The Economic Impact of Imitation Cheese

Robin Tilsworth and Truman Graf*

The average American consumer has become a tickle friend of the U.S. dairy industry. Since 1950, his consumption of all dairy products has declined by about one fourth, but during the same 30 year period he has developed a strong fondness for "hard" natural cheeses, consuming 18.1 pounds in 1980, or more than double his consumption in 1950.

Increases in cheese consumption have been an economic bonus to the dairy industry, which has lost considerable ground to nondairy substitutes in some product areas. However, the future of natural cheese has become clouded by two federal actions that have spurred considerable taxes on imitation cheese products in which milk ingredients were partially or entirely replaced with nondairy ingredients. Also in 1974, a federal ruling permitted the use of imitation cheese in federally funded school-lunch programs.

The dairy industry fears that it is headed for another round of stiff competition with imitation dairy products, competition that could darken one of the brightest spots in the industry—natural cheese. This fear is based on past experience. The growth in the popularity of oleomargarine has taken a heavy toll, with the imitation product now claiming almost three fourths of the market that once was the exclusive domain of butter. Whipping cream and half-and-half now share half of their markets with nondairy substitutes. The dairy industry is fearful that imitation cheese may make similar inroads on natural cheese.

In this report, Tilsworth and Graf examine the current status of the imitation-cheese industry and discuss its prospects for expansion. Much of the report is based on studies they conducted on various aspects of the imitation-cheese issue.

Imitation Cheese: Types, Uses

Partial imitation (filled) cheeses are made with vegetable fat, rather than butterfat, in combination with nonfat milk solids. Manufacturers of complete imitation (analog) cheeses not only substitute vegetable fat for butterfat, but also use imported casein, a milk-derived protein product, to replace nonfat milk solids. Researchers are also exploring ways to substitute soy proteins for nonfat milk solids.

These substitutes are considerably cheaper than ingredients derived from domestically produced milk. In the late spring of 1981, imported casein sold for about $1.35 a pound, or for $1.47 less than a pound of domestic nonfat milk solids of comparable protein content. The price of vegetable fat, about 40 cents per pound, was about $1.45 less than the price of a pound of milkfat. Nondairy soy-based proteins also cost somewhat less than half as much as nonfat milk solids.

Currently, many types of imitation cheeses are sold at the wholesale, institutional, and retail levels. These include cheddar, Swiss, colby, Muenster, Gouda, mozzarella, provolone, processed cheese, flavored cheeses, Parmesan, cream cheese, cheese foods, and cheese spreads. They are sold in institutional-sized blocks, shredded, loaves, half-moons, and individually wrapped slices.

Production of imitation cheese, according to a survey by the U.S. International Trade Commission, amounts to 5 percent of total U.S. cheese production, up from 2 percent in 1978. Imitation mozzarellas and other Italian-type cheeses account for the largest portion of the imitations produced. Primarily sold to frozen-pizza manufacturers, imitation mozzarella cheese has captured about a third of the mozzarella market.

Besides their cost advantage, imitation cheeses are attractive to commercial buyers because their melting and storage characteristics are comparable to natural cheese. From a nutritional standpoint, the imitations contain less cholesterol and fewer calories, and through fortification are equal in vitamin and mineral content. In general, their taste has been judged inferior to natural cheeses. However, manufacturers of imitation mozzarella cheese have improved the taste of their product so that it is difficult to distinguish from natural mozzarella, especially when combined with other pizza-topping ingredients.


At least 16 food manufacturers make pizzas that contain imitation cheese.


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comprising over one-third of the pizzas sold in stores surveyed by the authors; Delpho’s (Delpho’s Frozen Specialties), Jimmy’s (Swiss Maid Foods), Mrs. Grisson (Mrs. Grisson Salads), Tortino’s (Pillsbury Co.), Chef Saluto (Saluto Foods Corp.), Chef Boyardee (American Home Foods Inc.), Kroger (Kroger Co.), Lambrecht and G & W (Beatrice Foods), Jeno’s and Mr. P’s (Jeno’s Inc.), Safeway (Safeway Foods), Merios (Betty Ann Foods), Natalina (Natalina Foods Products), La Pizzeria (Ore-Ida Foods), Celeste (Quaker Oats, Co.), Johns (Anthony J. Pizza Food Products Corp.), and Ann Page (A & P).

**Casein Imports**

For cost reasons, casein is imported rather than produced domestically. Casein and nonfat dry milk are alternative uses of nonfat solids in milk. The price of imported casein is based on world milk prices, which are below U.S. farm milk prices. Therefore, the price of domestically produced non-fat dry milk is higher than the price of imported casein. Because it is cheaper to import casein than to manufacture it domestically, little or no casein is produced in the U.S.

U.S. manufacturers import the bulk of the casein they use from New Zealand (50 percent), Ireland (16 percent), and Australia (12 percent). Now totaling 152 million pounds, casein imports have more than doubled since 1955, increasing by 44 percent during the last 10 years alone. In tandem with the surge in casein imports has been a significant change in the commercial use of the milk by-product. In 1955, 99 percent of the casein was used for industrial products, such as adhesives and paper products, and only 1 percent for food and feed. By 1980, the ratio was dramatically reversed, with 83 percent channeled to food and feed; 37 percent of all imported casein was used in the manufacture of imitation cheese.

Somewhat alarmed by the substantial increase in casein imports and the associated growth of the imitation-cheese industry, dairy-farm organizations have sought import quotas for casein. After investigating and conducting a hearing on the matter in 1979, the U.S. International Trade Commission declined recommending import quotas for casein.\(^1\)

In March 1981 the U.S. Senate defeated a bill calling for restraints on casein imports, but it did stipulate that the issue continue to be studied by the administration.

Should Congress and the President opt for import quotas in the future, imitation-cheese manufacturers would lose their unlimited access to this low-priced substitute for nonfat milk solids. Such an action would probably boost the price of casein and stall rapid increases in the production of imitation cheese, at least until the use of soy or other nondairy proteins could be expanded. However, if casein import quotas are not imposed, and the retail price of natural cheese continues to rise because of increases in farm milk prices and marketing margins, imitation-cheese manufacturers would have an even greater economic incentive to increase production.

**Labeling Requirements**

Thus far, no final ruling on standards of identity and labeling requirements has been made by the Food and Drug Administration. Meanwhile, manufacturers of imitation cheese continue to use a variety of names on packages of the product sold in commercial channels. Producers of imitation cheeses must also conform to the regulations of the states where their plant is located or where their products are sold. To ascertain the word “imitation” must appear on the label. “Imitation” is mandatory on the label in 19 of the states, regardless of nutritional equivalency, and 11 of the states have no clearly defined labeling regulations for imitation cheese. Thus, a wide variety of state labeling regulations exist, but less than two fifths of the states (39 percent) mandate the word “imitation” on the label, regardless of nutritional equivalency to natural cheese.

Although imitation cheese is manufactured in only seven of 43 states responding to the production questionnaire, only five of the 43 specifically prohibit its production. The remaining 38 either specifically allow the manufacture of imitations or have no clear-cut policy on the matter.

Similarly, only two of 49 states responding to the sales regulation questionnaire specifically prohibit the wholesale or retail sale of complete imitation cheese.

**Table 1. 1980 Imitation-Cheese Manufacture and Sale in Major Milk-Producing States.\(^a\)**

<table>
<thead>
<tr>
<th>State</th>
<th>Imitations Manufactured</th>
<th>Imitations Sold at Wholesale</th>
<th>Imitations Sold at Retail</th>
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<tr>
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<td>Missouri</td>
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\(^a\)Based on the authors’ survey of regulatory agencies in the various states, concerning the manufacture and sale of complete and partial imitation cheese.

cheese, while 30 specifically allow its sale. The remaining 17 states do not yet have laws pertaining to the sale of this product. At the time of the survey, imitation cheese was sold at wholesale and retail in half of the states.

An examination of the nation's 10 major milk-producing states revealed little effort to curb the production and sale of imitation cheese (see Table 1). Five of the seven states where the product is manufactured are among the dairy leaders. Further, nine of the 10 major dairy states allow retail sales of imitation cheese, and all 10 allow it to be sold at wholesale.

With respect to the use of imitation cheese in pizza, current federal regulations only require that at least half the cheese in a cheese pizza be natural, and that imitation cheese be indicated within the list of ingredients. In contrast, federal regulations require that if a pizza contains more than a certain proportion of a vegetable-protein product in a meat topping, the phrase “meat and textured vegetable protein” must appear in large letters on the label. At the urging of several dairy organizations that a similar labeling requirement apply to manufacturers of imitation-cheese pizzas, the USDA issued a solicitation for proposed revisions of pizza-labeling requirements. As yet no action has been taken.

Some groups, such as the Wisconsin Cheesemakers' Association, propose that pizzas containing imitation cheese be labeled as “imitation pizza.” However, the National Frozen Pizza Institute and others oppose labeling that suggests the ingredients are inferior, when they are nutritionally equivalent.

Wisconsin, the nation's top dairy state, is currently involved in litigation aimed at preventing the sale within the state of pizza made with imitation cheese, unless the label clearly indicates its presence. In April 1981 a federal judge ruled against Wisconsin, and the state is appealing the decision.

Consumer Reaction

Although laws and economic advantages will have an impact on the future development of both the natural-cheese and imitation-cheese industries, the consumer will have the final say. In order to test consumer responses to imitation cheeses, taste tests were conducted at the University of Wisconsin-Madison in 1980. Taste-test participants were asked to compare slices of natural and imitation cheeses, and to compare prepared foods made with the cheese, including cheese pizzas, macaroni and cheese, cheeseburgers, bagels and cream cheese, submarine sandwiches, ham- and cheese sandwiches, and snack crackers and cheese. The test panels ranged from 90 to 150 participants.

The tests revealed a strong and significant preference for natural cheeses over sliced imitation cheese. Also, imitation cheeses did not fare as well as natural cheese in tests with macaroni-and-cheese dishes, crackers and cheese, or bagels and cream cheese. In tests of three cheese types on cheeseburgers, two of the three natural cheeses were preferred over their imitation counterparts.

However, in other tests with prepared foods, the results were either not decisive or favored the imitation. Tests with mozzarella cheeses in cheese pizza revealed no significant preferences for either type of cheese. In other words, pizzas manufactured with a blend of natural and imitation cheeses were indistinguishable from pizzas made with natural mozzarella only. In submarine sandwiches (consisting of bologna, salami, lettuce, tomatoes, mayonnaise, and provolone cheese), the imitation products were actually preferred to its natural counterpart.

Overall, the consumer tests indicate that in an unprepared form, natural cheeses are generally preferred over imitation cheeses, but that manufacturers have achieved consumer acceptance of imitation cheese when it is used in prepared foods.

Imitation-Cheese Volume in Retail Stores

To what extent do imitation cheeses and prepared foods containing these cheeses appear on supermarket shelves? In 1980 the authors surveyed the dairy cases and frozen-pizza sections in 28 randomly selected stores in states where considerable quantities of imitation-cheese products are sold: Arizona, California, Florida, Illinois, Ohio, Tennessee, Wisconsin, and Virginia, as well as Washington, D.C.

Packaged imitation cheese has not made significant inroads in retail stores. Only 52 percent (12 of 26) of the stores surveyed in states permitting the retail sale of imitation cheese carried the product. In these stores an average of only 9.8 percent of shelf space was devoted to imitation cheese, with a range of less than 1 percent to about 5 percent.

However, frozen pizzas containing imitation cheeses claimed a much larger proportion of shelf space than did packaged imitation cheeses. This supports the curiosity.
Consumer taste-test conclusions that the product is more acceptable in prepared foods. The proportion of shelf space devoted to frozen pizzas containing imitation cheeses ranged from 9.4 percent to 55 percent in the states surveyed, and averaged 36.2 percent. In Wisconsin 35.8 percent of the frozen-pizza shelf space was used for pizza made with imitation cheese (see Table 2).

With more than one third of the shelf space in frozen-pizza sections devoted to pizzas made with imitation cheese, a substantial number of consumers would benefit from clear labeling of ingredients.

**Imitation-Cheese Prices**

Using 1980 data supplied by major manufacturers of imitation and natural cheeses, wholesale prices for eight major types of cheeses (cheddar, colby, mozzarella, provolone, processed cheese, processed cheese food, processed cheese spread, and cream cheese) were compared. Prices for imitation cheeses ranged from 8 percent to 57 percent less than the prices for natural cheeses of the same type, averaging 38 cents, or 30 percent, less. The smallest wholesale price differentials found were for cream cheese (8 percent, 7 cents) and colby (11 percent, 16 cents); the largest differentials found were for mozzarella and processed cheese, with the price of imitation mozzarella 78 cents (54 percent) less and the price of imitation processed cheese 71 cents (57 percent) less.

A comparison of retail prices, using the 12 stores cited previously, revealed that consumers who bought imitations were paying an average of 49 cents per pound, or 20 percent, less than were those who purchased natural cheese. For colby the difference in retail price averaged 25 cents, for cheddar it averaged 46 cents, and for mozzarella the average difference was 95 cents.

Excluding provolone, since no imitation provolone was sold in the stores surveyed, the price differential between imitation and natural cheese widened from 33 cents per pound at wholesale to 49 cents at retail. As a result, the average marketing margin between wholesale and retail prices for the imitation cheeses was less than for the natural cheeses, $1.03 per pound compared to $1.19 per pound. The marketing margins for individual types of cheeses were 83 cents for imitation cheddar and $1.04 for natural cheddar, $1.21 for imitation colby and $1.30 for natural colby, and $1.32 for imitation mozzarella and $1.49 for natural mozzarella.

These findings are contrary to claims that the marketing margins for imitation cheese are extreme when compared with natural cheese. The cost savings derived from the lower-priced ingredients, casein and vegetable fats, used in imitation cheese are passed through to the retail level. These lower production costs, combined with discounts at the retail level, result in price differentials between imitation and natural cheeses that are greater at the retail level than at the wholesale level.

The retail price of pizza made with imitation cheese varied from 8.6 cents to 17 cents per ounce, for an average price of 12.4 cents; the retail price of natural-cheese pizzas ranged from 12.9 cents to 17.2 cents per ounce, for an average of 15.7 cents per ounce. The per-ounce price of pizza made with imitation cheese averaged 3.3 cents (21 percent) less than the price of pizzas made with natural cheese only (see Table 2).

The substantially lower prices of packaged imitation cheese and pizza made with imitation cheese suggest that the dairy industry will face vigorous competition from imitation cheese in the natural-cheese markets. This competition will likely occur even if casein imports are restricted, since low-cost soy isolates show promise as substitutes for casein and nonfat dry milk in imitation cheese. So far, these soy isolates have been used mainly in coffee whiteners, bakery goods, and meat products, but research is progressing to expand their use in imitation cheese. Weighing all of these factors, it seems likely that imitation cheese will continue to be very competitive with natural cheese, particularly mozzarella for pizzas.