Chapter 10

Discussion

The empirical study examined price effects associated with contract and noncontract brands of infant formula and changes in the relative size of WIC, given that WIC and its rebate program are both in effect. It did not consider issues related to the existence versus absence of the rebate or WIC programs. More specifically, the empirical study did not consider what infant formula prices are under WIC compared with what infant formula prices would be in the absence of WIC. Neither did it consider how infant formula prices under the rebate program would compare with infant formula prices if the rebate program were not in effect. These comparisons were not considered because the 1994-2000 dataset used in the analysis covers the period after WIC and its rebate program were instituted.

Results of the regression analysis indicate that WIC and its infant formula rebate program (with its designation of one manufacturer as the WIC contract brand) affect the retail price of infant formula in several ways:

(1) Compared with being the noncontract brand, being the WIC contract brand of infant formula was typically associated with higher retail prices for most types of formula—especially the milk-based brands of formulas (holding other factors constant). The results of the event study analysis that compared prices in the calendar quarter before and the calendar quarter after a change in the WIC contract holder support these findings that the WIC infant formula rebate program leads to higher prices of the contract brand of formula compared with what the price would be if the brand were not the contract brand. For example, for milk-based powder formula (the highest volume type of formula), the pre/postprice increase averaged 10 cents for new contract holders compared with 3 cents for old contract brands that had lost the WIC contract.

(2) The regression analysis found that the larger the relative size of the WIC program, the greater the retail price of the contract brand of formula, ranging from 8 to 14 cents across brands of milk-based powder formula (per 26 ounces of reconstituted formula) for a one-unit change in *relative size of WIC* (e.g., WIC's share of all formula infants increases from one-half to two-thirds).

(3) The analysis found that the relative size of the WIC program also affects the retail price of noncontract formula by amounts ranging (for milk-based power formula) from 3 cents to 11 cents. That is, larger WIC programs result in higher retail prices of the noncontract brands of formula although the increase is less than that of the contract brand.

(4) A change in the WIC contract brand within a market area regardless of who won or lost the contract, was also associated with a small, but statistically significant, effect on the retail prices of some types of formula.

These results have implications for both WIC State agencies and non-WIC consumers. First, the larger the relative size of a State's WIC program (holding other factors constant), the smaller the State WIC agency's savings per can from the rebate program for a given negotiated rebate level.[1] This is because, for each can of the contract brand of infant formula sold through WIC, the WIC

[1] It should be noted that larger WIC States (i.e., States with large numbers of WIC infants in absolute terms) may be able to negotiate larger rebate savings from the infant formula manufacturers.

State agency pays the retail price minus the amount of the manufacturer's rebate, and the larger the relative size of the WIC program, the greater the retail price of the contract brand of formula. While increases in infant formula retail prices due to an increase in the relative size of WIC may be considered small relative to the retail prices of formula, such price increases are larger compared with the actual cost of infant formula (per 26 ounces reconstituted) to State WIC agencies. In market areas with changes in contract brand, the WIC rebate program may also lead to higher retail prices for some of the contract brands of formula independent of the effect of the *relative size of WIC* variable (i.e., through the "trigger event" effect associated with changes in the WIC contract brand). However, the increase in costs of the contract brand to the WIC State agencies due to either WIC-related effect is far outweighed by the effect of the rebate levels negotiated.[2] In fact, because the rebates are so large, in some areas, the retail markup accounts for most of the costs of infant formula to WIC.

A second implication is that the non-WIC consumers can be affected by WIC and its rebate program. WIC leads to higher retail prices for non-WIC consumers who purchase the contract brand of formula. Furthermore, non-WIC consumers purchasing the noncontract brand of formula may also be negatively affected by WIC and its rebate program. Results from the regression analysis show that, since the relative size of the WIC program affects the retail price of formula in general, an increase in the relative size of the WIC program not only increases the retail price of the contract brand but also the noncontract brand. Therefore, non-WIC consumers in States with large WIC programs pay statistically significant higher prices for noncontract brand infant formula relative to consumers in States with small WIC programs, controlling for other factors. Finally, non-WIC consumers may pay higher retail prices for some brands of formula to the extent that the brand's price responds to the trigger event effect associated with WIC contract brand changes.

Figures 10-1 and 10-2 show the hypothetical effect on a family's monthly expenditures for infant formula when they move from a State where *relative size of WIC* equals 1 (i.e., WIC infants account for one-half of all formula-fed infants) to a State where *relative size of WIC* equals 2 (i.e., WIC infants account for two-thirds of all formula-fed infants) holding other factors constant.[3] Since the formula needs of infants depend on a number of factors, including age, weight, and diet, a number of assumptions are necessary to assess costs. The example reported here is based on the average formula needs of a 12-pound infant (i.e., the average weight of a 3-month-old infant girl) who is consuming only formula (i.e., no breast milk or solids).[4] The increase in monthly expenditures varies by brand of formula, ranging from less than $3 per month to over $5 per month for milk-based contract brands and from less than $1 to over $4 per month for the noncontract brand of milk-based formula. The results for the soy-based infant formulas in general showed similar results. The estimates in figures 10-1 and 10-2 would double if the comparison instead was what happens to a family's monthly expenditures for infant formula when they move from a State where *relative size of WIC* equals 1 to a State where *relative size of WIC* equals 3 (i.e., WIC infants account for three-quarters of all formula-fed infants). It bears repeating that although the regression results indicate that *relative size of WIC* affects the retail price of infant formula, so do other

[2] For example, the size of the rebate provided by infant formula manufacturers in September 2000 ranged from $2.06 per can of milk-based liquid concentrate in New Jersey to $2.84 per can in South Carolina (see fig. 3-2). In contrast, an increase in the *relative size of WIC* from 1 (where one-half of all formula-fed infants are on WIC) to 3 (where three-fourths of all formula-fed infants are on WIC) results in only a $0.27 increase per can in the retail price of Mead Johnson milk-based liquid concentrate when it is the contract brand. Similarly, if a market area experienced two contract changes during the 1994-2000 period, the price of this formula product would increase by a total of only $0.06.

[3] The average value of size of WIC in the market areas included in the regression analysis during the study period was 1.14.

[4] The example reported here assumes that infants consume about 2.5 ounces of infant formula per pound of body weight per day.

Figure 10-1

Example of the effect of a one-unit increase in *relative size of WIC* on monthly expenditures for milk-based infant formula

Dollars per month

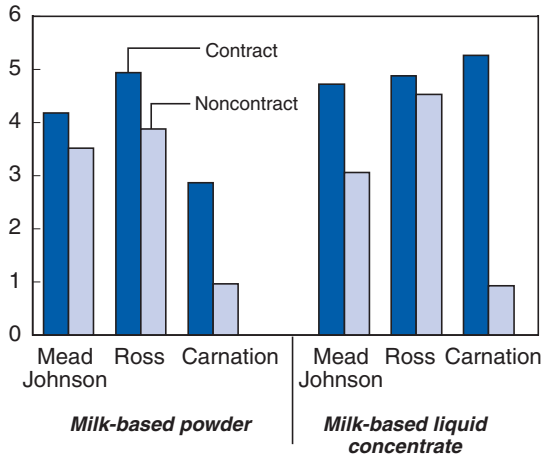
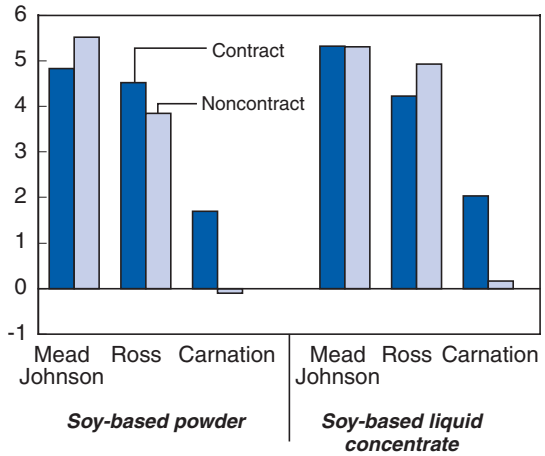


Figure 10-2

Example of the effect of a one-unit increase in *relative size of WIC* on monthly expenditures for soy-based infant formula

Dollars per month



Note: These examples are based on the hypothetical formula needs of a 12-lb, formula-fed-only infant. Actual formula needs depend on an infant's age, weight, and whether the infant is also consuming breast milk or solids.

variables. Areas in which *relative size of WIC* is large, are more likely to have high *poverty rates* and low *household income*, variables associated with lower infant formula prices.

A full discussion of the adverse price effects associated with WIC and its infant formula rebate program must acknowledge that over one out of every four participants in the WIC program (i.e., almost 2 million people per month in fiscal 2000) is served with rebate money. It may also be possible to lessen the negative impacts of the rebates on non-WIC consumers. Although States have no direct control over the retail price of the noncontract brand of infant formula, as a result of recent legislative changes, they do have authority to limit the price of the WIC contract brand of infant formula (65 FR 83253, December 29, 2000). WIC State agencies are now required to consider the prices a vendor applicant charges for WIC foods compared with the prices charged by other vendor applicants and authorized vendors. The State agencies must also establish price limitations on the amount they will pay vendors. These price limitations must be designed to ensure that the State agency does not pay authorized vendors at levels that would otherwise make the vendor ineligible for authorization (7 CFR 246.12). As a result, WIC vendors are discouraged from charging exorbitant prices for infant formula. In addition, several States, such as Texas and Rhode Island, have included provisions in their vendor contracts that prohibit vendors from marking up the retail price of WIC brand formula more than non-WIC brands, while Delaware awards the WIC contract to those vendors offering the lowest prices for WIC foods (Larin, 1996). Setting more stringent maximum prices for infant formula may help lower costs for WIC State agencies. However, if maximum price limits are too stringent, it might discourage participation by some retailers, thereby reducing participant access to WIC foods, which in turn, could discourage mothers of eligible infants from participating in WIC. WIC regulations require that States authorize an appropriate number and distribution of WIC vendors to ensure adequate participant access (7 CFR 246.12).

Limiting the retail price of the contract brand of formula may also indirectly affect the retail price of the noncontract brand of formula as well. The prices of substitute infant formulas may affect the demand for the noncontract brand of formula. That is, since the rebate program increases the price of the contract brand of formula, some non-WIC consumers who purchased a particular

brand of formula before it was the contract brand may have switched brands after it became the contract brand rather than pay higher prices.

The results of this analysis indicate that increasing the prevalence of breastfeeding among WIC infants would decrease the retail price of both the contract and noncontract brands of infant formula. Since *relative size of WIC* measures the number of WIC formula-fed infants relative to the number of non-WIC formula-fed infants, increasing the breastfeeding rate among WIC participants would reduce the number of WIC formula-fed infants, thereby reducing *relative size of WIC* (and WIC's influence in the infant formula market), resulting in lower retail prices for both contract and noncontract brands of infant formula. Although the breastfeeding rate for infants participating in WIC (20 percent at 6 months of age in 2000) has been increasing in recent years, it remains far below the rate for non-WIC infants (41 percent).

While this analysis indicates that the WIC program and its infant formula rebate program were generally found to result in modestly higher retail prices of infant formula in supermarkets, lower priced infant formulas are available to non-WIC consumers in most areas of the country, and furthermore, the number of these lower priced alternatives is increasing over time.[5] For example, Carnation brand formula, which is available in supermarkets throughout the country, is nearly always priced below that of comparable Mead Johnson and Ross products, even when Carnation is the WIC contract brand of formula. Infant formula marketed by PBM Products (which began operations in 1997) is available in supermarkets in most areas of the country and is priced significantly below formula produced by the other three manufacturers of infant formula. In 2001, Abbott Labs, the parent company of Ross, began producing a low-priced private-label infant formula for sale in Costco stores.[6]

Furthermore, the results from this analysis apply only to supermarkets (where WIC foods are predominantly sold). Increasingly non-WIC consumers are purchasing infant formula sold by mass merchandisers, who cater to the non-WIC consumer, at prices below that of supermarkets. (Since many of these mass merchandisers sell a limited variety of food products, they are not authorized WIC vendors and cannot participate in the infant formula rebate program.)

The increase in the range of alternatives available in the market place may be in response to infant formula consumers becoming more price conscious.[7] In addition to the increased purchase of lower priced brands and purchases from mass merchandisers, the purchase of powdered formula (the least expensive form of formula) and powdered formula in large-sized containers (with lower per unit prices) has increased dramatically in recent years.[8] As consumers become more price conscious, the role of medical detailing, which attempts to make consumers less price responsive by fostering brand loyalty, may be declining.

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[5] Other brands of infant formula may provide close substitutes for consumers wishing to switch brands. Since the content and quality of infant formula is strictly regulated, all brands of infant formula must meet the same nutritional standards.

[6] Because all infant formulas sold in the United States are required to meet the nutritional requirements of the Federal Food, Drug and Cosmetic Act for infant formula, private-label brands are as nutritionally complete as the national brands.

[7] In addition to a range of price alternatives, consumer choice in other areas has also widened in recent years as new types of infant formulas and new types of packaging have emerged.

[8] The increase in the prevalence of breastfeeding in recent years may also reflect greater sensitivity to infant formula prices by mothers.