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Branded Product Marketing Strategies in the Cottage Cheese Market: Cooperative versus Proprietary Firms

by
Lawrence E. Haller

Food Marketing Policy Center
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Department of Agricultural and Resource Economics

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Abstract

This paper examines structural and strategic factors affecting price determination in the branded cottage cheese industry. Special emphasis is placed on the presence and conduct of cottage cheese brands marketed by dairy cooperatives. The data examined in this study cover cottage cheese sales in 47 markets for the fourth quarter of 1988. We find evidence supporting the premise that market power is being exercised in the cottage cheese market. One of the strongest influences of the price of cottage cheese is the extent of market penetration of the brand. Brands' prices rise with an increase in the price of private label cottage cheese. We also find strong evidence that cooperatives are not exercising market power. Cooperatives charge a lower price than their IOF competition under the same conditions and, unlike their IOF competition, co-ops do not capitalize on higher share to raise price. Moreover, the presence of cooperatives in a market brings the price of competing brands down. Cooperatives do not differ greatly from IOFs in the use of merchandising tools, using them as much or slightly more in most cases.

1. Introduction

Marketing cooperatives have several strategies available to maximize their farmer-members' returns. The most basic is to organize horizontally into farmgate level commodity supply and bargaining associations. Cooperatives can integrate forward into food processing, producing intermediate inputs (e.g., butter powder) or private label products (e.g., store brand cottage cheese). Cooperatives can also develop and market their own differentiated brands. This paper examines the behavior of cooperatives that market their own brands of a single product (cottage cheese) and compares their pricing and marketing strategies with those of investor-owned firms (IOFs).

Cooperative theory developed by Helmberger (1964), Cotterill (1987) and others suggests that a cooperative will behave differently when facing the same market conditions as an IOF. Under some conditions cooperatives may price lower than IOFs in branded product markets, while under other conditions they may lead the market towards higher prices. In late 1988, the chairman of the FTC claimed that cooperatives "do business just like other large food companies and should be subject to the same statutory obligations as their competitors" (Food Institute Report (1988), p. 10). How cooperatives actually behave is an important question. In a study of the competitive impacts of cooperatives, Petraglia and Rogers (1991) found that the percentage of a market's shipments held by the largest cooperatives was negatively related to the market's price-cost margin, especially in concentrated markets. Wills (1985) has also examined this question using national data from 1979 and 1980 on 145 products, with about half of the categories containing at least one brand marketed by a co-op. Wills' results indicate that cooperatives tend to price lower than IOFs, *ceteris paribus*. This paper extends Wills' work by examining cooperatives' influence on the price of a specific product at the local market level. The cottage cheese industry is an attractive choice for analysis because there are many local and regional brands marketed both by cooperatives and by IOFs, as well as several national brands. In addition, cottage cheese has no close substitutes and minimal quality differences from brand to brand[1].

---

[1]*Consumer Reports* (1986) tested 24 national and store brands of cottage cheese for taste and quality. Brands were sampled in each of three locations across the country (California, Texas, and New York), yielding a total of 54 observations. Of these, 50 ranked "excellent" or "very good", 3 ranked "good." One brand was ranked "fair."

The following section describes the data used in the analysis and examines the descriptive statistics for several subgroups of brands in some detail. The third section presents the results of a regression analysis of structural and strategic factors influencing average local market price at the brand level. The fourth section draws conclusions from the foregoing analysis, and the appendix contains several descriptive tables.

2. The Data

The data used in this study cover cottage cheese sales in 47 markets for the fourth quarter of 1988 and were obtained from Information Resources, Inc. (IRI). The markets represented are listed in appendix Table A-1. Not all brands and manufacturers of cottage cheese are included in the IRI market-level data base because some are sold in areas not included in IRI's 47 markets where the data are collected. The data include all observations provided by IRI with a local market share of at least 0.5% and a price no greater than $2.00 per pound[2]. There are 104 brands marketed by 74 manufacturers included in this study[3]. On average, a brand is sold in 3.125 of the 47 markets. The most widely distributed brand (Breakstone) is found in 30 of the markets, yet there are 63 brands found in only a single market. Each manufacturer produces an average of 1.4 brands. Two manufacturers market 5 brands each while the majority sell only one. All but one of the co-ops represented in the study market a single brand, and one sells two brands. On average, a manufacturer sells its brands in 3.03 of the 47 markets. The most widely distributed manufacturer can be found in 37 of the markets, the second most widely distributed in 22, while there are 44 that can be found in one each. Complete descriptive statistics

[2]Observations with a volume share less than 0.5% were dropped at the suggestion of IRI. Observations with a price greater than $2.00 per pound were dropped because these were suspected of having errors in data collection or misclassification (e.g., ricotta cheese classified as cottage cheese). Two dollars per pound is more than 4 standard deviations from the mean price in the study.

[3]A complete list of all brands used in this study and their national ranks can be found in appendix Table A-2. Table A-2 also lists the total number of markets the brand was found in, whether it is a cooperative, and a summary of the market positions held. Table A-3 lists similar information at the manufacturer level.

for the brand- and manufacturer-level data are given in appendix Tables A-4 and A-5.

The following section examines the descriptive statistics more closely. Data on brands are examined in groups: those brands ranked nationally[4] in the top 4 group, those ranked from 5 to 10, those ranked from 11 to 20, those ranked 21 to 50, those ranked 51 to 100, and those ranked greater than 100. Co-ops are also considered as a group. Additionally, data on private label sales are included as a group. Care is needed when interpreting the private label data, however. Each market contains a single observation for private label sales, representing all store-brand sales for that market.

Local sales for all brands averaged $169,900 (Figure 1). Sales per market follow the expected trend of declining as the national rank declines, with the exception of a smaller than expected average local sales figure for the group 11 - 20. The top four nationally ranked brands (Top 4) had average sales of $299,360 in each of the markets where they were sold. The six brands ranked 5 - 10 sold an average of $225,200 per market when the single co-op brand in the group is included, and an average of $176,310 when it is not, indicating that the co-op's average local sales is significantly higher. As mentioned, there is a dip in average local sales for brands ranked 11 - 20. Two of the ten brands in this group are "lite" varieties (Weight Watchers and Lite Line) with broad distribution but relatively small local market shares. Without these brands, the average local sales increases to $104,900 excluding co-op brands, or $155,130 when co-op brands are included in the group. Groups 21 - 50 and 51 - 100 show almost no variation in average sales when co-ops are excluded. The group of brands ranked greater than 100 contain no co-op brands. Taken as a group, brands marketed by cooperatives had average sales of $271,690 per market, higher than any group of brands except the Top 4. There are fewer co-op brands in the higher nationally ranked groups because co-op brands are sold in fewer markets than investor-owned brands. Co-op brands average 2.1 markets per brand, compared to 19.3

[4]In addition to market-level data, IRI also provides information on total U.S. sales. The total U.S. figures were used to assign national rankings. Several regional brands were assigned ranks based on their national sales, but were not sold in any of the 47 markets included in the data set and do not appear in Tables A-2 and A-3. Thus, the 104 brands included in the study are ranked from 1 to 122.

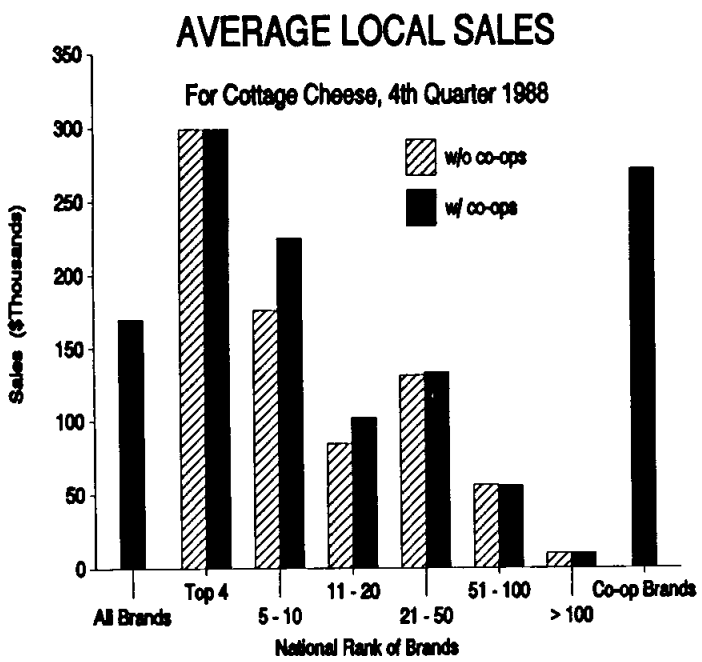

Figure 1.

markets per brand for the Top 4 brands and 3.1 markets per brand for all non co-op brands. Private label sales averaged $689,720 per market.

The (nonweighted) average local price for all brands is $1.15 per pound (Figure 2). Average price also tends to decline as the national rank declines. There is a spike for non-co-op brands ranked 11 - 20, and also a higher price for brands ranked greater than 100. Perhaps some of the brands in the latter group are specialty or flavored brands, filling a relatively small niche and commanding a premium price. Co-ops taken together are significantly lower priced than IOF brands with an average price of about $1.03 per pound. Private label brands on the average are even lower priced than the co-op brands with an average price of just over $.95 per pound.

The local market share by volume for all brands averages 7.8% (Figure 3). This chart is similar to the chart presenting average local sales, except that in the market share chart there is less spread between the groups. This is because the higher

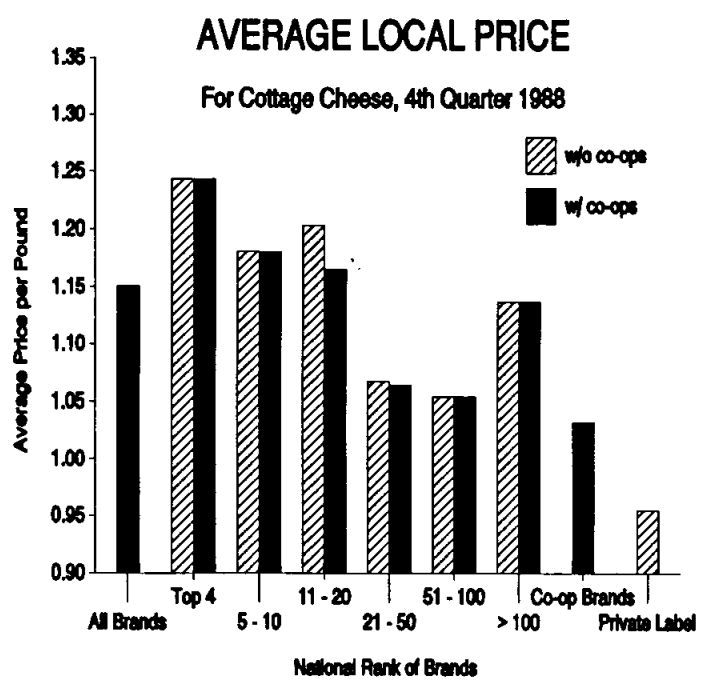

Figure 2.

market share brands also have higher prices, accentuating the differences in local volume sales. Co-ops as a group again show a marked difference in performance. Their average market share, 16.3%, is more than 1.5 times higher than the next closest group, the Top 4, whose average share is 10.6%. Co-ops are clearly the branded product volume leaders in the markets in which they are sold. While accounting for less than 9% of the brand-level observations in the data set, co-ops hold the number one volume position in over 21% of the markets (10 out of 47). Private label cottage cheese accounts for 44.6% of sales in the markets included here. It should be remembered that this represents the shares of several store brands, not a single retailer's product.

The largest selling national brands are also the most widely distributed brands in local markets (Figure 4). Consumer acceptance of these brands is obviously high. The percentage of stores the brand is carried in within a market falls with a brand's national ranking. On the whole, a given brand could be found

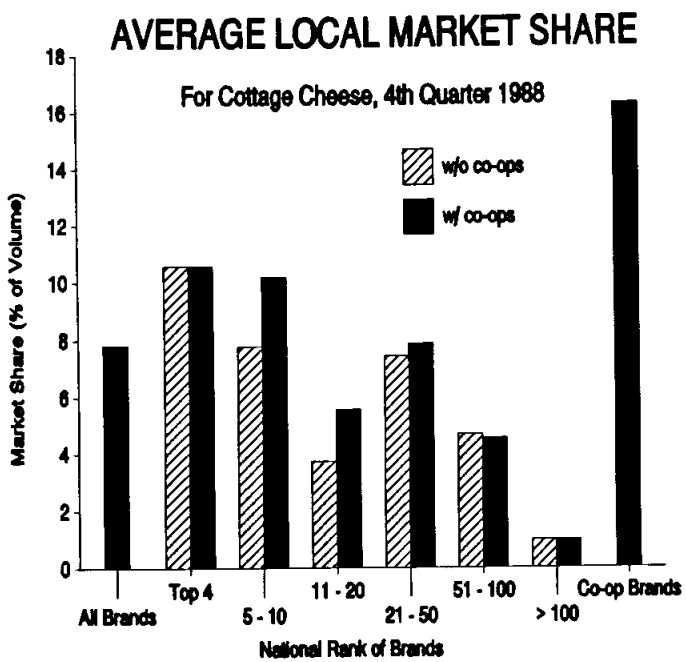

Figure 3.

in stores that account for about half the total grocery sales[5] in a market (51.5%). Co-ops' brands' mean distribution is below the average for all brands; only 44.7% of retailers in a typical market sold a given co-op brand. Almost 4 out of 5 (79%) stores in the markets in this study offer a private label brand.

Next, we look at a brand's market share in only those stores selling that brand, rather than the market-level share (Figure 5). This measure is not directly available, but can be computed by dividing the market-level share presented in Figure 3 by the

[5]Total grocery sales are also referred to as "All Commodity Volume", or ACV. The average distribution of a brand is weighted by the sales volume (ACV) of the stores carrying that brand. As an example, assume there are three stores serving a market. Store A sells half of all food purchased in the market, while store B sells 30% and store C sells the remaining 20%. If a brand of cottage cheese is carried only by store B, its average weighted distribution is 30%. If it is carried by stores A and B, its average weighted distribution is 80%.

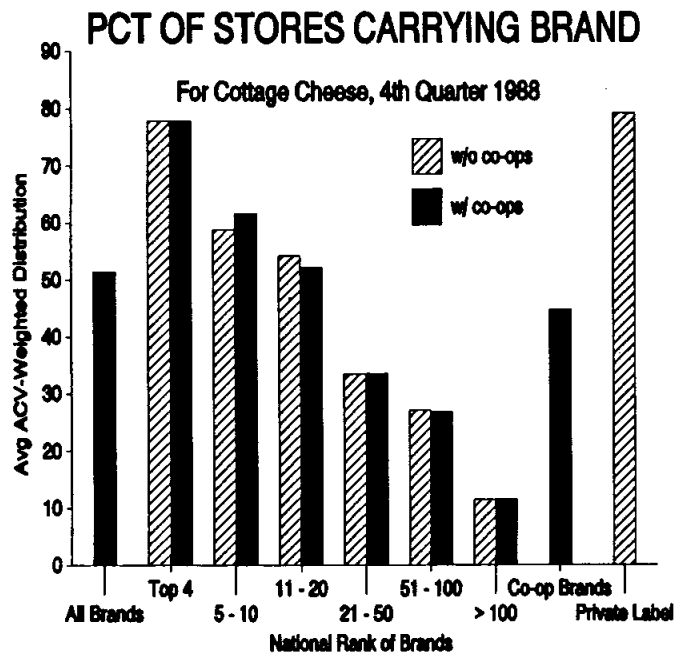

Figure 4.

average market-level distribution presented in Figure 4. Here, we find that the brands ranked highest nationally do not account for the largest shares; the distribution of in-store share varies across ranks. The groups with the lowest unit price (21 - 50 and 51 - 100) have the highest store-level shares. Co-op brands do appear to outsell their brand-name competitors in the stores in which they are carried, indicating that consumers prefer co-op brands when they are available, perhaps because of their lower price. This chart presents a good opportunity to make a comparison between sales of private label and of brands on more equal footing, since this is a per store share figure. Private label continues to outsell its branded competition, but the gap is not as great as it appears in the market-level figures.

Most brands make use of some form of merchandising[6],

[6]Merchandising as used here is the use of feature (newspaper) advertising, price discounts, and in-store promotional displays. It does not include the use of coupons, TV or national magazine advertising.

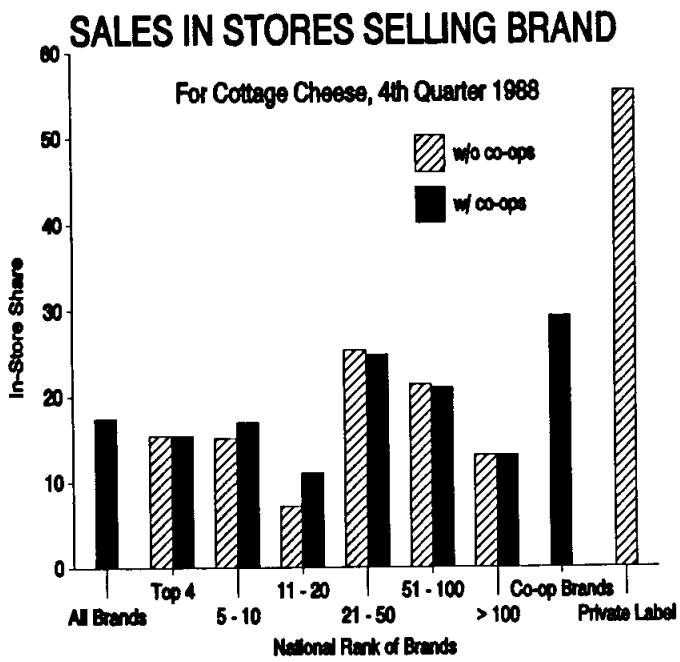

Figure 5.

selling 15% to 20% of volume with the aid of merchandising tools (Figure 6). The high level of merchandising (25%) for the group ranked 5 - 10 appears to be an exception—these numbers are driven by the merchandising of two of the brands (Sealtest and Borden). Without these, the group would fall within the range of the other groups. Co-ops as a group are slightly more aggressive in the use of merchandising, and stores promoting their own brands use the most merchandising. Stores promoting private label brands are the leaders in the use of feature (newspaper) advertising. Co-ops and private label brands used price promotions most heavily, followed closely by the 5 - 10 group. In-store displays were used most extensively by the group 5 - 10, followed by the group of brands ranked greater than 100. This reinforces the speculation that this group contains niche or specialty brands, since in-store promotion is often used to entice consumers to try out-of-the-ordinary products.

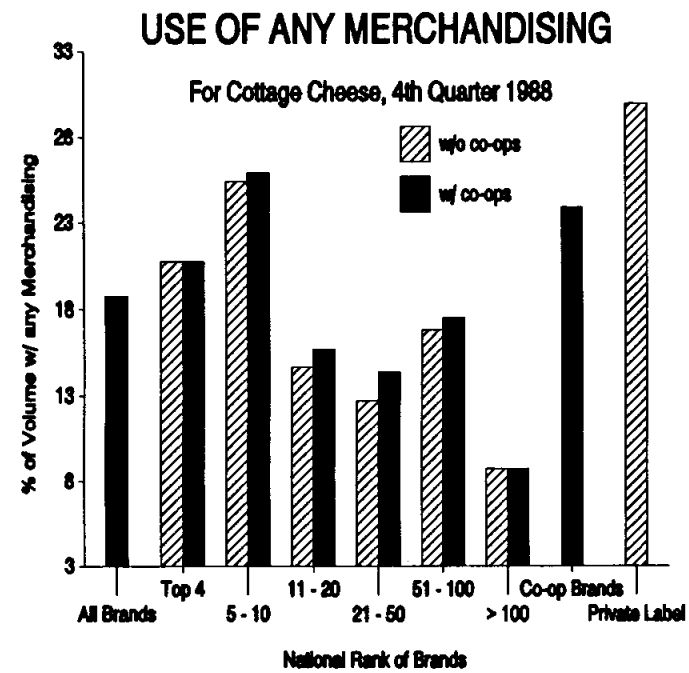

Figure 6.

3. Regression Results

Average price per pound at the brand level was modelled as a function of several structural and firm-specific variables using OLS regression techniques. The unit of observation is a brand within a market. There were 595 observations in the original data set. After eliminating observations with a local market share less than 0.5% and those with a price above $2.00 per pound, as explained above, and the 47 private label observations, 325 valid observations remain. Complete descriptive statistics can be found in appendix Table A-4. **Volume Market Share** is the percentage of cottage cheese sold in a particular market by a given brand, calculated on a volume basis (pounds of cottage cheese), rather than on a sales dollar basis. The Volume Market Share can be broken into two components: Average Weighted Distribution and In-Store Share. The **Average Weighted Distribution** measures how widely distributed within a market area a brand is. Wide distribution may be a sign of consumer acceptance and so allow

a brand to command a higher price and, therefore, is expected to be positively related to average price. **In-Store Share** is the share of sales a brand enjoys in only the stores carrying that brand, rather than in all stores in a market[7]. In-Store Share is expected to be negatively related to average price, since to sell more within a store, *ceteris paribus*, price must be lowered. In-Store Share is not directly available, but can be calculated by dividing Volume Market Share by Average Weighted Distribution. The **Units per Pound** variable is included to test the hypothesis that consumers who purchase larger "economy sized" containers actually do pay less per pound. It is constructed by dividing the total number of units sold within a market by the number of pounds sold[8]. A positive sign for the coefficient of this variable would support the hypothesis.

The **Co-ops Present Binary** variable is set on a market-wide basis. Its value is 1 for all observations in a market if any co-op brand has achieved at least a 0.5% market share in that market. The **Co-op Volume Market Share** variable contains the same value as the Volume Market Share if the observation is a co-op brand, and a value of zero if it is not a co-op brand. If co-ops behave no differently than their IOF competitors, the coefficient of this variable should not be significantly different from zero. If co-ops are less apt to exercise market power, this variable should be negative. The **Market CR_4** is a structural variable measuring the sales of the top 4 chains in a market as a percentage of all grocery sales. If a higher concentration ratio is indicative of conditions that facilitate collusion by retailers, this variable should have a positive coefficient. The **Population** of the market area is used to examine the effect of market size. A positive coefficient on this variable means that consumers living in larger markets pay more; a negative coefficient would indicate

[7]An example may be helpful. Let us assume equal-sized stores to avoid complicating the example. A brand which is carried in all stores in a market and has a 10% share of cottage cheese sales in each of those stores has a 10% market share (100% distribution * 10% in-store share). A brand which is carried in half the stores in a market but has a 20% share of cottage cheese sales in each of those stores also has a 10% market share (50% * 20%). Claiming a 10% share for each may mask important competitive differences between the two brands.

[8]Thus, this variable would have a value of 2 for a brand sold exclusively in 8 oz. containers, and a value of 0.5 for a brand sold exclusively in the larger two-pound economy size.

that there are increasing economies of scale in the range of the size of markets in this sample. The **Percent of Volume with any Merchandising** looks at the price effect of promotional activities. The **Private Label Price per Pound** can be looked at as a floor price. A higher private label price allows manufacturers to sell their brands at a higher price. If private label price is a "competitive" price, reflecting the costs of selling the product in a market (Connor and Peterson 1992), then this variable is a proxy for differential costs across markets. A simple correlation matrix is presented in appendix Table A-6.

Regression results are summarized in Table 1. Equation 1 models the basic price-market share relationship, using **Volume Market Share** and **Units per Pound**. It finds a positive relationship between price and share that is significant at the 5% level. Units per Pound is positive and highly significant, indicating that larger sizes are indeed less expensive on a per volume basis. Equation 2 adds the **Co-ops Present** binary variable and the **Co-op Volume Market Share**. They are both negative and significant at the 1% level, and their addition improves the significance of the Market Share variable to the 1% level. The coefficient of the Co-op Volume Market Share is as large as the coefficient on the Volume Market Share and combining the two share effects shows that co-ops exercise little or no share-based market power. Equation 3 replaces the Volume Market Share with the **Average Weighted Distribution** and **In-Store Share**[9]. Their inclusion improves the explanatory power of the model greatly, increasing the R^2 by 50 percent. The coefficients of both variables are highly significant and of the hypothesized signs. The Co-ops Present binary variable continues to be negative and significant at the 1% level.

Equation 4 introduces the **Market CR_4** and the **Population** structural variables to the model in Equation 2, and Equation 5 introduces them to the model in Equation 3. The market share variables retain the same signs and levels of significance they held in Equations 2 and 3. The Co-ops Present and Co-op Volume Market Share variables continue to be negative in

[9]The variable Co-op Volume Market Share is not included in this and subsequent equations which include Average Weighted Distribution and In-Store Share. Its interpretation is unclear in these equations. As an alternative, Co-op Average Weighted Distribution and Co-op In-Store Share were tried, but proved unsatisfactory.

Table 1 Regression Results for the Cottage Cheese Market, 4th Quarter, 1988

Dependent Variable is Average Price per Pound

Eq.	Volume Market Share	Average Wtd. Distrib.	In-store Share	Units per Pound	Co-ops Present Binary	Co-op Volume Market Share	Retail Market CR_4	Pop.	Percent Volume w/ any Merch.	Private Label Price/ Pound	Constant	R^2 / Adj. R^2
1	0.00208 (2.080)			0.605 (10.120)							0.599 (11.055)	0.2508 / 0.2461
2	0.00480 (3.832)			0.595 (10.303)	-0.0676 (3.436)	-0.00511 (3.035)					0.626 (11.667)	0.3078 / 0.2991
3		0.00233 (9.527)	-0.00167 (3.082)	0.454 (8.533)	-0.0737 (4.348)						0.693 (13.521)	0.4630 / 0.4563
4	0.00438 (3.500)			0.553 (9.351)	-0.0602 (3.055)	-0.00466 (2.781)	0.00127 (1.701)	9.94 E-9 (2.630)			0.557 (8.467)	0.3252 / 0.3126
5		0.00226 (9.380)	-0.00195 (3.610)	0.407 (7.527)	-0.0632 (3.735)		0.000818 (1.248)	11.9 E-9 (3.606)			0.654 (10.766)	0.4844 / 0.4747
6	0.00381 (3.275)			0.495 (9.029)	-0.0361 (1.965)	-0.00365 (2.353)	0.000974 (1.414)	0.790 E-9 (0.210)	-0.00236 (4.675)	0.590 (6.458)	0.132 (1.366)	0.4348 / 0.4205
7		0.00235 (10.708)	-0.00170 (3.535)	0.350 (7.236)	-0.0384 (2.511)		0.000548 (0.939)	4.22 E-9 (1.310)	-0.00305 (7.082)	0.486 (6.274)	0.321 (3.760)	0.5960 / 0.5858

(t statistics in parentheses)
Note: Significance levels for a two-tailed test are: t > 1.645, 10%
t > 1.960, 5%
t > 2.576, 1%

Equations 4 and 5 at the same significance level they held in Equations 2 and 3. Market CR_4 is positive and significant at the 10% level in Equation 4 and positive but not significant in Equation 5. Taken together, this provides only weak support that consumers pay a little more for cottage cheese in more concentrated markets. The Population variable is positive and significant at the 1% level. This suggests that consumers in larger market areas face higher prices, a result worthy of additional research.

Equations 6 and 7 introduce the **Percent Volume with any Merchandising** (PctVolMerch) and **Private Label Price per Pound** (PLPrice) variables into Equations 4 and 5. PctVolMerch is significant at the 1% level and negative, as expected. The coefficient of PLPrice is positive and significant at the 1% level, indicating that brand name prices rise as the price of store brands goes up. Population is highly correlated with Private Label Price per Pound (r = 0.43), and its coefficient falls to insignificance in these equations.

Table 2 presents the effects of changes in the explanatory variables on the price of cottage cheese. The effects caused by co-ops are the most notable. Co-ops exercise little or no share-based market power. Calculating the effect of a 10% change in a co-op-owned brand's market share, we see that the price actually declines about 0.3 cents (a 4.4 cent rise from Volume Market Share and a 4.7 cent decline from the Co-op Volume Market Share variable). Additionally, the prices of all brands in a market are affected by the presence of a co-op brand. Brands in markets with at least one co-op are 6 cents cheaper than a similarly positioned brand where no co-ops compete.

4. Conclusions

We find evidence supporting the premise that market power is being exercised in the cottage cheese market. Price rises with an increase in market share. We also find weak evidence that price rises as the retail market-level four firm grocery concentration ratio (Market CR_4) rises, indicating that retailers may raise prices in more concentrated markets. We find that one of the strongest influences of the price of cottage cheese is the extent of market penetration of the brand. Brands with a higher average weighted distribution have higher prices. This may indicate that these brands have won high consumer acceptance and so are able to charge more, indicating the exercise of market

Table 2 CHANGE IN PRICE RESULTING FROM A CHANGE IN EXPLANATORY VARIABLE

Explanatory Variable	Magnitude of Change in Explanatory Variable	Resulting Change in Price
Volume Market Share[a]	10 percentage points	$0.044
Average Weighted Distribution[b]	10 percentage points	0.024
In-Store Share[b]	10 percentage points	-0.017
Units per Pound[a]	0.083*	0.046
Co-ops Present Binary[a]	1	-0.060
Co-op Volume Market Share[a]	10 percentage points	-0.047
Market CR_4[a]	10 percentage points	0.013
Population[a]	1,336,450*	0.013
Percent Volume with any Merchandising[b]	8.79%*	-0.027
Private Label Price per Pound[b]	$0.055*	0.027

* Represents one half of one standard deviation
[a] calculated from Equation 4, Table 1
[b] calculated from Equation 7, Table 1

power on the manufacturer level. Brands' prices rise with an increase in the price of private label cottage cheese.

We also find strong evidence that cooperatives are not exercising market power or "unduly enhancing price." Cooperatives charge a lower price than their IOF competition under the same conditions and, unlike their IOF competition, co-ops do not capitalize on higher share to raise price. Moreover, the presence of cooperatives in a market brings the price of competing brands down. Cooperatives do not differ greatly from IOFs in the use of merchandising tools, using them as much or slightly more in most cases. If cooperatives wish to increase sales of their brands, gaining wider distribution in their current markets should allow them to boost their sales without requiring a price reduction.

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Appendix

Table A-1 IRI Geographic Markets

Los Angeles	Oklahoma City
New York	Sacramento
Chicago	San Diego
Memphis	Portland, Or.
Houston	Salt Lake City
Pittsburgh	Phoenix / Tucson
Seattle / Tacoma	Miami / Ft. Lauderdale
Detroit	Nashville
Cleveland	Raleigh / Greensboro
St. Louis	Albany
Dallas / Ft. Worth	Baltimore / Washington
Kansas City	Milwaukee
Birmingham	New Orleans / Mobile
Boston	Buffalo / Rochester
San Francisco / Oakland	Hartford / Springfield
Tampa / St. Petersburg	Jacksonville
Minneapolis / St. Paul	Louisville
Denver	San Antonio
Philadelphia	Columbus
Atlanta	Omaha
Providence	Grand Rapids
Cincinnati / Dayton	Little Rock
Indianapolis	
Wichita	
Orlando	

Table A-2 LISTING OF BRANDS SHOWING FREQUENCIES OF SHARE RANKINGS, 4TH QUARTER, 1988

Rank	Co-op	Brand	Manufacturer	#Mkts	#1	#2	#3	#4	>4
1		Light N Lively	Philip Morris Co. Inc	29	12	7	5	2	3
2		Knudsen	Philip Morris Co. Inc	5	3	1	1	0	0
3		Breakstone	Philip Morris Co. Inc	30	0	6	9	5	10
4		Kemps Slim Trim	Quality Chekd Dry Prdts Assn	13	1	2	3	2	5
5	C	Hood	Agway, Inc	5	4	0	1	0	0
6		Sealtest	Philip Morris Co. Inc	27	0	5	10	3	9
7		Borden	Borden, Inc	18	3	4	1	6	4
8		Friendly Farmer	Friendship Food Products Inc	5	1	1	1	1	1
9		Deans	Dean Foods Co	7	2	2	1	0	2
10		Borden Viva	Borden Inc	5	0	2	0	0	3
11	C	Darigold	Darigold, Inc	2	2	0	0	0	0
12		Crowley	Crowley Foods, Inc	6	0	1	0	3	2
13		Anderson Erickson	Anderson Erickson Dairy Co	2	0	0	0	0	2
14		Weight Watchers	H J Heinz Co	21	0	2	4	3	12
15	C	Cream O Weber	Intermountain Milk Producers	2	1	0	0	1	0
16	C	Prairie Farms	Prairie Farms Dairy, Inc	4	1	0	1	0	2
17		Nordica	Nordica International, Inc	2	1	0	0	0	1
18		Michigan	General Mills	6	2	0	1	1	2
19		Axelrod	Crowley Foods, Inc	5	0	0	0	2	3
20		Lite Line	Borden Inc	12	0	3	0	1	8
21		Meadow Gold	Borden Inc	6	0	0	2	0	4
22		Carnation	Nestle Co	3	0	2	1	0	0
23		Old Home	Old Home Foods, Inc	1	1	0	0	0	0
24		Shamrock	Shamrock Foods Co	1	1	0	0	0	0
25		Crystal	Crystal Cream & Butter Co	2	1	0	0	1	0
26		Quality Chekd	Quality Chekd Dry Prdts Assn	4	0	0	1	0	3
27		Friendship	Friendship Food Products Inc	4	0	0	0	0	4
28	C	Bison	Bison Foods Co	1	1	0	0	0	0
29		Driggs Farms	Driggs Dairy Farms, Inc	1	0	0	0	0	1
30	C	Golden Guernsey	Golden Guernsey Dairy	1	1	0	0	0	0
31		Pet	Whitman Corp	2	0	0	0	0	2
32		Hillside	Hillside Old Meadow Dairy	4	0	0	0	1	3
33		Berkeley Farms	Berkeley Farms, Inc	1	0	1	0	0	0
34		Purity	Philip Morris Co. Inc	1	1	0	0	0	0
35		Farm Fresh	Farm Fresh Dairy, Inc	2	1	1	0	0	0
36		Reiter	Reiter Foods, Inc	3	0	1	0	0	2
37		Vitamilk Dairy	Vitamilk Dairy, Inc	1	0	1	0	0	0
38		Hoosier	East Side Jersey Dairy, Inc	1	1	0	0	0	0
39		Louis Trauth	Louis Trauth Dairy, Inc	1	1	0	0	0	0
40		Kemps Lite	Marigold Foods, Inc	3	0	0	0	0	3
41		Gilt Edge Farms	Gilt Edge Farms, Inc	2	0	0	1	1	0
42	C	Roberts	Roberts Dairy Co	2	1	0	0	1	0
43		Pevely	Pevely Dairy Co	1	0	1	0	0	0
44	C	Swiss Valley Farms	Swiss Valley Farms Co	1	0	0	0	0	1
45		Bestever	East Side Jersey Dairy, Inc	1	0	1	0	0	0
46		Alta Dena	Bongrain S A	2	0	1	1	0	0
47	C	Cabot	Cabot Farmers' Coop Creamery	3	0	0	0	1	2
48	C	Flav O Rich	Flav-O-Rich, Inc	3	0	0	0	0	3
49		Country Side	Finevest Foods, Inc	1	0	0	0	0	1
50	C	Zarda	Zarda Brothers Dairy, Inc	2	0	1	0	0	1
51		Fairmont	Utotem, Inc	2	1	0	0	0	1
52		Sani Dairy	Johnstown Sanitary Dairy	1	0	0	0	0	1
53		Melody Farms St Fr	Melody Farms Dairy Co	1	0	0	0	1	0
54		Dellwood	Arabian Investment Banking	1	0	0	0	0	1
55		Steffen	Steffen Dairy Foods Co, Inc	1	1	0	0	0	0
56		Slendrella	Old Home Foods, Inc	1	0	0	0	0	1
57		Fieldcrest	Dean Foods Co	2	0	0	0	1	1
58		Dairy Fresh	Superior Dairy Fresh Milk Co	1	0	0	0	1	0

Table A-2 (CONTINUED)

Rank	Co-op	Brand	Manufacturer	#Mkts	#1	#2	#3	#4	>4
59		Barber	Barber Dairy, Inc	2	1	0	0	0	1
60		Baremans	Bareman's Dairy, Inc	1	0	0	0	0	1
61		Bluebunny	Wells Dairy, Inc	1	0	1	0	0	0
62		Bay View Farms	Quality Chekd Dry Prdts Assn	1	0	0	0	1	0
63		Kemps	Marigold Foods, Inc	1	0	0	0	0	1
64		Farmcrest	Pevely Dairy Co	1	0	0	0	0	1
65		Londons	London's Farm Dairy, Inc	1	0	0	0	0	1
66		Schroeder	Schroeder Milk Co, Inc	1	0	0	0	0	1
67	C	Land O Lakes	Land O Lakes, Inc	1	0	0	0	0	1
68		Pevely Delightfully Light	Pevely Dairy Co	1	0	0	0	0	1
69		Fikes	R Bruce Fike & Sons Dairy	1	0	0	0	1	0
70		Jersey Farms	Pevely Dairy Co	1	0	0	0	0	1
73		Quality Chekd	McDonald Coop Dairy Co	1	0	0	0	0	1
74		Quality Chekd	Coleman Dairy, Inc	1	1	0	0	0	0
75		Trauth Dairy	Louis Trauth Dairy, Inc	1	0	0	0	0	1
77		Swiss	Swiss Dairy	1	0	0	0	1	0
78	C	Shenandoah Pride	Valley Of Virginia Cooperative	1	0	0	0	0	1
79		Country Girl	Farm Fresh Dairy, Inc	2	0	0	1	0	1
80		Yoders	Delphos Frozen Specialties	1	0	0	0	0	1
81		Great Scott	Borden, Inc	1	0	0	0	0	1
82		Melody Farms	Melody Farms Dairy Co	1	0	0	0	0	1
83		Alpen Rose	Alpenrose Dairy, Inc	1	0	0	1	0	0
84		McColls Trim	All Star Dairy Assn, Inc	1	0	0	0	0	1
85		McColls	All Star Dairy Assn, Inc	1	0	0	0	0	1
86		Smiths	Smith Dairy Products Co	2	0	0	0	0	2
87	C	Norris	Norris Creameries, Inc	1	0	0	0	0	1
88		Johnsons	Johnson Creamery Co	1	0	0	0	0	1
89		Kleinpeter	Kleinpeter Farms Dairy, Inc	1	0	0	0	1	0
90		Premier	Gazelle, Inc	1	0	0	0	0	1
91		Meyer	H. Meyer Dairy Co	1	0	0	0	0	1
93		Oak Farms	Morningstar Foods, Inc	1	0	0	0	1	0
96		Clover Stornetta	Clover Brand Dairy Products	1	0	0	0	0	1
98		Vitalite	Vitamilk Dairy, Inc	1	0	0	0	0	1
99		Bowman	Dean Foods Co	1	0	0	0	0	1
100		Curlys	Quality Chekd Dry Prdts Assn	1	0	0	0	0	1
101		Gerlands	Gazelle, Inc	1	0	0	0	0	1
102		Cabells	Morningstar Foods, Inc	1	0	0	0	0	1
103		Pine State	Pine State Creamery Co	1	0	0	0	1	0
104		Oak Grove	Oak Grove Dairy	1	0	0	0	0	1
106		Schepps	Schepps Ice Cream Co, Inc	1	0	0	0	0	1
108		Verifine	Dean Foods Co	1	0	0	0	0	1
110		Foremost	McKesson Corp	1	0	0	0	0	1
116		Gillette	Gillette Dairy, Inc	1	0	0	1	0	0
117		Lite A Rite	Gillette Dairy, Inc	1	0	0	0	1	0
120		Holland	Holland Dairy, Inc	1	0	0	0	0	1
122		Atlanta Dairies	Land-O-Sun Dairies	1	0	0	0	0	1

Note: Some brands were not marketed in the markets in this study; they are not listed in this table. They were, however, assigned a national rank based on their total sales.

Table A-3 LISTING OF MANUFACTURERS SHOWING FREQUENCIES OF SHARE RANKINGS, 4TH QUARTER, 1988

Rank	Co-op	Manufacturer	#Mkts	#1	#2	#3	#4	>4
1		Philip Morris Co. Inc	37	18	12	4	1	2
2		Borden, Inc	22	5	8	4	4	1
3		Quality Chekd Dairy Products Assn	14	1	2	4	1	6
4	C	Agway, Inc	5	4	0	0	1	0
5		Friendship Food Products Inc	5	0	3	1	1	0
6		Dean Foods Co	8	1	4	0	0	3
7		Crowley Foods, Inc	10	0	3	4	1	2
8	C	Darigold, Inc	2	2	0	0	0	0
9		Anderson Erickson Dairy Co	2	0	0	0	0	2
10		H J Heinz Co	21	0	3	3	6	9
11	C	Prairie Farms Dairy, Inc	4	0	0	2	1	1
12	C	Intermountain Milk Producers	2	1	0	0	1	0
13		Nordica International, Inc	2	0	1	0	0	1
14		General Mills	6	1	0	2	1	2
15		Old Home Foods, Inc	1	1	0	0	0	0
16		Nestle Co	3	0	2	1	0	0
17		Shamrock Foods Co	1	1	0	0	0	0
18		Crystal Cream & Butter Co	2	1	0	0	1	0
19	C	Bison Foods Co	1	1	0	0	0	0
20		Whitman Corp	2	0	0	1	0	1
21		Driggs Dairy Farms, Inc	1	0	0	0	0	1
22		Pevely Dairy Co	1	1	0	0	0	0
23	C	Golden Guernsey Dairy	1	1	0	0	0	0
24		East Side Jersey Dairy, Inc	1	1	0	0	0	0
25		Hillside Old Meadow Dairy	4	0	0	2	0	2
26		Louis Trauth Dairy, Inc	1	1	0	0	0	0
27		Farm Fresh Dairy, Inc	2	1	1	0	0	0
28		Berkeley Farms, Inc	1	0	1	0	0	0
29		Marigold Foods, Inc	3	0	0	1	0	2
30		Reiter Foods, Inc	3	0	0	0	2	1
31		Vitamilk Dairy, Inc	1	0	1	0	0	0
32		Gilt Edge Farms, Inc	2	0	0	1	1	0
33	C	Roberts Dairy Co	2	1	0	0	1	0
34	C	Swiss Valley Farms Co	1	0	0	0	1	0
35		Bongrain S A	2	0	1	1	0	0
36	C	Cabot Farmers' Cooperative Crmy	3	0	0	2	0	1
37		Melody Farms Dairy Co	1	0	0	0	1	0
38	C	Flav-O-Rich, Inc	3	0	1	1	1	0
39		Finevest Foods, Inc	1	0	0	0	1	0
40	C	Zarda Brothers Dairy, Inc	2	0	1	0	0	1
41		Utotem, Inc	2	1	0	0	0	1
42		Johnstown Sanitary Dairy	1	0	0	0	1	0
43	C	Land O Lakes, Inc	1	0	0	0	0	1
44		Arabian Investment Banking	1	0	0	0	1	0
45		Steffen Dairy Foods Co, Inc	1	1	0	0	0	0
46		Superior Dairy Fresh Milk Co	1	0	0	0	1	0
47		Barber Dairy, Inc	2	1	0	0	0	1
48		All Star Dairy Assn, Inc	1	0	0	0	1	0
49		Bareman's Dairy, Inc	1	0	0	0	0	1
50		Wells Dairy, Inc	1	0	1	0	0	0
51		London's Farm Dairy, Inc	1	0	0	0	0	1
52		Schroeder Milk Co, Inc	1	0	0	0	0	1
53		R Bruce Fike & Sons Dairy	1	0	0	1	0	0
54		McDonald Coop Dairy Co	1	0	0	0	0	1
57		Morningstar Foods, Inc	2	0	0	1	1	0
58		Coleman Dairy, Inc	1	1	0	0	0	0
60		Swiss Dairy	1	0	0	0	1	0
61	C	Valley Of Virginia Cooperative	1	0	0	1	0	0

Table A-3 (CONTINUED)

Rank	Co-op	Manufacturer	#Mkts	#1	#2	#3	#4	>4
62		Delphos Frozen Specialties	1	0	0	0	0	1
63		Alpenrose Dairy, Inc	1	0	0	1	0	0
64		Gazelle, Inc	1	0	0	1	0	0
65		Smith Dairy Products Co	2	0	0	0	0	2
66	C	Norris Creameries, Inc	1	0	0	0	0	1
67		Johnson Creamery Co	1	0	0	0	0	1
68		Kleinpeter Farms Dairy, Inc	1	0	0	1	0	0
70		H. Meyer Dairy Co	1	0	0	0	0	1
72		Clover Brand Dairy Products	1	0	0	0	0	1
73		McKesson Corp	1	0	0	0	0	1
74		Gillette Dairy, Inc	1	0	0	1	0	0
75		Pine State Creamery Co	1	0	1	0	0	0
76		Oak Grove Dairy	1	0	0	0	0	1
78		Schepps Ice Cream Co, Inc	1	0	0	0	0	1
84		Holland Dairy, Inc	1	0	0	0	1	0
85		T G Lee Foods, Inc	1	0	0	0	1	0
87		Land-O-Sun Dairies	1	0	0	0	1	0

Note: Some manufacturers did not market their cottage cheese in the markets in this study; they are not listed in this table. They were, however, assigned a national rank based on their total sales.

Table A-4 DESCRIPTIVE STATISTICS FOR BRAND-LEVEL DATA

Variable Name	Mean	St. Dev.	Min.	Max.
Average Price per Pound	1.1504	0.2063	0.67	1.751
Volume Market Share	7.812	9.934	0.5	67.187
Average ACV-Weighted Distribution	51.531	35.817	1.078	100
In-Store Share	17.41	16.290	1.09	82.995
Percent Volume with any Merchandising	18.761	17.571	0	77.419
Percent Volume with Feature A B Only	7.405	10.165	0	67.792
Average Percent Price Reduction	15.55	10.896	0	48.942
Percent Volume Sold with Display	0.8185	3.146	0	34.39
Units per Pound	0.8839	0.166	0.500	2.000
Co-ops Present Binary	0.4708	0.4999	0	1
Retail Market CR_4	61.231	13.149	23.9	84.1
Supermarket Grocery Sales Ratio	80.235	6.846	67.2	95.3
Population (x000)	2,856.8	2,672.9	603.49	15,582
Private Label Price per Pound	0.943	0.110	0.753	1.305

Note: There are 325 observations for each variable.

Table A-5 DESCRIPTIVE STATISTICS FOR MANUFACTURER-LEVEL DATA

Variable Name	Mean	St. Dev.	Min.	Max.
Average Price per Pound	1.137	0.210	0.670	1.934
Volume Market Share	11.229	14.131	0.505	67.187
Average ACV-Weighted Distribution	47.939	35.868	1.078	100.000
Percent Volume with any Merchandising	17.104	16.513	0	71.123
Percent Volume with Feature A B Only	6.689	9.185	0	51.666
Average Percent Price Reduction	15.538	11.108	0	48.942
Percent Volume with Display	0.642	2.345	0	18.119

Note: There are 229 observations for each variable.

Table A-6 CORRELATION TABLE FOR DATA USED IN PRICE REGRESSIONS

	Average Price per Pound	Volume Market Share	Average Weighted Distrib.	Sales per $ Million ACV	Units per Pound	Co-ops Present Binary	Co-op Volume Market Share	Retail Market CR4	Population	Percent Volume w/ any Merch.	Private Label Price per Pound
Average Price per Pound	1.000										
Volume Market Share	0.112	1.000									
Average Weighted Distribution	0.507	0.542	1.000								
Sales per $Mil ACV	-0.274	0.462	-0.195	1.000							
Units per Pound	0.491	0.0233	0.208	-0.243	1.000						
Coops Present Binary	-0.206	0.0749	-0.0048	0.0744	-0.0448	1.000					
Co-op Volume Market Share	-0.0684	0.635	0.158	0.337	0.0102	0.204	1.000				
Retail Market CR4	0.126	0.0199	0.116	-0.131	0.138	-0.00052	-0.0138	1.000			
Population	0.242	0.0615	0.0553	0.0760	0.187	-0.166	-0.0442	-0.179	1.000		
Percent Volume with any Merch.	-0.234	0.0911	0.150	-0.0124	-0.102	0.101	0.0428	-0.0087	-0.0058	1.000	
Private Label Price / Pound	0.428	0.0848	0.176	-0.170	0.172	-0.209	-0.0891	0.0114	0.433	0.0197	1.000

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