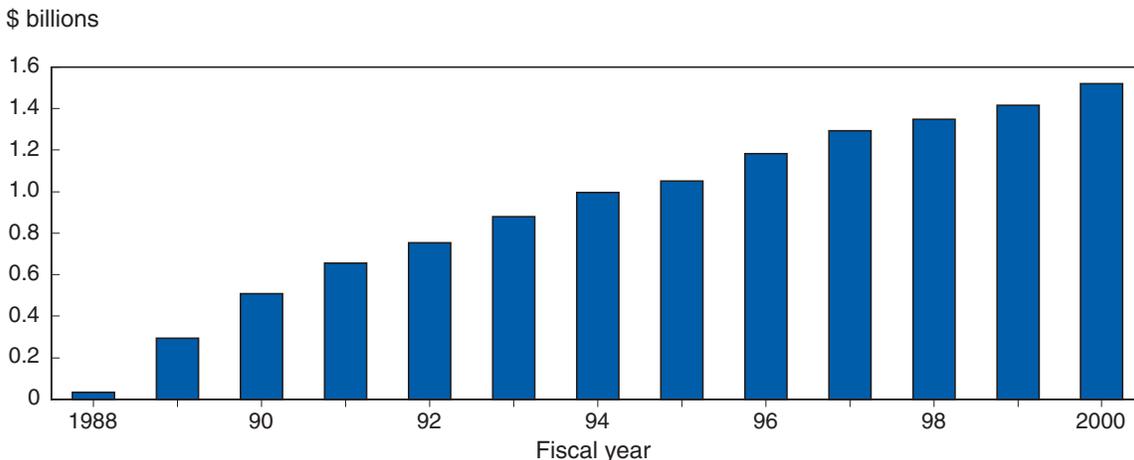
Introduction

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) safeguards the health of low-income infants and children under 5 years of age, as well as pregnant, breast-feeding, and postpartum women who are at nutritional risk, by providing a package of supplemental foods, nutrition education, and health care referrals. On average, 7.5 million people per month participated in the WIC program in fiscal 2002, including 1.9 million infants or almost half of all infants in the United States (U.S. Department of Agriculture (USDA), 2003). Although WIC encourages mothers to breastfeed if possible, most of these participating infants receive infant formula through WIC (see box “Infant Formulas”).

Since 1989, Federal law has required that WIC State agencies enter into cost-containment contracts for the purchase of infant formula used in WIC. Typically, WIC State agencies obtain significant discounts in the form of rebates from the manufacturers for each can of infant formula purchased by WIC participants. In exchange for the rebates, a manufacturer is given the exclusive right to provide its products to WIC participants in the State (i.e., sole sourcing). The contract is awarded to the manufacturer offering the State WIC agency the lowest net price as determined by the manufacturer’s wholesale price minus the rebate. The contract-winning manufacturer is then billed for the amount of the rebates on the formula issued to WIC participants. Infant formula rebates have increased dramatically over time and have become an important component of the WIC program (fig. 1-1). In FY 2000, infant formula rebates totaled \$1.4 billion, an amount that supported about 27 percent of WIC participants (USDA, 2001a).

WIC is an influential agent in the infant formula market: ERS estimates that infants participating in WIC consume about 54 percent of all formula sold in the United States. In most States, WIC participants use food vouchers or food checks to purchase their infant formula, free of charge, at participating retail grocery stores. WIC then reimburses the retail grocery stores for the amount of infant formula purchased. Some observers have hypothesized that WIC and its rebate program may significantly affect the retail infant formula prices faced by non-WIC consumers, either indirectly, through their impact on wholesale prices, or directly, through their effect on the retail markup (the difference between the retail price and the wholesale price).

Figure 1-1
Infant formula rebates, 1988-2000



Source: USDA's Food and Nutrition Service, Office of Analysis, Nutrition, and Evaluation.

Infant Formulas

A wide variety of commercial infant formulas is available to consumers. Conventional milk-based infant formula, containing lactose (a carbohydrate in cow's milk) and cow's milk proteins, is the most widely used formula. Soy-based formulas, free of cow milk proteins and lactose, provide an alternative protein source to infants with milk-based allergies or with symptoms of lactose intolerance, and are also used by parents seeking a vegetarian diet for their infants. According to USDA's Food and Nutrition Service, "the best impartial medical evidence strongly demonstrates that milk-based, lactose-containing and soy-based, lactose-free infant formulas meet the nutritional needs of almost all infants" (*Federal Register* (FR) Vol. 65, No. 164). These milk- and soy-based formulas are available in three different physical forms:

- Powder—the least expensive formula which must be mixed with water and stirred,
- Liquid concentrate—which 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 (American Academy of Pediatrics, 1999). Iron-fortified infant formula is routinely issued in WIC. All low-iron infant formula issued through WIC requires medical documentation.

In addition to formulas used for routine infant feeding, other types of formulas designed for infants with unique nutritional needs are also available. For example, hypoallergenic formulas are produced for infants with food protein allergies. These include protein hydrolysate formulas that make milk proteins more digestible and less allergenic and thereby provide alternative sources of protein to children who are allergic to milk and soy proteins. 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). Formula is also produced specifically for toddlers 1 year of age or older, who have different nutritional needs than infants.

Potential Effect on Wholesale Prices. Because retailers establish a commodity's retail price based on a number of factors, including its wholesale cost, factors affecting the wholesale price of infant formula may also affect the retail price of formula. By moving a large number of low-income consumers from the out-of-pocket segment of the infant formula market into the WIC-funded segment of the market, WIC may make it profitable for manufacturers to raise the wholesale price of formula for two possible reasons. First, the remaining higher income consumers of formula in the non-WIC market are less sensitive to price changes.¹ Second, the presence of large numbers of price-insensitive customers resulting from the WIC program (since WIC produces a "customer that is essentially unconcerned with the price he or she is paying" for formula) may have "kept the competitive focus of the infant formula companies on promotion rather than pricing" (Post and Wubbenhorst, 1989).

A separate influence on wholesale prices due specifically to the rebate program might occur if, by channeling large volumes of guaranteed purchases to contract-winning manufacturers, the rebate program had the effect of reducing the number of infant formula manufacturers and lessening competition. In addition, the amount of the rebates paid by infant formula manufacturers are

¹ See Salant 2003, chapter 24 for a more detailed discussion of WIC's potential effect on the wholesale price of infant formula.

another possible influence on wholesale prices. If manufacturers change wholesale prices in response to the payment of rebates, then (holding the retail markup constant) retail prices would be affected in turn (for further discussion, see the 1998 U.S. General Accounting Office report GAO/RCED-98-146).

Potential Effect on Retail Markup. WIC and its infant formula rebate program may also affect retail prices directly, independent of any effects on wholesale prices. WIC may make it profitable for retailers to raise infant formula retail prices, for given wholesale prices, for reasons similar to those cited above for wholesale price—removing certain low-income consumers from the out-of-pocket market and converting them into price-insensitive consumers supported by WIC. In addition, the rebate program’s feature of sole-source procurement of infant formula can affect retail prices. For example, retailers may increase the retail price of the WIC contract-winning brand of formula because WIC recipients are required to purchase the contract brand of formula. Retailers also may increase the retail price of the contract brand even more if demand for the brand increases in the non-WIC market segment. This increase in demand could occur if retailers increase the contract brand’s shelf space in stores or if physicians or hospitals are more likely to recommend the contract brand to their non-WIC patients (U.S. General Accounting Office (GAO), 1998). While the level of infant formula rebates may potentially affect wholesale prices, it is thought that rebates do not affect the establishment of retail prices, for given wholesale prices, since manufacturers—not retailers—pay the rebates.

In recent years, Congress has expressed an interest in the possible effects of WIC’s rebate program on non-WIC consumers. In response to a request by the U.S. House of Representatives’ Committee on the Budget, the U.S. General Accounting Office in 1998 analyzed several issues related to infant formula rebates including how prices in the infant formula market changed after the introduction of the rebate program (U.S. GAO, 1998). Because data on retail prices were not readily available, the GAO study focused solely on wholesale prices. In May 1999, the U.S. House of Representatives’ Committee on Appropriations, while acknowledging the revenue to the WIC program generated through the use of infant formula rebates, expressed concern “that since rebates began infant formula costs appear to have risen far greater than inflation, and the number of suppliers has declined” (H.R. 106-157).

In October 2000, Congress directed USDA’s Economic Research Service (ERS) to (1) report on the number of infant formula suppliers in each State or major marketing area; and (2) compare the cost of infant formula that is included in the WIC rebate program versus the cost of formula that is not included in the WIC rebate program (H.R. 106-948). In November 2001, ERS delivered a final Report to Congress that specifically addressed the two issues mandated by Congress (Oliveira et al., 2001).

This report examines other important issues not addressed in the earlier ERS Report to Congress and provides a more indepth analysis of the effects of WIC and its infant formula rebate program on the retail prices of infant formula. This report focuses on local retailer decisionmaking and the establishment of retail prices, treating national wholesale prices as given. In addition to examining retail prices, this report looks at retail markup. To the extent that WIC and the rebate program affect national wholesale prices in addition to the local retail markup, this report’s analysis does not capture fully all effects of WIC and the rebate program.

Because the report is an extension of the earlier congressionally mandated study, results from the *Report to Congress* are contained in this report, along with the results from the latter analyses. Specifically, this report examines the following eight issues:

What are the recent trends in the infant formula market?

The report examines the infant formula market in terms of the types, amounts, and prices of formula sold, and how it has changed in recent years.

Has the number of infant formula suppliers decreased since WIC's infant formula rebate program began?

Congress has expressed concern that the WIC rebate program has brought about a decrease in the number of infant formula suppliers.

Have infant formula prices increased faster than inflation in recent years?

Congress also expressed concern that the WIC rebate program may have led to an increase in the real (i.e., inflation-adjusted) cost of infant formula to consumers.

Does the retail markup differ by brand and by type of infant formula?

Because retail price is the sum of an item's wholesale price and its retail markup, the report calculates the amount of the retail markup for each of the major types of infant formula, by brand.

What is the availability of infant formula products from the major manufacturers in different market areas?

The local availability of different infant formula brands directly affects the choices available to consumers in a market area.

Is the retail price of infant formula that is included in the WIC rebate program greater than the price of formula that is not included in the WIC rebate program?

Congress is concerned that non-WIC consumers may be paying a higher price for formula that is included in the rebate program relative to formula not included in the rebate program.

What effect does contract brand status have on the retail price of infant formula?

This report uses two different methodologies—an event study analysis and a multivariate regression analysis—to determine if winning a State's WIC infant formula contract results in higher retail prices for the new contract brand of formula. The event study analysis compares prices before and after changes in the contract brand in various market areas between 1994 and 2000. The multiple regression analysis examines the price effects of contract brand status simultaneously with the effects of other price-determining variables.

Does the size of the WIC program affect the retail price of infant formula?

The multivariate regression analysis also examines retail price effects that are associated with the size of a State's WIC program, as measured by the ratio of WIC infants to non-WIC infants who use infant formula.

The main focus of this report is to provide answers to these last two questions, both of which deal with identifying the effects that the WIC program and its infant formula rebate program have on the retail prices of formula. This report is the most comprehensive national study to analyze prices of infant formula at the retail level; most of the previous work examined wholesale infant formula

prices (for example, see U.S. GAO, 1998). By using scanner-based retail sales data, this study examines directly the infant formula prices faced by non-WIC consumers and the pricing behavior of retailers for a given set of wholesale prices.

The next several chapters provide readers with background information on the WIC program (chapter 2), WIC's infant formula rebate program (chapter 3), the domestic infant formula market (chapter 4), and the primary data set used in the analysis (chapter 5). Recent trends in the infant formula market are examined in chapter 6. Chapter 7 responds specifically to the directives made by Congress. Chapters 8 and 9 present the main empirical analyses of the report—an event study analysis and a multivariate regression analysis. The major implications of the analyses are discussed in chapter 10 while chapter 11 summarizes the study's major findings. Appendix A presents a history of WIC's infant formula rebate system and appendix B contains tables providing detailed information on the event study analysis. Detailed information regarding the regression model used in the analysis of retail infant formula prices is presented in appendices C through E.