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August 1982

No. 208

ECONOMIC IMPACT OF IMITATION CHEESE

By

Truman F. Graf

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by Truman F. Graf
Department of Agricultural Economics
University of Wisconsin-Madison

Introduction

The dairy industry is confronted with a myriad of problems including stagnant prices, increasing costs, surpluses, lagging per capita consumption, subsidized imports, an unfavorable international market, and imitation dairy products. Many of the other problems derive in part from the imitation problem, which in turn derives from profit maximization decisions independent of dairying, and thus is less subject to correction by the dairy industry than are many of its other problems. Many therefore feel the imitation problem is the greatest single challenge facing the dairy industry. This paper analyzes the economics of a major imitation dairy product -- imitation cheese.

Casein Imports

Imported casein (milk protein) is a major ingredient of imitation cheese. Although the U.S. dairy industry has petitioned for import quotas on casein, none have been imposed. Therefore, casein can be imported in unlimited quantities for manufacture into imitation cheese, which in turn competes with cheese manufactured from domestic milk supplies. The chronology of the casein import quota controversy is as follows:

(a) 1979 - U.S. International Trade Commission (ITC) conducts investigation, holds Hearing, and issues report implying casein import quotas not justified;

(b) 1980 - President Carter accepts ITC implications and declines to impose casein import quotas;

* Support of the University of Wisconsin Cheese Research Institute for the research this paper is based on, is gratefully acknowledged.

(c) March 1981 - ITC reports 1979 findings "still valid;"

(d) June 1981 - USDA issues study indicating that if no casein had been imported in 1980, USDA price support purchases of nonfat dry milk would have been 333 million pounds lower, saving about \$300 million in CCC outlays, but making no recommendation on casein import quotas;

(e) January 1982 - ITC issues third recent report, and specifically recommends against casein import quotas;

(f) April 1982 - President Reagan accepts ITC findings and rules against casein import quotas; and

(g) May 1982 - USDA Secretary John Block announces second USDA casein study.

Proponents of casein import quotas contend unlimited casein imports increase USDA dairy price support purchases, and threaten the program, and therefore casein imports should be restricted. Opponents of casein import quotas dispute this contention, and argue free trade. Thus far opponents of casein import quotas have prevailed.

Volume

U.S. casein volume and use based on data reported in the January 1982 ITC study and other government reports is as follows:

- (a) Casein imports - 152 million pounds (1980);
- (b) Casein imports as percent of world production of casein - 33% (1980);
- (c) Import prices for casein used in imitation cheese of approximately \$1.355 per pound (July 1982) are less than one-half (48%) of the \$2.82 per pound price of domestic nonfat milk solids of comparable protein content used for natural cheese.¹

1. One pound of casein has about three times as much protein as one pound of nonfat dry milk. Therefore, to get similar protein quantities, three pounds of nonfat is needed, which at the support price of \$.94 per pound equals \$2.82.

(d) Casein use, January-August 1981:

Imitation cheese	36%
Coffee whitener	9%
Bakery products	4%
Frozen desserts	4%
Medical products	5%
Other foods	12%
TOTAL Food	70%
Animal Feed	16%
Industrial uses	14%
TOTAL	100%

(e) Imitation cheese production - 201 million pounds (1981);

(f) Imitation cheese production as percent of total cheese production - 4.8% (1981);

(g) Imitation cheese production as percent of total American and Italian cheese production - 5.6% (1981);

(h) Imitation cheese production as percent of natural cheese production by firms manufacturing both - 8.5% (1981);

(i) Imitation cheese production as percent of USDA price support purchases of cheese -- 35.7% -- \$280 million (1981).

Conclusions which can be drawn from U.S. casein import-imitation cheese data are:

(a) The U.S. imports a disproportionate share of world casein production (33%);

(b) Imitation cheese production is still proportionately small (about 5% of total cheese production);

(c) A major portion of imported casein is used for imitation cheese (36%);

(d) Virtually all imported casein now is used for food and feed (86%) and therefore is competitive with domestic nonfat dry milk.

Imitation and Natural Cheese Price Comparisons

Retail prices for imitation and natural cheese, and products they are used in were collected by the author in twelve states (and Washington, D.C.) where considerable quantities of imitation cheese is sold. This data was collected in a personal survey of a random sample of 26 supermarkets in late 1981 and early 1982. States surveyed were: Iowa, Minnesota, Ohio, Illinois, Arizona, California, Kentucky, Tennessee, New York-New Jersey, Wisconsin, Florida (and Washington, D.C.).

Proportion of Imitation with Lower Prices

Imitation cheese, and pizza with imitation cheese, is generally priced lower at retail, than natural cheese -- 69% of the processed cheese, 80% of the unshredded cheese, 74% of the pizza, and 99% of the shredded cheese (Table 1). However, a substantial variation existed between states in the proportion of imitation cheese retail prices lower than natural cheese prices -- 56% to 100% of the unshredded cheese, 43% to 100% of the processed cheese, and 54% to 89% of the pizza.

As indicated earlier, imported casein used in imitation cheese is priced at less than one-half (48%) of domestic nonfat milk solids used in natural cheese. Nevertheless, some imitation cheese and pizza with imitation cheese is priced above natural cheese. Retail pricing of imitation cheese, and products using imitation cheese, therefore are not always correlated with ingredient costs of the product.

Prices

Unshredded imitation cheese retail prices varied from \$1.86 per pound in Iowa to \$3.31 per pound in New York-New Jersey, averaging \$2.68 per pound in the states surveyed. Wide retail price variations also existed between states for imitation processed, imitation shredded, and pizza using imitation cheese (Table 2).

TABLE 1 -- Percent of Imitation Cheese, and Pizza with Imitation Cheese, with Lower Retail Prices than Natural Cheese^{a/}

STATE	Unshredded Cheddar, Colby and Mozzarella	Shredded Cheese	Processed Cheese	Pizza
Iowa	100.0%	100.0%	81.8%	61.2%
Minnesota	<u>b/</u>	100.0	100.0	85.2
Ohio	81.8	100.0	57.6	84.8
Illinois	75.8	100.0	87.8	62.4
Arizona	<u>b/</u>	100.0	<u>b/</u>	74.6
California	100.0	81.0	100.0	83.2
Washington, D.C.	56.4	<u>b/</u>	42.5	53.8
Kentucky	80.0	<u>b/</u>	73.1	78.2
Tennessee	76.3	100.0	55.3	88.5
Florida	90.4	<u>b/</u>	77.6	84.1
New York- New Jersey	79.0	<u>b/</u>	68.8	64.4
Wisconsin	<u>c/</u>	<u>c/</u>	<u>c/</u>	65.8
AVERAGE <u>d/</u>	79.8	98.5	68.8	73.8

^{a/} Sample of two major supermarkets in each state, except Illinois and New York-New Jersey with three, based on survey by author in late 1981 and early 1982.

^{b/} No imitation cheese of this type in supermarkets sampled.

^{c/} Retail imitation cheese sales not legal in Wisconsin in 1981 and 1982.

^{d/} Average of all observations within states, rather than average of state average.

TABLE 2 -- Average Retail Price Per Pound, Various Varieties of Imitation Cheese, and Pizza Using Imitation Cheese^{a/}

STATE	Unshredded Cheddar, Colby and Mozzarella	Shredded Cheese	Processed Cheese	Pizza
Iowa	\$1.86	\$1.87	\$1.80	\$2.02
Minnesota	-	1.98	1.13	2.03
Ohio	2.65	2.13	1.92	1.98
Illinois	2.95	1.82	2.22	2.52
Arizona	-	2.20	-	2.29
California	3.04	3.09	1.86	2.39
Washington, D.C.	2.98	-	2.47	2.41
Kentucky	2.65	-	1.96	2.00
Tennessee	2.22	1.82	2.32	1.74
Florida	2.47	-	2.28	2.45
New York- New Jersey	3.31	-	2.08	2.48
Wisconsin	-	-	-	2.29
AVERAGE ^{b/}	2.68	2.13	2.00	2.22

^{a/} See Table 1 for source, date, and explanation of data.

^{b/} Average in stores carrying the various imitation products.

These data emphasize the wide variations in retail pricing of imitation cheese, and pizzas with imitation cheese. The 78% higher price for unshredded imitation cheese in New York-New Jersey than in Iowa, illustrates the widely varying marketing margins which are taken on imitation cheese.

Retail prices for comparable natural cheeses are listed in Table 3. Retail price variations between states are generally less for natural cheese than for imitation cheese. As a result, wider variations exist in profit margins for imitation cheese, than for natural cheese. This can encourage retail expansion of imitation cheese, thereby creating increased competition for natural cheese.

Price Differences

Unshredded imitation cheese averaged \$.52 per pound (16%) below natural cheese of the same brand. Other comparisons were an average of -\$1.02 per pound (32%) for imitation shredded cheese, -.55 per pound (22%) for imitation processed cheese, and -.47 per pound (14%) for pizza with imitation cheese (Table 4).

Average retail price discounts for imitation cheese compared to natural cheese regardless of brand were \$.34 per pound (12%) for unshredded cheese, \$1.15 per pound (35%) for shredded cheese, \$.54 per pound (21%) for processed cheese, and \$.29 per pound (11%) for pizza with imitation cheese (Table 5).

Imitation discounts on the same brand of pizza were generally larger than discounts regardless of brand. The situation was reversed for shredded cheese. The discounts on imitation unshredded as well as processed cheese of the same brand, were generally quite similar to discounts regardless of brand.

Substantial variation in the magnitude of the imitation discount existed between states. For example, pizza with imitation cheese averaged \$.99 per pound (29%) below pizza with only natural cheese of the same brand in California, compared to \$.01 per pound (4%) above pizza, with only natural cheese

TABLE 3 -- Average Retail Price Per Pound, Various Varieties of Natural Cheeses and Pizza using only Natural Cheese^{a/}

STATE	Unshredded Cheddar, Colby and Mozzarella	Shredded Cheese	Processed Cheese	Pizza
Iowa	\$2.77	\$3.19	\$2.31	\$2.17
Minnesota ^{b/}	-	3.18	2.26	2.53
Ohio	2.93	3.22	2.24	2.46
Illinois	3.03	3.33	2.56	2.65
Arizona ^{b/}	-	3.62	-	2.65
California	3.23	3.43	2.87	2.74
Washington, D.C. ^{b/}	3.01	-	2.50	2.24
Kentucky ^{b/}	2.88	-	2.41	2.40
Tennessee	2.69	3.01	2.64	2.56
Florida ^{b/}	3.16	-	2.96	2.77
New York- New Jersey ^{b/}	3.45	-	2.69	2.36
Wisconsin ^{b/}	-	-	-	2.53
AVERAGE ^{c/}	3.02	3.28	2.54	2.51

^{a/} See Table 1 for source, date, and explanation of data.

^{b/} Natural cheese prices listed only when imitation cheese of same variety sold.

^{c/} Average for natural cheese prices in stores selling imitation cheese of same variety.

TABLE 4 -- Retail Price Difference Per Pound Between Imitation and Natural Cheese, and of Pizza with Imitation and Only Natural Cheese, of the Same Brand^{a/}, ^{b/}

STATE	Unshredded Cheddar, Colby and Mozzarella		Shredded Cheese		Processed Cheese		Pizza	
	\$	%	\$	%	\$	%	\$	%
Iowa	-1.22	-40.5	-1.45	-43.3	-.66	-35.8	+.16	+10.1
Minnesota	-	-	-1.15	-36.8	-.36	-24.2	-.14	-5.2
Ohio	-.45	-14.5	-1.00	-31.9	-.14	-9.1	-.46	-17.4
Illinois	-.03	-1.0	-.57	-21.4	-1.00	-40.0	+.01	+4.0
Arizona	-	-	-1.19	-35.0	-	-	-.90	-29.8
California	-	-	-.60	-17.6	-.47	-16.0	-.99	-29.0
Washington, D.C.	-.35	-11.0	-	-	-.27	-10.6	-.23	-2.1
Kentucky	-.14	-5.0	-	-	-.56	-22.2	-.52	-14.8
Tennessee	-.34	-13.4	-1.21	-37.9	-.71	-19.1	-.85	-32.4
Florida	-.62	-20.6	-	-	-.59	-21.6	-.80	-24.3
New York- New Jersey	-1.00	-21.2	-	-	-.70	-20.4	-.50	-15.4
Wisconsin	-	-	-	-	-	-	-.38	-13.3
AVERAGE	-.52	-15.9	-1.02	-32.0	-.55	-21.9	-.47	-14.1

^{a/} See Table 1 for source, date, and explanation of data.

^{b/} (+) sign indicates imitation prices above natural price, and
 (-) sign indicates imitation prices below natural price.

TABLE 5 -- Retail Price Difference Per Pound Between Imitation and Natural Cheese, and of Pizza with Imitation and Only Natural Cheese, Regardless of Brand^{a/}, ^{b/}

STATE	Unshredded Cheddar, Colby and Mozzarella		Shredded Cheese		Processed Cheese		Pizza	
	\$	%	\$	%	\$	%	\$	%
Iowa	-.91	-32.9	-1.32	-41.4	-.51	-22.1	-.15	-6.9
Minnesota	-	-	-1.20	-37.8	-1.13	-50.0	-.50	-20.0
Ohio	-.28	-9.6	-1.09	-33.9	-.32	-14.3	-.48	-19.5
Illinois	-.08	-2.6	-1.51	-45.3	-.34	-13.3	-.13	-4.9
Arizona	-	-	-1.42	-39.2	-	-	-.36	-13.6
California	-.19	-5.9	-.34	-9.9	-1.01	-35.2	-.35	-12.8
Washington, D.C.	-.03	-1.0	-	-	-.03	-1.2	+.17	+7.6
Kentucky	-.23	-8.0	-	-	-.45	-18.7	-.40	-16.7
Tennessee	-.47	-17.5	-1.19	-39.5	-.32	-12.1	-.82	-32.0
Florida	-.69	-21.8	-	-	-.68	-23.0	-.32	-11.6
New York- New Jersey	-.14	-4.1	-	-	-.61	-22.7	+.12	+5.1
Wisconsin	-	-	-	-	-	-	-.24	-9.5
AVERAGE	-.34	-11.5	-1.15	-35.3	-.54	-21.2	-.29	-11.2

^{a/} See Table 1 for source, date, and explanation of data.

^{b/} (+) sign indicates imitation prices above natural price, and
 (-) sign indicates imitation prices below natural price.

in Illinois. Similar wide variations existed in discounts for the various types of imitation cheeses.

Overall however, imitation cheese underpriced natural cheese by a wide margin. Imitation cheese therefore poses a substantial competitive problem for natural cheese -- and the dairy industry in the future.

Imitation Cheese Volume

Shelf Space Comparison

Although 16% of shredded cheese retail shelf space was used for imitation cheese, relatively little shelf space was used for packaged imitation cheese overall -- 1.6% for unshredded, and 1.7% for processed (Table 6). Thus, packaged imitation cheese is not yet much of a competitive problem for natural cheese at retail.

The story is completely different for pizza. Over one-half (57%) of pizza retail shelf space in these twelve states (and Washington, D.C.) was used for pizza with imitation cheese. The use of imitation cheese in pizza is substantial -- and growing. This situation does pose a serious threat to natural cheese.

Brand Comparison

Natural cheese brands outnumbered imitation cheese brands by an average of 26 to 1 for unshredded cheese, 24 to 1 for processed cheese, and 7 to 1 for shredded cheese. The situation was reversed for pizza. Pizza brands with imitation cheese outnumbered pizza brands with only natural cheese 18 to 14 (Table 7).

Imitation cheese in the 26 supermarkets surveyed was manufactured by 17 different firms. In alphabetical order they are:

Anderson Clayton
Borden
Clearfield Cheese
Compass Food Inc. (Affiliate of A & P)
N. Dorman & Co.

TABLE 6 -- Percent of Retail Shelf Space Used by Imitation Cheese,
and Pizza with Imitation Cheese^{a/}

STATE	Unshredded Cheddar, Colby and Mozzarella	Shredded Cheese	Processed Cheese	Pizza
Iowa	2.1%	8.5%	2.2%	52.5%
Minnesota	.1	23.7	.4	42.6
Ohio	2.3	19.5	2.9	70.5
Illinois	1.7	7.6	1.8	52.1
Arizona	0	23.2	.2	82.0
California	.8	10.6	1.2	73.5
Washington, D.C.	1.6	0	1.6	40.0
Kentucky	3.1	0	3.1	63.5
Tennessee	1.7	18.8	2.6	62.3
Florida	2.3	0	2.3	57.6
New York- New Jersey	.6	0	.6	30.6
Wisconsin	-	-	-	51.4
AVERAGE ^{b/}	1.6	16.0	1.7	56.6

^{a/}See Table 1 for source, date, and explanation of data.^{b/}Average in stores carrying the various imitation products.

TABLE 7 -- Number of Brands and Varieties of Imitation Compared to Natural Cheese and of Pizza Using Imitation Compared to Only Natural Cheese, per Retail Store^{a/}

STATE	Unshredded Cheddar, Colby and Mozzarella		Shredded Cheese		Processed Cheese		Pizza	
	Imit.	Nat.	Imit.	Nat.	Imit.	Nat.	Imit.	Nat.
Iowa	1.0	13.5	2.0	4.5	1.5	14.0	17.5	15.5
Minnesota ^{b/}	0	-	3.0	12.5	.5	13.5	13.5	12.0
Ohio	.5	20.0	2.0	8.0	2.0	27.5	13.0	8.5
Illinois	1.5	30.5	1.5	4.5	1.0	30.0	18.5	10.0
Arizona ^{b/}	0	-	2.0	5.0	0	-	27.5	10.0
California	.5	33.5	2.5	5.5	1.5	34.5	21.5	8.5
Washington, D.C. ^{b/}	1.0	31.5	0	-	3.0	15.0	14.5	17.0
Kentucky ^{b/}	.5	23.5	0	-	1.0	16.5	10.0	9.0
Tennessee	.5	25.5	1.5	8.0	5.0	36.0	25.0	15.5
Florida ^{b/}	2.0	29.0	0	-	6.5	35.0	17.0	12.0
New York- New Jersey ^{b/}	1.5	24.0	0	-	2.0	19.0	9.0	22.0
Wisconsin ^{b/}	-	-	-	-	-	-	28.5	27.0
AVERAGE ^{c/}	.8	25.7	1.3	6.9	2.1	24.1	18.0	13.9

^{a/} See Table 1 for source, date, and explanation of data.

^{b/} Natural cheese data not listed when no imitation cheese of same variety sold.

^{c/} Average for imitation cheese in all states except Wisconsin (which did not permit its sale), and average for natural cheese only in states in which similar variety of imitation cheese was sold. Average for pizza (both with and without imitation cheese) includes all states.

Fisher Cheese Company

Grand Union

Great Lakes Cheese

Jewel Co.

Koneta Foods

Kraft Co.

Kroger Co.

Preble Cheese Co.

Safeway Stores

Sargento Cheese

Topco Assoc.

Universal Foods

Pizza containing imitation cheese in the 26 supermarkets surveyed was manufactured by twenty different firms. In alphabetical order they are:

American Home Foods

Apex Dist. Co.

A.P.J. Food Prod. Corp.

Columbo's Pizza

DADCO Food Prod.

DOB Food Products

Gilardi's Pizza

Jeno's Inc.

Kroger Co.

Natalina Food Products

Northland Foods

Oh Boy Corp.

Ore-Ida

PADCO

Pillsbury

Quaker Oats

Safeway Stores

Saluto Foods

Swiss Snack Foods

Topco Assoc.

Thus, a wide variety of companies are manufacturing imitation cheese, and pizza with imitation cheese. This further emphasizes the competitive problem for natural cheese.

Summary

People are eating more fat than ever -- an increase of 13.2 pounds (26%) per person since 1960. However, per capita consumption of milk fat dropped 4.6 pounds (19%) while vegetable fat consumption increased 17.8 pounds (66%). This shift in consumption from milk fat to vegetable fat contributes to milk fat surpluses, downward price pressures, and is a continuing problem for the dairy industry.

The 201 million pounds of imitation cheese production in 1981 is 36% of USDA price support purchases of cheese, costing \$280 million. Import prices for casein used in imitation cheese are less than one-half (48%) the price of domestic nonfat milk solids of comparable protein content, used in natural cheese.

The \$.52 to \$1.02 (16%-32%) lower average retail price per pound for imitation cheese than natural cheese of the same brand, and \$.47 per pound (14%) lower price for pizza with imitation cheese, than pizza with natural cheese of the same brand, indicates vigorous across-the-board competition by imitation cheese. Pizza with imitation cheese has already claimed over one-half (57%) of the shelf space in the supermarkets in the twelve major states (and Washington D.C.) surveyed. It also has 16% of the shredded cheese shelf space, and about 2% of the unshredded and process cheese shelf space.

Pizza brands with imitation cheese outnumbered pizza brands, with only natural cheese 18 to 14. Natural brands of unshredded, process, and shredded cheese outnumbered imitation brands.

Imitation cheese in the 26 supermarkets surveyed was manufactured by 17 different firms, and pizza with imitation cheese was manufactured by twenty different firms. Thus, a wide variety of companies are manufacturing imitation cheese, and pizza with imitation cheese

Imitation cheese impacts substantially on the dairy industry.

If casein imports are restricted, nondairy ingredients such as soy isolates show promise as substitutes for casein and nonfat dry milk in imitation cheese. Therefore, imitation cheese is likely to continue to be an important factor in the dairy industry, and the industry must plan its future accordingly.