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Consumers Pay a Premium for Organic Baby Foods

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U.S. consumers of all ages are involved in the trend toward eating more healthful foods. The health consciousness has spawned a host of food offerings lower in fat, higher in fiber, and even produced without chemical fertilizers or pesticides. This includes the baby food market, as the health concerns of parents extend to their decisions about what foods to place before the newest family members.

Some consumers perceive organic products as a safe and healthy way to avoid potential risks of exposure to pesticide residues in foods. Sales of organic baby food have been steadily increasing, and in 1995 stood at over \$25 million. This was despite a price premium of 21 cents per jar over regular baby food. When it comes to purchasing decisions about baby food, consumers were also willing to pay more for other product characteristics—notably the lack of added fillers, such as modified starches. Consumers placed a positive value on the protein and iron content and a negative value on fat content in baby food.

These results are drawn from an economic model developed by USDA's Economic Research Service (ERS) to estimate what product characteristics consumers consider most important when they purchase baby food. Economists have developed a characteristics demand model where the price of products in a category such as baby food can be expressed as a mathematical function of the level of different characteristics observable in the purchase decision (for example, fat level, the presence of fillers, and organic.) This mathematical relationship allows researchers to estimate consumer values or preferences for various characteristics using market prices and purchase data. This method provides objective valuation of characteristics because consumers are revealing their preferences through actual purchases, as opposed to focus groups or surveys which provide subjective valuation of characteristics. The model for this analysis used scanner data reflecting baby food purchases in U.S. supermarkets.

The finding that some consumers are willing to pay a premium for organic baby food is especially interesting given that there has been no national definition of organic foods. The lack of national standards and the sporadic certification of organic producers has raised issues regard-

ing the value of the organic label. The premium found in this study can be used as an estimate of the value of the organic label to baby food purchasers.

What is Organic Baby Food?

As yet, there is no national definition of what constitutes an organic food product. The 1990 Organic Food Production Act mandates USDA to establish national standards for producing and marketing organic agricultural products (see "New Law Paves Way for Expanding Organic Market," elsewhere in this issue). Presently, some organic foods are certified under State and private certification programs. USDA expects to publish the proposed regulations for organic crop and livestock production, handling, and certification procedures in the near future.

Earth's Best, the only national brand of organic baby food sold in the United States, uses its own certification program. Earth's Best growers and producers are certified to have not used synthetic pesticides or fertilizers for 3 years.

Earth's Best uses organically grown and processed foods in its product line; that is, crops produced without the use of toxic pesticides and synthetic fertilizers. Growers

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enrich their soil by using cover crops, natural fertilizers, and compost coupled with crop rotation, biological controls, and botanical pest controls. Post-harvest processing is minimal to help maintain the natural flavors. Synthetic fumigants, preservatives, and irradiation are not used in their manufacturing process. Earth's Best states that the meat and dairy products used in their baby foods come from animals which have been given no growth hormones or antibiotics.

Organic Baby Food Market and Outlets Grow

In the United States, retail sales of baby food exceeded \$1.2 billion in 1995. Fruits and juices accounted for 40 percent of these sales (fig. 1). Meats and combination meals were second with slightly more than 27 percent of baby food sales, followed by vegetables with nearly 14 percent, desserts with slightly more

than 10 percent, and infant cereals with more than 8 percent.

Supermarkets are the primary retail outlet for baby foods in the United States (supermarkets are large grocery stores offering a variety of food and nonfood products with annual sales of \$2 million or more). About 60 percent of baby food fruits and juices are sold in supermarkets. Another 25 percent of baby food fruit and juice sales occur in grocery stores (foodstores with less than \$2 million in sales, excluding club stores, specialty foodstores, and drug stores). Grocery stores and supermarkets account for about 90 percent of retail sales of baby food fruits and juices. Sales for other baby food product categories range from 59 to 64 percent sold in supermarkets and 24 to 25 percent sold in grocery stores. Desserts have the smallest share of baby food sales in supermarkets and grocery stores—59 percent and 24 percent, respectively.

Despite their sales growth, organic baby food sales account for only 2.5 percent of the baby food sold in U.S. supermarkets. However, U.S. supermarket sales of organic baby food increased nearly 2,200 percent between 1989 and 1995—from \$1.1 million to \$25.1 million (table 1). During this period, supermarket sales of all baby foods increased 20 percent, from \$888 million to \$1.1 billion.

Outlets for organic baby food have been increasing. Earth's Best started in Vermont in 1988 and was initially sold in health-food stores. In 1991, their production facilities and headquarters moved to Colorado and began expanding into the national market. Heinz acquired the company in 1996. In 1996, Earth's Best baby food was sold in about 45 percent of U.S. supermarkets and in 980 health-food stores in 49 States.

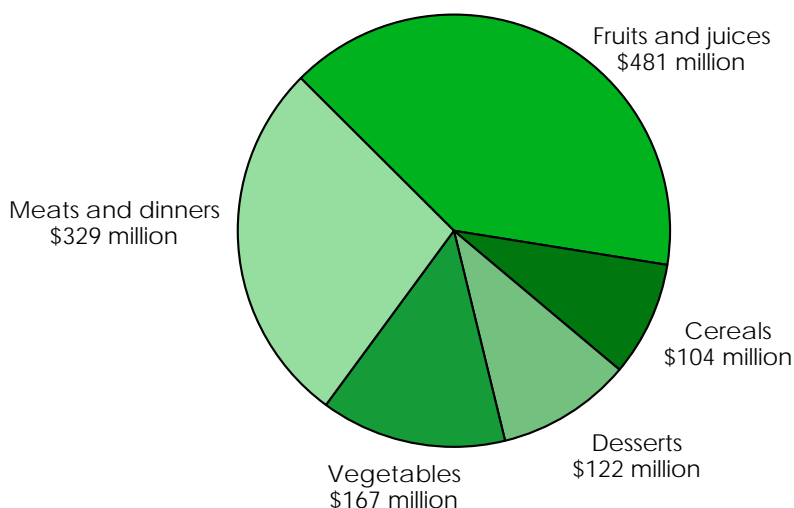
There are numerous smaller regional organic baby food producers in the United States who market their products in local foodstores and food cooperatives. However, they account for a very small portion of organic baby food sales in the United States.

Most organic baby foods are the strained variety—processed to a fine texture to be easier for infants to digest. Organic products can also be found in other baby food categories, including cereal and meat products. Some organic junior baby foods (chunkier food for children approaching their first year) have recently been introduced.

Consumers Pay a 21-Cent Premium for Organic Baby Food

Sales of organic baby food have grown considerably in recent years. Product lines of organic baby food have also continued to expand. Earth's Best added organic junior

Figure 1
Fruits and Juices Dominated Baby Food Sales in 1995



Source: *Supermarket Business*, Sept. 1996.

baby food to its product line in 1995, while organic strained food, cereals, biscuits, and juice have been on supermarket shelves since 1989 or 1990.

The ERS analysis found that consumers who purchase organic baby food pay a 21-cents per jar premium (a jar of baby food is considered to be one serving) for the organic characteristic over regular baby food. This estimate is based on national supermarket prices.

There are several possible reasons for consumers being willing to pay this type of premium. Consumers may perceive that organic baby food reduces potential health risks from exposure to pesticide residues, or may pay a premium for what they perceive as better taste and nutrition. The higher cost of some organic ingredients may account for a portion of the premium. Organic raw products may cost more to produce, and there is an additional cost involved with the certification of organic foods.

Other Characteristics Important, But to a Lesser Degree

Price differences among baby food products reflect product differences in addition to whether or not it is organic. ERS's economic model also provides values for other characteristics consumers perceive to be important, including the presence or absence of added modified starch fillers and nutrient characteristics such as protein, iron, fat, and carbohydrate levels (table 2).

Most baby food manufacturers originally added sugar and salt to their baby foods.

However, some manufacturers have been reducing added ingredients and others add no fillers.

Earth's Best, for example, does not add any fillers to baby foods.

Growing Healthy, a frozen baby food product, does not add modified starches, refined sugars, or salt. Gerber removed added ingredients from many of its products in 1996, and Beechnut adds refined sugar and modified starches only to its dessert products.

Some consumers prefer not having added fillers in the strained foods they purchase, paying up to 2.7 cents more per jar for strained baby foods containing no modified

starch or fillers. Modified starches or fillers basically include the addition of processed sugars or starches to the food. This finding suggests that the presence of fillers is a significant factor in consumers' purchasing decisions.

Customers in the study valued only three nutrients in strained baby food when they make their purchase decision—iron, protein, and fat. Consumers were willing to pay 0.7 cent per jar for an additional gram

Table 1
Supermarket Sales of Organic Baby Food Soar¹

Year	Organic baby foods	All baby foods
<i>Million dollars</i>		
1989	1.1	888
1990	5.5	952
1991	10.8	1,004
1992	14.3	1,036
1993	17.0	1,046
1994	20.9	1,055
1995	25.1	1,069

Note: ¹Supermarkets are foodstores with \$2 million or more in annual sales. Source: Tabulated from supermarket scanner data.

Table 2
Organic Is a Major Characteristic Consumers Value in Baby Food

Characteristic examined	Value to consumer ¹
<i>Cents</i>	
Organic (present)	20.86
Protein (grams)	.71
Iron (percent of RDA)	.10
Fat (grams)	-.71
No fillers	2.71
Calcium (percent of RDA)	NS
Calories (number)	NS
Carbohydrates (grams)	NS
Serving size (ounces)	NS
Sodium (milligrams)	NS
Vitamin A (percent of RDA)	NS
Vitamin C (percent of RDA)	NS

Notes: NS = Not significant. RDA = Recommended Dietary Allowance. ¹The estimated premium or discount consumers place on a unit of the characteristic in a jar of strained baby food.

of protein in baby food. They are also willing to pay 0.1 cent per jar for an additional percentage of the Recommended Daily Allowance (RDA) of iron in baby food.

Fat content was also found to be a statistically significant factor for baby food purchases. Consumers discounted each additional gram of fat in a serving of strained food by 0.7 cent when they purchased baby food.

Other nutrients, including carbohydrates (independent of whether the product does or does not contain fillers), sodium, and vitamins were not significant factors affecting baby food purchases. This result suggests

that consumers either did not have sufficient information to include these characteristics in their purchasing decision, or simply that the characteristics were not relevant to their purchase decision. The latter is more plausible since mandatory nutrition labeling on baby food provides information on nutrient content. Also, baby food is not the only source of nutrients for infants. Baby foods are basically used to start infants on solid foods. Breast milk and infant formula provide many

nutrients in adequate amounts to sustain infants.

References

Dunn, Julie Anton. "Organic Foods Find Opportunity in the Natural Food Industry." *FoodReview*, Vol.18, Issue 3, USDA, Economic Research Service, Sept.-Dec. 1995, pp. 7-12.

Greene, Catherine, and Linda Calvin. "Organically Grown Vegetables: U.S. Acreage and Markets Expand During the 1990's," *Vegetables and Specialties, Situation and Outlook Report*, VGS-271, USDA, Economic Research Service, April 1997, pp. 19-23. ■

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