THE DAIRY SUBSECTOR OF AMERICAN AGRICULTURE: ORGANIZATION AND VERTICAL COORDINATION

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FOREWORD

During the last decade, the topics of subsector organization and vertical coordination have become increasingly recognized as important factors in the organization and performance of the U.S. food system. However, little research has been conducted on these topics, in part because the methodology and conceptual framework for subsector analysis is not fully developed.

The North Central Regional Research Project NC 117 is examining the organization, coordination and performance of several commodity subsectors. Monograph 5 provides a comprehensive analysis of the U.S. dairy subsector. Future monographs will analyze the egg, beef and selected fruit and vegetable subsectors.

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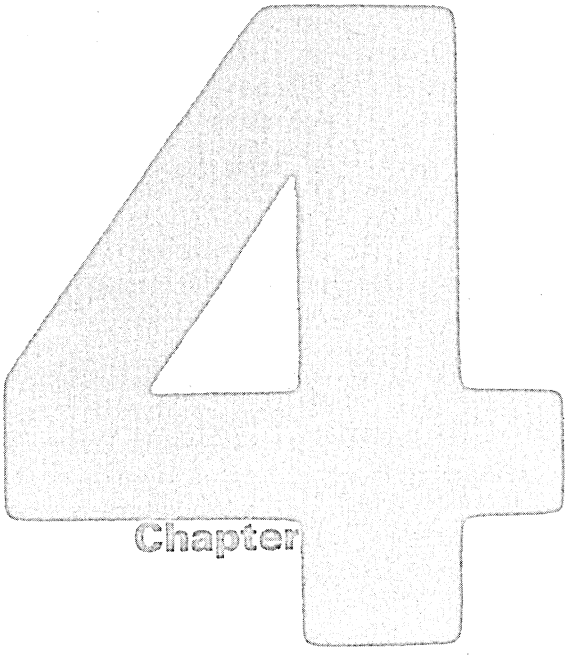


Competitive Environment in Subsector

Many of the facets of competitive environment have been dealt with in an earlier section. Several aspects of performance have been touched upon, and there will be more in the final sections of this report. Some additional aspects of competitive environment follow.

BALANCE OF MARKET POWER

At the procurement stage, there has been some shifting in the balance of market power towards the farmer cooperatives as compared with the fluid milk handler or intermediate handler of manufactured products. This has resulted from the growth of the regional bargaining cooperatives such as Associated Milk Producers Incorporated, Mid-America Dairymen, Dairymen Incorporated, as well as a growth of some of the federations. Good evidence of this is the increase in the number and magnitude of the over-order premiums in recent years until supplies began to increase sharply in 1976.

Though this report is not concerned with analyzing the over-order premiums, it may be pointed out that the level of premiums is greatly influenced by the supply-demand situation. In fact the Capper-Volstead Committee Report on undue price enhancement found that in many markets over-order premiums simply reflected the difference between the minimum federal order price and the cost of milk from alternative sources [12]. Thus the regional bargaining cooperatives have been able to keep Class I prices more in line with supply-demand conditions than might prevail without their bargaining power. It is possible that the larger of these regional cooperatives may have more market power in dealing with the food chains than is possessed even by the larger milk dealers.

Among fluid milk dealers there has been some shift in market power as a result of FTC merger policy, from the big eight national concerns to the medium sized dealers (see section on mergers). By far the major shift in balance of power has been toward the food chain, chiefly the corporate chain. This has been discussed at several places in this report, including the significance of private labeling and backward vertical integration into processing by chains. This has been especially important because these chains are the outlet which affords the chief opportunity for dealer or handler growth and are particularly needed by large volume processors.

Before the late 1940's the buyers of milk and ice cream were essentially atomistic. Most sales of fluid milk were on house-to-house routes with some sales, of course, to government installations, institutions and restaurants, usually not centrally organized. Sales of ice cream were chiefly to drug stores and ice cream parlors. The balance of power lay with the processors and distributors. Since that time,

there has been the very marked shift in the balance of market power toward chain stores which have gained the consumer franchise for themselves.

WIDENING OR NARROWING OF MARKETS

Increase of geographic size of fluid milk markets has been discussed in an earlier section. A good evidence of it is the consolidation in the number of federal orders from 82 as of a few years ago to the present 46 as of November, 1977, a consolidation which is expected to continue. The new upper Midwest order is an example, which puts together parts of several states including Wisconsin, Minnesota, Iowa, and the Dakotas in one order. Recently, all of the five markets of Texas were combined into one. The growing geographic size of these markets resulted from a number of factors, legal, technological, and other. These included reciprocal inspection, various court rulings on local barriers, single service containers, bulk procurement with direct and pumpover delivery, developments in highways, growth of the regional bargaining cooperative and others. The increase in the concentration of fluid milk markets would have been even greater but for the widening of these markets. Thus increase in market size has been an important counterforce.

EQUALITY OF MARKET INFORMATION

The critical question here is whether both buyers and sellers at each transaction level have about the same access to market information. Do the larger buyers have better information than the smaller ones? How does the information available to buyers as a whole compare with information to sellers as a whole? As a general matter, the various segments of the dairy industry and the buyers and sellers at all levels appear to have good information furnished free of charge from public sources, as described under "Information Systems."

Looking over the market information that is publicly available, a principal inadequacy that is apparent is in the information available to the small country factory. The small butter plant cannot compare its prices net f.o.b. churn with what is realized by other factories that produce about the same product in the same local area. Nor can the small cheese factory compare its f.o.b. hoop prices with that of its neighbor factories due to the premium system. The intermediate handlers who buy from them have somewhat better information on these values than the country factory. For butter, cheese and powder, the large dealers have private information networks that give them some advantage in buying compared with the smaller ones, particularly when they deal in futures or buy for storage. Their sources of information also tell them what trading, both buying and selling, is being done by their competitors, how much stocks they have and where they are being held. This sort of information helps them in appraising the market better than could be done by the smaller buyers and sellers. With existing federal and state laws, however, it would be impossible for public agencies to report this sort of information in terms

of the personalities of particular firms, because this would be revealing confidential information. Work has been done at times since World War II in trying to report butter and cheese prices in a way more useful to country factories, but the cost of doing this was usually deemed to be prohibitive.

It would be misleading to say there are no information problems in other markets. There are instances where markets would be improved with more information. As examples: No data are currently published on over-order premiums paid to cooperatives by dealers in federal order markets. Prices paid to the principal cooperative as now available mean little because there is no way to know the components of the price, i.e., how much is service charge. Also, data from state orders are often not integrated with federal order data. This is particularly relevant because California, with a state order, is such an important part of the industry.

NUMBER OF ENTRIES AND EXITS AT DIFFERENT STAGES

If entries are defined as new productive capacity (as Bain does) then most of the entries into any of the dairy industries dealt with here have been at the distribution level. By far the most important of these entries has been the food chains which have entered into milk packaging to the point where these now package somewhere between 12% and 20% of all packaged milk. Parker, in his economic report on the dairy industry, shows about 30 of the large national chains that have vertically integrated into milk processing between 1929 and 1971 [52]. He shows eight smaller supermarket chains and eight smaller convenience store chains that have done so. Parker's records show that these concerns combined process 7,016,000,000 pounds of Class I milk annually (Table 4-1). Convenience stores, which are essentially a post World War II phenomenon, in some instances have entered milk packaging with new capacity. Southland Corporation, which processes 1,166,000,000 pounds a year and Cumberland Farms, which processes 332,000,000 pounds of milk a year provide examples. Dairy Queen and other companies processing soft ice cream, custards, and ices are perhaps an example. These companies have their mix made by flexible country plants and freeze it in roadside stands at the point of sales. These stands are franchised by the parent company. Since World War II there has been a very substantial entry of subdealers into milk distribution. Borden, for example, has disposed of all its New York routes to subdealers in recent years. However, subdealers do not bring in new productive capacity.

If entry were defined as old firms entering new markets, much has happened by way of entry as packaged milk marketing areas have expanded in size.

In manufacturing, new plants have not been new firms as a general matter. New plants in some instances have been built by old firms or old firms have modernized their old plants by remodeling and installing new equipment. New firms have been created as a result of cooperative mergers, but these mergers have seldom brought in new productive capacity, though there was some plant modernization.

Exits have been in large numbers at all levels, farming, manufacturing, and distribution. These exits numerically have greatly exceeded the small numbers of entries.

In a study of changes in market structure in federal order markets in the United States, Manchester found that in the years 1945-65 approximately 20 handlers went out of the milk packaging business for each one that entered. Approximately half the fluid milk and ice cream firms that went out of business in eight Wisconsin counties between 1940 and 1960 ceased operations without being sold (Hammond and Cook study) [34]. Likewise, in 45% of the exits among 70 federal order markets between 1958 and 1962 handlers quit processing and packaging without the sale of the firm or its assets. In general, the volume of business of these firms was small and a comparatively large percentage of their distribution was on retail routes. Many of these handlers, as has been explained before, were able to go into business or to continue in business as bobtailers, thereby getting some value from the goodwill that they had established with their customers and, perhaps from their storage facilties.

Table 4-1. Vertically Integrated Food Chains, Year of Integration, and Pounds of Class I Milk Processed in 1970-71

Year integrated	Company	Pounds of class I milk processed (year)	
		Million pounds	
Large National Chains			
1929	Arden-Mayfair[a]	567	(1970)
1930	Safeway Stores, Inc.[a]	1,141	(1970)
1932	Ralph's[a]	95	(1971)
1934	The Kroger Company[a]	775	(1970)
	Daitch Shopwell	25 (est)[d]	
1936	Southland Coop[a]	1,166	(1970)
1952	Jerseymaid Partnerships	268	
	Alexander's Markets		
	Thriftmart[a]		
	Market Basket		
	Vons[a]		
1956	Fred Meyer, Inc.	20 (est)[d]	
	Certified Grocery of Ill. (Vol.)	199	(1971)
1958	Consolidated Foods[b]	160	(1971)
1960	Cook United, Inc.[a]	46	(1970)
	Winn-Dixie Stores, Inc.[a]	188	(1971)
	Stop & Shop, Inc.[a]	70	(1970)
1961	Scot Lad Foods, Inc. (Vol.)	70 (est.)[d]	
1962	Borman Food Stores[a]	92	(1971)
1964	Shopping Bag		
1965	Richmond Food Stores, Inc.	60 (est.)[d]	
1966	Acme[a]	168	(1970)
	A & P[a]	265	(1971)
1968	Jewel Companies[a]	261	(1970)
1969	Giant Food[a]	96	(1970)

Table 4-1. (Continued)

Year integrated	Company		Pounds of class I milk processed (year) Million pounds	
Large National Chains				
1969	Lucky Stores, Inc.[a]		231	(1970)
1969	Allied Supermarkets[a]		108	(1971)
1971	Colonial Stores		77[f]	(1971)
1971	Dillon Companies, Inc.[a]		20[d]	
Not known	Associated Groceries of Alabama (Co-op)		2[e]	
Not known	Spartan (Co-op)		120[c]	
Smaller Supermarket Chains		*Affiliated Dairy Company*		
Beaty Grocery Co. (Vol.)		Hy-Klas Dairy		30
Economy Stores (Co-op)				25 (est)[d]
Associated Food, Inc. (Co-op)		Associated Dairy, Inc.		24 (est.)[d]
Gibson Discount		Mid-West Creamery Co., Inc.		21
Star Markets		Heicklon Farms		15[e]
Milgram Food Stores, Inc.		Meyer Dairy, Inc.		13[e]
Harts Food Stores, Inc.				5[e]
Temple Stephens Co.		Stephens Produce Co.		3[d]
Smaller Convenience Store Chains				
Cumberland Farms				332[g]
United Dairy				94[g]
Farm Stores				69
Wawa Dairy Farm				62[g]
Isaly				20
National Convenience Stores				13[e]
Nite Owl Food Mart, Inc.				N.A.[c]
High's				N.A.[c]
				7,016

a Ranked among 40 largest corporate chains of 1967.
b Was a member of 40 largest but by 1967 had become a voluntary chain.
c N.A.—Not available.
d FTC staff estimates based on retail sales.
e Based on information contained in Commission files.
f Plant started, Dec. 20, 1971. It is projected that the plant will process 1.5 million pounds of Class I milk per week by the middle of 1972.
g Based on estimates by other industry members.
Source: Parker [52]

The Hammond-Cook study on Wisconsin dairy firm mergers (see section pertaining to mergers) may be referred to for its bearing on exit and entry into dairy manufacturing as well as dairy processing. These data, however, are not very useful to show the entrance of new productive capacity. They show that between 1940-1960, 1,686 firms entered the dairy business in Wisconsin and 3,363 left the business. They show that in the same period in Minnesota 179 entered and 610 left. Although the data from both states do show what happened to the productive capacity of the

firms that left the industry, the data do not show whether new productive capacity was created by the firms entering the business. Most of the exits appear to be accounted for by cheese manufacturing concerns and fluid milk processors.

Some Further Aspects of Price Behavior

Evidence of behavior within the dairy subsector includes the prices that result. Many aspects of these have been described at various points in this report. A few additional ones are summarized below:

PRICE VARIATIONS IN SHORT RUN, FROM YEAR TO YEAR, BETWEEN MARKETS AND BETWEEN SIMILAR PRODUCTS

At Producer Level

Price variations for producer milk initially must be evaluated in terms of manufacturing grade and Grade A (fluid) milk separately. Since the dairy price support program is a major factor affecting manufacturing grade milk prices, and since federal and state market order programs have substantial effects on Grade A milk prices, these respective institutions must be recognized in the price variation question.

Manufacturing Grade Milk

Prices for manufacturing grade milk are not subject to market order regulation and are established on a competitive basis, at least in regions of dense production. Since over one-half of the manufacturing grade milk in the United States is produced in Minnesota and Wisconsin, these two states represent the focal point of price determination for Grade B milk.

Factors that affect the supply side include feed prices, pasture conditions, beef prices, and milk prices in immediately preceding time periods. Factors that affect the demand side, as they are reflected through the wholesale product markets, include disposable income, prices of substitute products, size of storage holdings, and, in the longer run, shifts in tastes and preferences. In periods of excess milk production, the government price support program for butter, cheese, and nonfat dry milk represents a major demand factor by setting a price floor. As a result, producer prices are influenced substantially. Data on this government program follow:

Government Price Supports

To critically analyze the price support program for the dairy subsector and its effect on the subsector is beyond the scope of this report. However, some tables showing the nature of government activity may furnish a conveninent cross reference to various other parts of the report.

Table 4-2 shows comparisons of support prices and average market prices paid to producers for manufacturing milk by marketing years since 1949. (Milk-fat support levels are not shown, since they were discontinued after 1970.) The basic legislation of 1949 directed the Secretary to support the price of manufacturing milk (and butterfat) at 75-90% of parity based on criteria which included maintaining adequate supplies. This has been unchanged since then except briefly in the early 1970's when the minimum was raised by law to 80% for a time. Most of the years, the support level has been held a few percentage points above the minimum except for 1962-65 when milk supplies hit the highest peak in history. Production then trended downward and did not turn upward again until 1976. Usually, market level prices averaged at or slightly above supports until 1972 when they began to exceed supports and continued to do so until late 1976 when they sank to supports again for practical purposes, after October.

Table 4-3 shows USDA purchase prices of butter, nonfat dry milk and natural cheddar cheese which the government bought to support the prices of manufacturing milk. The price lifting effects of the Korean War of the early 1950's may be noticed in the support levels, as may the depressing effects of the heavy milk supplies of the early 1960's. Substantial increases were made in the second quarter of 1966 support year, probably in part due to effects of inflation.

Table 4-4 shows solids content of dairy products removed from the commercial market by programs of the USDA, 1949-76, expressed as a percentage of marketings. Since it includes all purchases of USDA (anhydrous milkfat, PIK, and purchases under Sections 709 and 4a as well as price support), this is somewhat higher than CCC purchases. However the bulk of the purchases is CCC. These purchases ranged from moderately heavy to very heavy during the period 1953 through 1965 and were substantial through 1972. In 1962 they were 14.3% of marketings on a solids-not-fat basis and 9.1% on a fat basis.

Table 4-5 shows CCC (price support) purchases by marketing year from 1952-53 through 1976-77. After the Korean War, powder purchases have been consistently heavy except 1972 and 1973. Butter purchases were heaviest during the big surplus years of the early 1960's, but were usually substantial. Cheese purchases have varied greatly.

Though this report does not analyze government purchase programs, a sort of parenthetical explanation for continued heavy nonfat dry milk purchases and stocks may be helpful. Usually the CCC has tried to achieve the same returns to producers for whole milk used in the joint products butter and nonfat dry milk as for milk used in cheese. Declining demand for butter and substitutability of margarine set a limit to how much of the milk price burden can be borne by butter, so the rest of the price burden must be borne by the nonfat. Though domestic demand for nonfat dry milk has trended upward moderately, it has not kept pace with whole milk deliveries to butter-powder plants. So the CCC has

bought frequently as much as 40% to 60% of the total powder output, a large part of which has been disposed of through the Food for Peace program, though some has been sold back to commercial channels.

Some feel that the powder purchase program has led in the evolution of the dairy industry from sour farm separated cream to sweet whole milk deliveries. An often mentioned alternative of direct income payments to producers might have resulted in higher fluid milk prices to consumers, because there might have been less whole milk deliveries.

Table 4-2. Manufacturing Milk: Comparisons of Announced Support Prices and United States Average Market Prices Paid to Producers, Marketing Years, 1949-76

	Manufacturing Milk				
	Support Level		Market Level		
				As a Percentage of	
Marketing Year Beginning April 1	Percentage of Parity Equivalent Prior to Marketing Year[a]	Price Per 100 Pounds	Price Per 100 Pounds	Parity Equivalent in Month Prior to Marketing Year[a]	Average Parity Equivalent During Marketing Year
	Percent	*Dollars*	*Dollars*	*Percent*	*Percent*
1949[b]	90[c]	3.14	3.14	90[c]	89
1950[d]	81[e]	3.07	3.35	88[e]	85
1951	86	3.60	3.97	94	93
1952	90	3.85	4.00	93	95
1953	89	3.74	3.46	83	84
1954	75	3.15	3.15	75	80
1955	80	3.15	3.19	81	82
1956	82	3.15			
	84	3.25[f]	3.31	86	84
1957	82	3.25	3.28	83	82
1958	75	3.06	3.16	77	77
1959	77	3.06	3.22	81	81
1960	76	3.06[g]			
	80	3.22[h]			
	85	3.40[i]	3.31	83	83
1961	83	3.40	3.38	83	82
1962	75	3.11	3.19[j]	76	76[j]
1963	75	3.14	3.24	77	77
1964	75	3.15	3.30	77	78
1965	75	3.24	3.45	77	79
1966	78	3.50			
	89.5	4.00[k]	4.11	89	90
1967	87	4.00	4.06	85	87
1968	89.4	4.28			

Table 4-2. (Continued)

Marketing Year Beginning April 1	Manufacturing Milk				
	Support Level		Market Level		
				As a Percentage of	
	Percentage of Parity Equivalent Prior to Marketing Year[a]	Price Per 100 Pounds	Price Per 100 Pounds	Parity Equivalent in Month Prior to Marketing Year[a]	Average Parity Equivalent During Marketing Year
	Percent	*Dollars*	*Dollars*	*Percent*	*Percent*
1969	83	4.28	4.55	88	86
1970	85	4.66	4.76	87	85
1971	85	4.93	4.91	85	82
1972	79	4.93	5.22	84	80
1973	75	5.29[l]			
	80	5.61[m]	6.95	99	91
1974	81	6.57			
	89	7.24[n]	6.87	85	78
1975	79	7.24			
	84	7.71[o]	8.12	89	84
1976	80	8.13			
	81	8.26	8.52	84	82

[a] Except as noted, the figures listed are the actual percentage of the parity or parity equivalent prices published near the end of March before the beginning of the marketing year. In some cases the announced percentages, based on forward estimates of parity, were slightly different.
[b] Calendar year.
[c] Based on parity equivalent published in March 1949.
[d] January 1, 1950 - March 31, 1951.
[e] Percent of parity equivalent and parity prices (based on modernized parity) published in January 1950.
[f] Effective Aptil 18, 1956.
[g] Effective April 1 - September 16, 1960.
[h] Effective September 17, 1960 - March 9, 1961 (Public Law 86-799)
[i] Effective March 10, 1961.
[j] Beginning November 1962, parity equivalent is based on prices for all manufacturing grade milk instead of the "3-product" price for American cheese, evaporated milk, and the butter-nonfat dry milk combination used before.
[k] Effective June 30, 1966.
[l] Effective March 15, 1973.
[m] Effective August 10, 1973.
[n] Effective January 4, 1975.
[o] Effective October 2, 1975.
Source: Dairy Situation [62].

Table 4-3. Dairy Products Under Price Support Programs, USDA Purchase Price Per Pound, 1949-77[a]

Effective Date of Change	Butter, Grade A or Higher, Chicago	Nonfat Dry Milk Extra Grade, Spray	Natural Cheddar Cheese, Grade A or Higher
	Cents	*Cents*	*Cents*
2/08/49	59.00	---	---
4/14/49	59.00	12.25	---
7/28/49	62.00	12.25	31.75
9/01/49	62.00	12.75	31.75
1/01/50	60.00	12.50	31.00
4/01/51	66.00	15.00	36.00
4/01/52	67.75	17.00	38.25
4/01/53	65.75	16.00	37.00
4/01/54	57.50	15.00	32.25
7/12/54	57.50	16.00	33.25
4/01/56	59.50	16.00	34.00
4/19/56	59.50	16.00	35.00
4/01/57	59.50	16.00	35.00
4/01/58	57.75	14.25	32.75
4/01/59	57.974	14.25	32.75
4/01/60	57.974	13.40	32.75
9/17/60	60.466	13.90	34.25
3/10/61	60.466	15.90	36.10
7/18/61	60.466	16.40	36.50
4/01/62	57.966	14.40	34.60
4/01/63	57.966	14.40	35.60
4/01/65	58.966	14.60	36.10
4/01/66	60.966	16.60	39.30
6/30/66	66.466	19.60[c]	43.75
4/01/68	66.442[b]	23.10[c]	47.00
4/01/69	67.644[b]	23.35	48.00
4/01/70	69.846[b]	27.20	52.00
4/01/71	67.784	31.70	54.75
4/01/72	67.708	31.70	54.75
4/15/73	60.922	37.50	62.00
8/10/73	60.922	41.40	65.00
4/01/74	60.570	56.60	70.75
1/04/75	68.070	60.60	77.25
4/01/75	69.193	60.60	79.25
10/2/75	79.693	62.40	85.00
4/01/76	85.817	62.40	90.50
10/1/76	90.817	62.40	92.50
4/01/77	100.710	68.00	98.00

[a] Prices for bulk containers—butter, 64 and 68 pound packages; nonfat dry milk, nonfortified in 100 pound bags; and natural cheese, mostly in 40 and 60 pound blocks. In 1950-51 a purchase price was set for evaporated milk of $3.95 per case.

[b] Prices varied slightly during the year due to changes in freight rates.

[c] Beginning October 1967, prices in 50 pound bags 0.25 cent higher.

Source: [70]

Table 4-4. Solids Content of Dairy Products Removed from the Commercial Market by Programs of the United States Department of Agriculture, Expressed as a Percentage of Marketings, 1949-76[a]

Year	Solids Content of Removals as a Percentage of Marketings	
	Milkfat	Solids-Not-Fat
	----- *Percent* -----	----- *Percent* -----
1949	2.6	4.6
1950	1.1	4.9
1951	[b]	.5
1952	.4	.6
1953	9.7	8.6
1954	8.0	8.7
1955	4.3	6.8
1956	4.7	8.7
1957	5.2	9.8
1958	4.2	9.8
1959	2.9	9.1
1960	2.9	8.9
1961	6.9	11.2
1962	9.1	14.3
1963	6.7	12.4
1964	6.5	11.6
1965	5.0	10.8
1966	.6	3.7
1967	6.6	7.5
1968	4.7	6.0
1969	4.2	4.4
1970	5.3	4.8
1971	6.6	5.0
1972	4.9	3.6
1973	2.1	.5
1974	1.2	2.9
1975[c]	1.9	4.2
1976[c]	1.1	1.7

[a] Includes butter equivalent of anhydrous milkfat, PIK, and purchases under Sec. 709, and 4a.

[b] Domestic sales exceeded purchases.

[c] Preliminary.

Source: *Dairy Situation,* No. 364, March 1977.

Table 4-5. CCC Purchases By Marketing Year (Contract Basis), U.S., 1952-53 through 1976-77

Year	Butter	Cheese	Nonfat Dry Milk
		(millions of lbs.)	
1952-53	143.3	75.2	210.4
1953	380.2	456.0	665.9
1954	210.7	153.3	523.2
1955	177.6	157.4	623.8
1956	154.4	197.2	798.5
1957	215.1	248.3	778.4
1958	150.2	34.7	790.8
1959	135.2	50.3	699.3
1960	154.4	0.2	1,082.0
1961	435.0	191.3	1,031.8
1962	347.1	136.9	1,347.7
1963	319.0	121.8	953.8
1964	209.2	145.1	727.0
1965	149.8	10.7	589.2
1966	123.7	65.7	586.3
1967	247.1	149.6	633.7
1968	181.0	86.4	445.4
1969	180.8	13.5	378.8
1970	347.5	67.0	455.9
1971	238.5	84.0	435.8
1972	214.8	15.0	211.0
1973	25.7	4.2	44.1
1974	83.0	104.3	392.7
1975	33.6	21.7	295.4
1976-77	126.2	99.6	314.9

Source: As reported in the monthly USDA news sheet headed "Summary of CCC Dairy Support Program Activities."

Table 4-6 shows stocks of dairy products, both government held and commercial for the years 1960-76 and government held for the years 1949-59. Before 1973, government stocks of butter nearly always exceeded commercial stocks and that except for 1970-73 the same was true for nonfat dry milk. Apparently the industry tends to let the government carry the stocks. These products can be bought back from the CCC for a stipulated amount above the price the government paid. (The amount has been as high as 15% and as low as 5%). For cheese there is less of this tendency, perhaps because it is less easy to get from government stocks the kind of cheese a commercial firm may seek than in the case of butter and powder.

Whether these government-held stocks were high or low in a particular year would require special study. Their levels were a part of the price support decision. They may have been burdensome in the early 1960's. Perhaps they were in 1953-55 and occasionally at other times.

THE MINNESOTA-WISCONSIN PRICE SERIES

The most widely used measure of manufacturing grade milk prices is the monthly Minnesota-Wisconsin price, as estimated by the Statistical Reporting Service. Price

Table 4-6. Government Stocks of Dairy Products, 1949-59 and All Stocks 1960-76, End of Year, United States

Year	Commercial Stocks					Government Stocks				Total Milk Equivalent[c]
	Butter	American Cheese	Other Cheese	Canned Milk	Nonfat Dry Milk	Butter[a]	American Cheese[b]	Nonfat Dry Milk	Evaporated Milk	
	(Million Pounds)									
1949	----	----	----	----	----	107.0	23.0	251.0	0	----
1950	----	----	----	----	----	66.0	31.0	263.0	0	----
1951	----	----	----	----	----	3.0	1.0	52.0	0	----
1952	----	----	----	----	----	9.0	2.0	38.0	0	----
1953	----	----	----	----	----	252.0	242.0	466.0	0	----
1954	----	----	----	----	----	344.0	357.0	268.0	0	----
1955	----	----	----	----	----	135.0	279.0	162.0	0	----
1956	----	----	----	----	----	2.0	191.0	123.0	0	----
1957	----	----	----	----	----	55.0	170.0	137.0	0	----
1958	----	----	----	----	----	41.0	11.0	155.0	0	----
1959	----	----	----	----	----	11.0	20.0	60.0	0	----
1960	21.2	291.4	40.6	227.5	103.1	55.6	0.6	279.8	----	5,392
1961	19.5	366.4	53.0	230.7	132.5	205.3	53.5	354.9	----	9,902
1962	31.2	307.1	37.8	145.9	99.0	328.2	79.1	576.0	----	12,166
1963	32.1	282.7	39.1	137.4	81.5	239.0	39.1	404.6	----	9,691
1964	37.1	271.9	42.3	192.2	108.5	33.8	24.4	65.5	----	5,294
1965	27.1	270.2	37.6	140.7	58.2	25.0	0.3	96.2	----	4,458
1966	30.2	322.1	50.4	204.5	118.2	2.1	0.2	----	----	4,858
1967	18.4	302.3	46.2	196.0	98.7	150.2	80.8	157.6	----	8,252
1968	14.5	291.1	62.3	101.3	79.0	102.9	51.6	198.7	5.6	6,634
1969	25.1	264.4	52.1	106.9	83.9	63.6	1.1	137.8	42.9	5,245
1970	19.7	252.7	70.5	115.7	95.3	99.1	1.3	42.6	0.1	5,803
1971	26.2	235.6	65.4	88.6	77.0	70.7	6.1	12.5	0.2	5,104
1972	11.1	269.3	62.0	74.7	37.9	96.4	0.2	6.9	5.8	5,498
1973	33.5	289.9	67.5	69.2	74.5	22.8	0.4	0.1	d	5,207
1974	34.7	419.8	73.1	79.2	134.6	14.5	1.1	158.6	d	5,886
1975	5.8	305.7	60.8	58.6	47.1	5.0	2.0	421.8	d	3,844
1976[e]	28.0	409.8	67.1	70.6	94.0	19.1	1.6	386.6	0.1	5,708

a Includes butter equivalent of butteroil and ghee, 1965.
b Includes process cheese held by USDA beginning May 1967.
c Includes manufactured products for which current monthly series are available (excludes nonfat dry milk). Excludes cream and bulk condensed milk beginning 1968.
d Less than 50,000 pounds.
e Preliminary.
Source: [69]

variations in manufacturing grade milk prices for the period 1971-75, as reflected in this series, are reported in Table 4-7.

As the data in Table 4-7 indicate, the primary short-run variation in manufacturing grade milk prices is a seasonal one. Prices change inversely with seasonal changes in milk production. (There is little offsetting seasonal change in demand.) With the average for all months equal to an index of 100, manufacturing grade milk prices ranged from a low of 93.5 in June to a high of 109.0 in December during the 1971-75 period. Limited regional variations in manufacturing grade milk prices exist.

Table 4-7. Minnesota-Wisconsin Manufacturing Grade Milk Prices Per Cwt., 3.5 Percent Butterfat Basis, By Month, 1971-1975

Month	1971	1972	1973	1974	1975	Mo. Average Adjusted for Trend	Monthly Av. Price as % of 5 Yr. Av.
January	$4.79	$4.97	$5.43	$8.10	$6.80	$6.02	98.0
February	4.83	4.97	5.45	8.14	6.85	6.04	98.4
March	4.81	5.04	5.55	8.15	6.86	6.07	98.9
April	4.83	4.96	5.63	7.73	6.94	6.00	97.7
May	4.77	4.94	5.66	6.93	7.02	5.84	95.1
June	4.76	4.95	5.73	6.31	7.11	5.74	93.5
July	4.77	5.01	5.78	6.29	7.35	5.81	94.6
August	4.77	5.07	6.38	6.39	7.70	6.02	98.0
September	4.83	5.10	6.91	6.69	8.27	6.31	102.8
October	4.82	5.18	7.49	6.82	8.60	6.53	106.4
November	4.84	5.32	7.64	6.76	8.84	6.62	107.8
December	4.93	5.41	7.94	6.41	9.08	6.69	109.0
Mean	$4.81	$5.08	$6.30	$7.06	$7.62	$6.14	$ 6.14 = 100

Source: [68]

Table 4-8. Annual Average Manufacturing Grade Milk Prices and Milkfat Tests, Selected States and U.S., 1976 (Average Milkfat Test)

Area	Price Per Cwt.	Average Fat Test
United States	$8.56	3.65%
Wisconsin	8.84	3.72
Minnesota	8.40	3.56
Ohio	8.45	3.76
Tennessee	7.90	3.78
Missouri	8.45	3.61
Nebraska	8.50	3.63
Indiana	7.80	3.76

Source: [75] pp. 21-33.

Higher prices for manufacturing grade milk in the upper Midwest are usually associated with the relatively intense competition for milk supplies in that area, together with a more modern and technically efficient manufacturing industry (Table 4-8). In some areas outside of the upper Midwest, manufacturing grade milk prices are

eroded somewhat due to a sparse density of milk production, larger procurement areas, plant operations at less than capacity, older, less efficient processing facilities, and the existence of local monopolies in some instances.

From a product standpoint, there is relatively little variation among producer prices for manufacturing grade milk based on whether the milk is shipped to creameries for butter-powder or to cheese factories. In Table 4-9, the actual Minnesota-Wisconsin manufacturing grade milk prices (annual averages) for 1972-1976 are shown together with the creamery pay prices and the cheese plant pay prices from within the M-W series.

Table 4-9. Average Prices Paid by Plants Reporting in the Minnesota-Wisconsin Price Series, 1972-1976 (3.5 Test)

Year	Minnesota-Wisconsin Manufacturing Milk Price	Price Paid by Creameries	Price Paid by Cheese Plants
		Dollars Per Cwt	
1972	$5.08	$4.98	$5.15
1973	6.30	6.20	6.38
1974	7.06	7.05	7.10
1975	7.62	7.60	7.65
1976	8.48	8.47	8.55

Source: [68]

The consistent but limited premium paid at cheese plants is explained mostly by the increasing demand for cheese in recent years and the resulting efforts to move milk from butter-powder processing into cheese manufacture. Monthly differences in price between creameries and cheese plants have been consistent with the annual differences.

Fluid Grade Milk

Price variations among markets for Grade A milk are fairly substantial. The basis for these variations is explained by the classified pricing plants used in fluid milk markets, as described earlier. Two attributes of classified pricing lead to different producer blend prices among markets. These attributes include: (1) differences in the Class I differential; and (2) differences in the proportions of pooled milk used for Class I purposes.

An indicator of differences in Class I prices, producer pay prices, and Class I utilizations among markets is shown for federal order markets by regions for 1976 (Table 4-10).

One other factor that leads to variations in producer prices among markets in the impact of Class I price premiums as effected by cooperatives in different markets. However, as cooperatives have gained premiums, the premiums have tended to reflect the same kind of price alignment implemented in the federal order program. In other words, they have been greatest in areas furthest from the heavy surplus areas.

Table 4-10. Average Annual Class I Prices, Blend Prices, and Class I Utilization, Federal Order Markets, by Region, 1976

Regional Market Area	Average Annual Class I Price (per cwt.)	Average Annual Blend Price (per cwt.)	Average Annual Class I Utilization (percent)
New England	$11.58	$10.44	60
Middle Atlantic	11.24	9.91	49
South Atlantic	11.32	11.01	85
East North Central			
East Group	10.31	9.59	60
West Group	9.97	9.21	42
West North Central			
North Group	10.07	9.31	50
South Group	10.26	9.56	61
East South Central	10.34	9.76	68
West South Central			
North Group	10.64	10.04	73
South Group	10.92	10.27	74
Mountain	10.84	10.06	66
Pacific	10.50	9.49	49
All Markets	10.70	9.75	55

Source: [68]

At Wholesale Level

Raw milk is the major cost factor for manufacturers of dairy products and processors of fluid milk. As a result, much of the variations in wholesale prices of milk and dairy products are closely associated with changes in the prices of producer milk.

Butter

Variations in wholesale butter prices between markets are illustrated by monthly price data averaged for 1972-76 (excluding 1973 because of insufficient price data) (Table 4-11). For the top grade, wholesale butter prices at New York City averaged 2.1 cents per pound higher than in Chicago. The 2.1 cent differential largely reflects the freight cost of moving butter from the upper Midwest to New York. Comparable price differences exist in other major markets across the United States in relation to the Chicago price quotation.

On a seasonal basis, normal wholesale butter price movements may be inferred from the price seasonals for manufacturing grade milk reported in Table 4-7. The price quotations at the Chicago and New York Mercantile Exchanges are key factors determining what price creameries will pay producers. Therefore, there is a high positive correlation over time between wholesale butter prices and manufacturing grade milk prices.

Short-run variations in the wholesale butter market need to be evaluated in terms of the structure and institutions characterizing the market. While a relatively large

number of butter manufacturers face a relatively small number of intermediate handlers, the imbalance in marketing power appears to be minimized because: (1) the price support program provides a floor with a perfectly elastic demand; (2) cooperative sales agencies are influential and tend to minimize price cutting; and (3) the wide availability of market information (price and quantity) and existence of central markets establishes the primary basis for butter marketing.

Table 4-11. Average Wholesale Selling Prices, Bulk AA Butter in Fiber Boxes, Chicago and New York, 1972, 1974, 1975, and 1976[a]

Month	Chicago (Cents Per Lb.)	New York (Cents Per Lb.)	Difference (Cents Per Lb.)
January	72.9	74.6	1.7
February	70.8	72.2	1.4
March	73.4	75.0	1.6
April	74.2	76.0	1.8
May	72.2	74.0	1.9
June	73.4	75.4	2.0
July	77.9	80.0	2.1
August	81.7	84.0	2.3
September	80.3	82.4	2.1
October	81.1	83.1	2.0
November	82.0	85.4	3.4
December	82.9	85.9	3.1
Annual Average	76.9	79.0	2.1

[a] 1973 not included because of insufficient price data.
Source: [69, 70]

Cheese

Demand factors for products rather than supply factors for milk are the key considerations explaining wholesale price variations for cheese as compared to butter. However, the economic relationships between the butter-powder and cheese segments are close enough to generally reflect a well-defined producer price equilibrium for milk used for those products at the farm level. There is also product price equilibrium at the wholesale level. In effect, if wholesale prices for one product are high relative to the other product, a decrease in quantities demanded and an allocation of more milk to the higher priced product act together to reimplement the normal wholesale price relationship.

In Table 4-12, two monthly price series reflecting wholesale prices at two different points in the marketing chain for 1976 are reported.

Nonfat Dry Milk

As explained earlier, the major factor affecting wholesale prices for nonfat dry milk is the purchase price for nonfat dry milk established by the Commodity Credit Corporation in the dairy price support program. The heavy movement of nonfat dry milk to the Commodity Credit Corporation together with the resultant fact that inventories (especially government inventories) generally are quite substan-

tial maintains wholesale powder prices very near the CCC purchase price and also means that little seasonality exists in the price.

In Table 4-13 the relationship of the CCC purchase price for nonfat dry milk to wholesale prices for three qualities of nonfat dry milk for the second half of 1976 are reported. Similarly, very little price variation exists among markets. In 1976, average annual wholesale selling prices for three cities were as shown in Table 4-14 (extra grade, spray process, in bags).

Table 4-12. Wholesale Cheese Prices, by Months, 1976

Month	40 Lb. Blocks Cheddar f.o.b., Wisconsin Assembly Points—Cents Per Lb.	Average Selling Prices at Chicago—40 Lb. Blocks Cheddar—Cents Per Lb.
January	100.4	115.1
February	90.0	105.1
March	94.4	109.9
April	96.9	112.5
May	94.9	110.5
June	95.5	110.9
July	100.1	114.3
August	106.2	120.4
September	98.1	113.8
October	93.3	109.8
November	92.9	108.7
December	92.9	108.6
Annual Average	**96.3**	**111.6**

Source: [70] p. 13.

Table 4-13. Nonfat Dry Milk Price, f.o.b. Central States, Carlots and Trucklots, Extra Grade, Spray Process, in Bags, 1976

Month	CCC Purchase Price (Cents/Lb.)	High Heat (Cents/Lb.)	Low Heat (Cents/Lb.)	Grade A (Cents/Lb.)
July 1976	62.4	62.3	62.5	64.5
August	62.4	62.3	62.6	64.5
September	62.4	62.3	62.6	64.5
October	62.4	62.1	62.7	64.2
November	62.4	61.8	62.6	63.7
December	62.4	61.9	62.5	63.4

Source: [70] p. 28.

Table 4-14. Price Differences for Nonfat Dry Milk Associated with Location and Quality Factors, 1976

	High Heat (Cents/Lb.)	Low Heat (Cents/Lb.)
Chicago	63.5	63.9
Los Angeles	64.3	64.4
New York	64.2	64.9

Source: [70] p. 29

In the 1970 study of the midwest dairy industries, the following comment was included relative to establishing wholesale prices for nonfat dry milk: "Pricing for commercial sales usually begins with the government support price. A differential is added to cover the cost of transacting the sale. Other differentials are added for type of product. If it is a Grade A product, the additional cost of Grade A raw product has to be added . . . Any powder other than 'high heat' may require additional costs . . . Some price differences have existed between known and unknown brands, but they were less after 1965 than in earlier years . . . Companies which are in a position to tailor nonfat dry milk for specific uses obtain higher prices but also have somewhat higher production costs."[18]

Relative Shares of Retail Prices

In an aggregate sense, around 40-45% of the consumer's food dollar for milk and dairy products is accounted for in the farmer's share, and the rest in the marketing margin. This ratio varies among the several milk products, depending largely on the marketing costs associated with a particular product. In the second quarter of 1975, for example, the farmer's share of the consumer price for four milk products was as follows: butter, 61%; processed cheese, 46%; ice cream, 23%; whole fluid milk, 51%.

The trend in aggregate consumer expenditures for fluid milk and cream and for other dairy products is shown in Table 4-15.

Table 4-15. Marketing Bill, Farm Value, and Consumer Expenditures for Milk and Dairy Products, Selected Years 1960-1974, U.S.

Year	Fluid Milk and Cream			Other Dairy Products		
	Expenditures (Million $)	Farm Value	Marketing Bill	Expenditures (Million $)	Farm Value	Marketing Bill
1960	$ 7,109	40%	60%	$ 4,988	38%	62%
1965	7,418	40	60	5,632	37	63
1970	8,602	44	56	7,500	40	60
1974	10,907	44	56	10,178	43	57

Source: *Marketing and Transportation Situation,* USDA, August 1975, p. 18.

It is possible to break some of the aggregate data down and observe a more specific value added function at different stages in the marketing system. Two products, fluid milk and butter, are used to illustrate the distribution of the retail price according to farm value and marketing function. The breakdown in Table 4-16 is in terms of 1972 data.

[18] [52], pp. 188-189.

Table 4-16. Cost Allocations of the Retail Price for Fluid Milk and Butter, U.S., 1972

Marketing Function	Whole Milk Half-Gallon Sold in Stores	Share of Consumer Price	Butter, Pound	Share of Consumer Price
Farm Value	29.4¢	49%	63.8¢	73%
Procurement	2.2	4	2.3	3
Processing	9.9	16	5.5	6
Intercity Transportation	a	---	1.3	1
Wholesale Distribution	11.8	20	2.5	3
Retailing (in store costs or markup)	6.5	11	11.7	14
Retail Price	59.8¢	100%	87.1¢	100%

a Included in wholesale distribution
Source: [72]

The cost allocations reported in Table 4-16 are typical over time of the proportions of the retail price associated with the several different key production and marketing functions. Up to the retailing function, the allocation of the ultimate price tends directly to reflect costs (with a varying profit allowance). At the food store, milk and dairy products are frequently priced on the basis of a fixed markup over the into-store price (15-20%). However, fluid milk and ice cream in particular are often used as price leaders or loss leaders in food stores, and average cost-price relationships are affected by such strategies.

VALUE ADDED

The primary "value added" data for the dairy industry as reported in the Census of Manufactures include: (1) aggregate value added by manufacture; (2) value added per employee; and (3) value added per manhour of production worker. These data are reported for five industries in the dairy subsector including butter, cheese, condensed and evaporated milk, frozen dairy products, and fluid milk. To provide a perspective over time, the data are reported for the last four census periods. (Table 4-17).

In each of the five subindustries, the value added per employee in 1958 dollars and the value added per manhour of production worker increased markedly during each of the intercensus periods, and the performance of the dairy subsector, as measured in these terms, has improved. Value added by manufacture increased only for cheese and nonfat dry solids (included with condensed and evaporated) because of the nature of demand changes.

PROFITS

Another measure of the performance of the dairy subsector may be recorded in terms of profits as a percentage of stockholder equity and profits as a percentage of sales. Data are available that permit a comparison of dairy processing firms with: (1) all food manufacturing firms; and (2) retail food chains. These data are reported in Table 4-18.

Table 4-17. Measures of Value Added Estimated for Subindustries of the Dairy Subsector, Selected Time Periods, 1958-1972[a]

Industry and Year	Value Added By Manufacture (in Millions of 1958 $)	Value Added Per Employee (1958 $)	Value Added Per Manhour of Production Worker (1958 $)
Butter			
1958	$ 147.2	$ 8,512	$ 5.76
1963	133.2	11,106	6.83
1967	99.1	11,443	7.12
1972	69.5	17,387	11.60
Cheese			
1958	133.0	7,810	4.67
1963	166.5	9,277	5.35
1967	171.3	8,558	5.05
1972	277.5	11,012	6.80
Condensed and Evaporated Milk			
1958	202.7	15,077	8.72
1963	234.3	19,127	11.68
1967	294.7	22,400	14.22
1972	246.0	20,004	12.69
Frozen Dairy Products			
1958	394.7	11,343	10.48
1963	426.1	14,405	13.12
1967	365.8	14,866	13.45
1972	381.7	18,089	16.24
Fluid Milk			
1958	1,998.5	9,416	10.96
1963	2,010.7	10,866	13.66
1967	1,872.5	11,332	14.82
1972	1,821.8	14,447	18.39

[a] Data deflated to 1958 prices using Wholesale Price Index as published in various issues of *Wholesale Prices and Price Indexes,* U.S. Department of Labor, Bureau of Labor Statistics.

Source: 1972 Census of Manufactures [76]

Profits reported for dairy processing firms in Table 4-18 appear "normal" in terms of standard criteria. Returns on stockholder equity are comparable to those reported for all food manufacturing firms as well as those for retail food chains. Actually, returns on stockholder equity in the 10-11% range often are considered low in terms of alternative investment opportunities. The reduced 1972 and 1973 profits for

retail food chains were more of a short-run phenomenon as escalating food prices caught the food stores in a particular crunch.

Profits as a percentage of sales may have been relatively normal for the dairy processing firms throughout the 1965-1972 period. It has been observed that in periods of higher relative profits in food processing, food chains increase their activity in vertically integrating backward into food processing [51].

The profit data resulted from a wide sampling of firms of all sizes. However, there are indications that some of the firms have difficulty in separating out profits arising solely from dairy. These profit data are in general much higher than those for independent firms, i.e., not members of any type of chain or conglomerate.

Table 4-18. Profits as Percentage of Stockholder Equity and of Sales, Various Food Firms, 1965, 1970, 1972, and 1973[a]

Year	Profits as Percentage of Stockholder Equity			Profits as Percentage of Sales		
	All Food Manufacturing Firms	Dairy Processing Firms	15 Retail Food Chains	All Food Manufacturing Firms	Dairy Processing Firms	15 Retail Food Chains
1965	11.0%	10.7%	11.3%	2.6%	2.5%	1.3%
1970	10.9	10.9	10.6	2.3	2.1	1.0
1972	11.3	11.3	5.2	2.4	2.0	0.5
1973	12.8[b]	10.8[c]	8.2[b]	2.6[b]	2.0[c]	0.7[b]

a *Marketing and Transportation Situation,* ERS-USDA, November 1973, p. 21, except as indicated. Data are based on profits after federal income taxes.
b *Marketing and Transportation Situation,* ERS-USDA, May 1975.
c Calculated from data in *Quarterly Financial Report for Manufacturing Corporations, Fourth Quarter 1973,* Federal Trade Commission.

Table 4-19. Profits as a Percent of Net Worth of Sample of Dairy Processors and All Manufacturing Corporations with Assets Under $10 Million, 1960, 1970, and 1974 (Millions of Dollars)

Year	Size Class of Dairy Processors				Average[c]	
	Under $1	$1 to $5	$5 to $10	$10 to $25[b]	Dairy	All Manufacturing
1960	15.0%	10.5%	10.7%	4.6%	12.1%	6.1%
	(13)[a]	(48)	(14)	(5)	(80)	
1970	12.4	6.7	5.8	6.0	7.0	7.4
	(13)	(48)	(14)	(5)	(80)	
1974	7.8	11.0	7.2	6.3	9.1	16.4
	(14)	(36)	(10)	(8)	(60)	

a Figures in ( ) are number of sample firms in size class.
b Five of these firms had sales in excess of $25 million in 1974.
c Weighted average. The figure for all manufacturing is for firms with assets of $10 million or less. Federal Trade Commission, *Quarterly Financial Report on Manufacturing Corporations,* various years.

Data from the study by Mueller, *et al.* showed that profits as a percent of net worth for independent dairies had sharply declined since 1960 from an average of 12.1% in 1960 to 7.0% in 1970 and 9.1% in 1974 (Table 4-19). These did not vary much among size groups except for the smallest size. (The latter reflects accounting anomalies arising from some small firms' relatively small amount of net worth.)

In 1970, bank rates on short-term business loans (in 35 centers) was 8.48%, and in 1974 it was 11.28%. This suggests that independent dairies in those years did not earn the interest rate on their equity.

Losses in Subsector

PRODUCT SHRINK AND DETERIORATION

In most markets, milk is measured initially for pricing purposes at the farm bulk tanks. Small product losses occur as milk is pumped from the farm bulk tank into the truck tank, and again at the receiving plant as milk is pumped from the truck tank into holding tanks.

In some instances, bacteria counts, leucocyte counts, or odor problems may require the rejection of milk at the farm for a Grade A market and shifting that milk to a manufacturing plant. On occasion, chemical residues in milk at the farm may require the complete rejection of the milk for human food purposes, and possibly even the rejection of that milk for animal food purposes. However, such incidents are rare and there is very little product loss associated with contaminated milk.

In regulated fluid milk markets, some shrinkage allowances normally are provided for by specific provision. The general form of these allowances is to allow for up to a 2% shrinkage loss in Class I usage, and price the shrink loss at the Class III price rather than the Class I price.

The one product loss which continues to be a significant factor in the dairy industry is whey as a by-product of cheese manufacture. Approximately 40% of the sweet whey and acid whey in the United States is not condensed, dried, or otherwise processed, and, except as some of that unprocessed whey may be used to feed livestock, or for fertilizer, it represents a substantial product loss. Wholesale dry whey prices for human food increased 150% during 1977. However, in view of price uncertainty the industry is reluctant to expand its processing capacity. The price has increased sharply before, but soon sank to a level at or below average processing costs. Environmental considerations will increase the pressure to find satisfactory means of whey disposition in the future.

Product deterioration generally is not a problem in the dairy industry. Since milk is a perishable commodity, the industry and regulatory agencies are very sensitive

to the time and temperature requirements associated with milk and the various dairy products.

Processing innovations in recent years have extended the shelf life of fluid milk products in particular. At the same time, the significant national consumer movement has brought new attention to the matter of "milk dating." In some markets, pull dates are required on the milk container; and in other markets, pull dates are implemented voluntarily by the food store or milk supplier. On balance, product deterioration of fluid milk or of other dairy products has not posed significant problems in the marketplace in recent years.

FACILITY AND RESOURCE UNDERUTILIZATION

In the language of market structure, a distinction is made between two types of excess capacity (or underutilization). In strict terms, excess capacity refers to an industry's productive capacity which is not currently utilized, but which could be efficiently utilized if needed. Such excess capacity is not cost increasing if it is needed. The second type of excess capacity refers to an industry's productive capacity which is not currently utilized and which could not be operated efficiently if needed because of obsolescence. It has been maintained that this second type, obsolete capacity, should not be considered true excess capacity.

A study of the midwest dairy industry in 1970 summarized much of the information then available relative to the question of excess capacity [79]. Very little additional information on this topic has been generated.

In evaluating the capacity question, the matter of production seasonality must be recognized. In 1975, milk production in May totaling 10.82 billion pounds exceeded November milk production of 8.82 billion pounds by 22.6%. In a sense, required capacity during the flush months becomes excess capacity during the deficit months.

Excess milk supplies associated with seasonal production necessarily move to manufacturing plants. It is logical, therefore, to examine manufacturing plants in particular relative to the capacity question. In one such investigation, it was concluded that manufacturing firms had made a good adjustment to the seasonal problem.

In specific industry studies, some of the following observations have been advanced:

1. Substantial excess capacity exists in the ice cream industry. This is particularly true in the smaller firms where obsolescence is an apparent factor. In addition, ice cream manufacturing operations may be constructed with excess capacity in mind as one means of processing surplus fluid milk.

2. Since fluid milk plants need not be geared to handling seasonal surpluses, excess capacity fluid plants is low. A Purdue study showed that average excess capacity for fluid processing plants under federal orders was 27% of October 1975 Class I dispositions.[19]
3. A study of butter and butter-powder plants (24-hour operation basis) revealed that, in a yearly period, smaller plants used as little as 27% of capacity on their low day and 68% of capacity on their high day. Large plants used 42% of capacity on their low day and 90% of capacity on their high day.

Given the fact that milk manufacturing facilities will be underutilized necessarily due to seasonal variations in volume, primarily due to production but also due to consumption, and given the substantial technological advances in manufacturing dairy products in recent years, the measures of excess capacity in the milk industry seem relatively reasonable. With respect to the general question of losses in the dairy subsector, there appear to be some costs associated with unneeded excess capacity. However, these costs are limited and are not unexpected in view of the technological restructuring of the dairy industry. The rapid consolidation of processing operations in recent years and the continued pace of consolidation indicate that problems of unneeded excess capacity will be a diminishing factor in coming years.

Product Progressiveness

Progressiveness, or rate of progressiveness, is recognized as one dimension of market performance. Progressiveness refers particularly to the development of products and the development of production techniques in relation to attainable rates and in relation to the costs of progress. In addition, progressiveness recognizes innovations in the organization and coordination of elements within the subsector as a factor in the progress of the subsector. On a general basis, the matter of progressiveness goes to the question of how progressive an industry has been relative to its opportunities, and this question, except for a recording of some of the facts of change in the industry, cannot be conclusively answered.

To bear upon progressiveness of the dairy subsector, some comparisons are shown with selected other food industries from census data (Table 4-20). Value added by manufacture per employee is greater in each of the dairy industries shown here than in four of the six other selected food industries. That value was greatly exceeded in cereal breakfast foods and shortening and cooking oil. Value added by manufacture per production worker shows an even more favorable comparison for dairy, though relationships among industries change somewhat. Value added per production worker is much greater than per employee in distributive industries where a large percent of employees work outside the plant, such as fluid milk, ice cream, and bread industries.

[19] Purdue Station Bulletin 158, West Lafayette, Indiana, 1976, p. 36.

Table 4-20. Dairy Industries Compared with Selected Other Food Industries as to Value Added by Manufacture and New Capital Expenditures, Per Establishment and Per Worker, U.S., 1972

Industry	SIC	Value Added by Manufactures ($ mil.)	Number of Employees (000)	Number of Production Workers (000)	New Capital Expenditure ($ mil.)	Number of Companies	Number of Establishments	Value Added by Manufacture		New Capital Expenditures			
								Per Employee ($000)	Per Production Worker ($000)	Per Company ($000)	Per Establishment ($000)	Per Production Worker ($000)	Per Employee ($000)
Creamery Butter	2021	82.3	4.0	2.9	7.8	201	231	20.575	28.397	38.8	33.8	2.690	1.950
Cheese (Nat. & Proc.)	2022	492.3	25.2	20.6	49.9	739	872	19.536	23.898	67.5	57.2	2.422	1.980
Cond. & Evap. Milk	2023	467.3	12.3	9.4	32.1	172	283	37.992	49.713	186.6	113.4	3.415	2.610
Ice Cream, Etc.	2024	459.8	21.1	12.0	35.8	561	697	21.791	38.317	63.8	51.4	2.983	1.697
Fluid Milk	2026	2,552.4	126.1	48.0	149.2	2,024	2,507	20.241	53.175	73.7	59.1	3.108	1.183
Subtotal		**4,054.1**	**188.7**	**92.9**	**274.8**	**3,697**	**4,590**	**21.484**	**43.639**	**74.3**	**59.9**	**2.958**	**1.456**
Meat Packing	2013	2,968.1	157.5	123.4	167.7	2,293	2,474	18.845	24.053	73.1	67.8	1.359	1.065
Poultry Dressing	2016	724.4	77.6	70.7	45.5	406	522	9.335	10.246	112.1	87.2	.644	.586
Cereal Breakfast Foods	2043	688.4	12.9	10.7	24.9	34	47	53.364	64.336	732.4	529.8	2.327	1.930
Canned Fruits & Veg.	2033	1,625.1	89.8	78.8	113.1	766	1,038	18.097	20.623	147.7	109.0	1.435	1.259
Bread, Cake & Related Products	2051	3,518.1	193.5	109.6	170.6	2,800	3,318	18.181	32.099	60.9	51.4	1.557	.882
Shortening & Cooking Oil	2079	512.6	12.9	9.0	35.5	64	109	39.736	56.956	554.7	325.7	3.944	2.752
Subtotal		**10,036.7**	**544.2**	**402.2**	**557.3**	**6,363**	**7,508**	**18.443**	**24.955**	**87.6**	**74.2**	**1,386**	**1.024**

Source: U.S. Bureau of the Census, [77].

Another useful comparison is new capital expenditures per company and establishment. New capital expenditure in dairy compares fairly well except for the dominance of cereal breakfast foods, and shortening and cooking oil.

New capital expenditures per employee and per production worker are higher in total for the dairy industries than for the other food industries compared. Again, however, this ratio is higher for cereal breakfast foods, and for shortening and cooking oil.

Innovations in organization and coordination within the dairy subsector have been notable. In recent years, the most significant of these changes have included: (1) the merger movement in cooperatives that has led to large regional organizations; (2) the trend into vertical integration in fluid milk processing, by food chains and to some extent by cooperatives; (3) the move to specialization in processing plants, with the so-called "white" plants in fluid processing, and separate large volume by-product plants; and (4) the move to joint venture type operations between processors and food chains in the manufacturing and marketing of various dairy products, particularly cheese.

The matter of product development in the dairy industry has been one of continuous inquiry and occasional innovation for many years.

In modern times, most of the change that has occurred in dairy processing and manufacturing has been in service, and not in the product itself. Milk, butter, dry milk, and some cheeses have been in use for centuries. However, the distinction between changes in service and new products is often a fine line, which is not important here. Whether or not these are new products, the important point is that innovation has steadily progressed and that consumers have chosen those goods and services which in progression have been brought into the marketplace. Since World War II, the American consumer has become extremely conscious of fats in the diet, particularly visible fats which has resulted in the processing and marketing of lowfat items in nearly every dairy product line. Some of the fluid milk consumption has shifted to the lowfat milks. Lowfat ice creams and ice milks have been processed and a substantial demand has grown up for them, such as the Dairy Queen shops. Among fluid creams, half-and-half has taken over a large part of the coffee cream market. Yogurt, which has little fat, has become very popular in recent years, especially with fruits and fruit flavors added. The trend toward lowfat items has been extended to cheeses, especially cheeses of the pizza types.

Canned sterile-concentrated milk and fresh concentrate have been introduced. Processed cheese (it, of course, goes back before World War II) became popular because of certain characteristics not possessed by natural cheese. Several of the processed cheese foods and spreads were made by a different formula even though most of the formula consisted of traditional cheeses. The rindless block cheese

(see Glossary) early displaced much of the processed cheese on the market because it had many of the same characteristics of processed cheese, although in terms of composition it was the same as the traditional cheddars, daisies, and such.

Blue cheese made without the blue veining has been preferred by some housewives. Even butter made from sweet cream, which is quite bland in taste, might be viewed as a new product, because the public had to develop a taste for it rather than the strongly flavored butters that were made from farm separated cream. Instant nonfat dry milk solids, introduced in the mid 1950's, would appear to be a new item, as is the manufacture of Grade A powder, suitable for use in dairy products that are required to be made from inspected milk.

A number of the major changes have been clearly a change in service and not in the product, although some adjustment in the product itself often occurred along with it. Homogenization, for example, meant that milk could no longer be sold on the basis of the cream line and that the fat content of the milk could not be used as a basis for competition as it formerly had been. Further changes in service, most of which are interrelated, are: homogenization; the paper package; the quantity container for milk and ice cream, both of which were associated with the development of store sales and the conversion from home delivery; the development of convenience stores which frequently based their sales appeal around price competition for quantity containers of milk; changes in methods of delivery and service to stores, which have cut costs and prices, and so on. The in-plant fabricated, plastic returnable container is a new development in service.

Following this pattern, in the ice cream line, there was a shift from ice cream parlors and drug stores to store sales, especially in quantity containers, and a resulting development of year-round home consumption. In cheese, there have been various developments in cutting, packaging, and pricing of consumer size packages. The random cut for cheese has been popular, particularly with chain stores. Quarter-pound prints have been developed for butter. In nonfat dry milk solids, a major new service has been tailoring the product for the specifications of a particular user.

It is difficult to generalize as to how the rate of change in products or in services correspond with what might have been preferred by consumers. All the changes resulted from the interplay of market incentives as provided by consumers, producer, manufacturer and dealer pressures, rulings of administrative agencies, and changes in legislation. Standardization was very slow to come about, probably because of the resistance of producers. The official definition of butter has not been changed in many decades, very likely because of the resistance of farmer-producers. Consumers might very well go to butterine types with a lower butterfat content and more competitive with margarine, if the definition for butter were made more flexible. Farmers' resistance to standardization and to changes in

butter definitions as well as resistance to lowfat ice creams and such, probably resulted from pricing milk chiefly from the butterfat content. Farmers felt that any lowering of the butterfat content of products would lower the consumption of butterfat and thereby reduce their paychecks. The dairy processing and manufacturing industry has provided a degree of resistance to change in order to protect their investments and cut down the new investment required. Labor unions, particularly those involved in distribution, have offered resistance to changes which they had reason to think would cut down on the use of labor or result in a lower labor income in some other way.

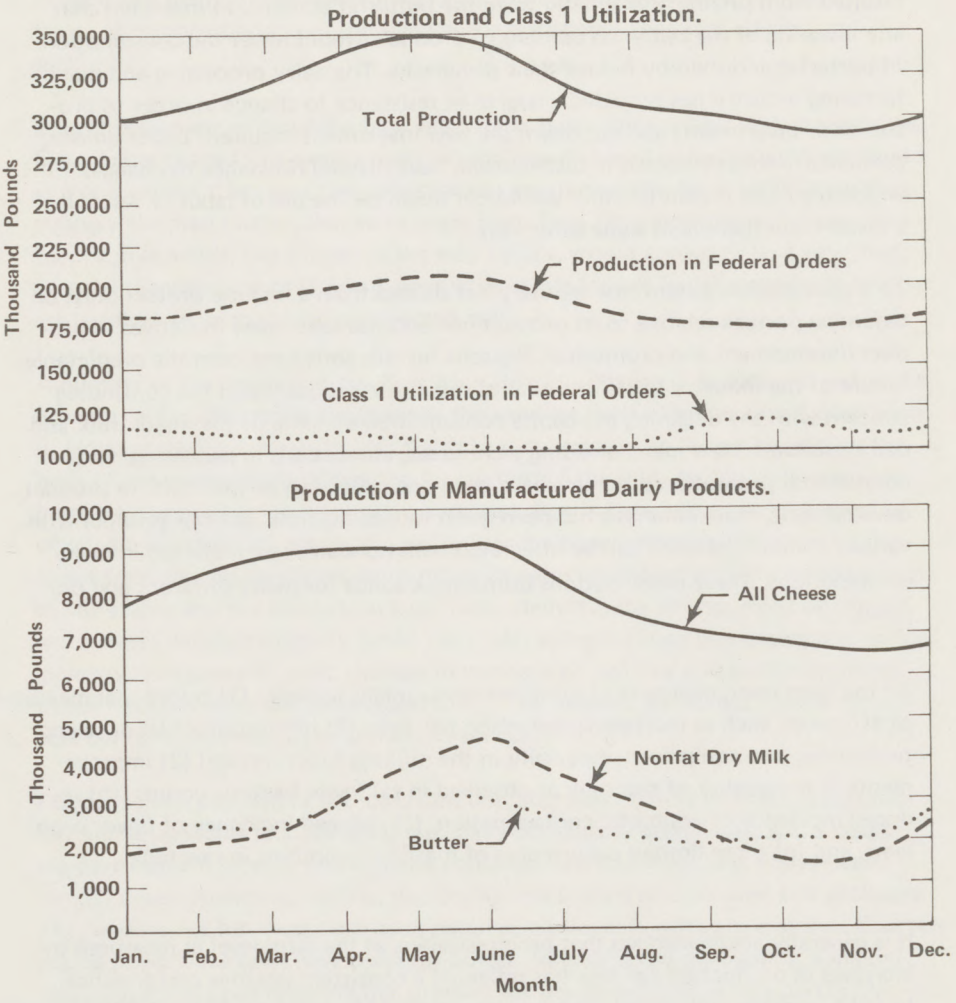
To a considerable extent, the industry has shifted from a historic protectionist or defensive posture relative to its product line and has taken new initiatives in product development and promotion. Reasons for this shift have been the predictable failure of the industry to repress quality substitute products and the continuing concern with the declining per capita consumption of some of the major milk and dairy products. New merchandising techniques, innovations in packaging, and coordinated promotion programs have been one reflection of this shift. In product development, more emphasis has been given to viewing milk as a raw product with various components that can be integrated with nondairy raw materials in many combinations. These combinations utilize milk solids for many different end purposes.

At the farm level, measures of progressiveness might include: (1) traditional measures of efficiency such as increased production per cow; (2) innovation of labor saving technology and equipment, especially in the milking function; and (3) improvements in the quality of raw milk as observed in (a) lower bacteria counts, (b) reduced incidence of antibiotic contamination, (c) reduced incidence of flavor problems, and (d) more limited occurrences of mastitis symptoms in raw milk.

It is generally acknowledged that progressiveness at the farm level as measured by increases in production per cow has reflected a consistent positive performance. In 1955, average milk production per cow in the U.S. was recorded at 5,842 pounds. By 1965 it had reached 8,080 pounds and in 1975 it was 10,354 pounds. The near doubling of production per cow in a period of two decades may be attributed to several factors, but the genetic factor ranks first among the reasons. Scientific advances in the total artificial insemination program have been implemented primarily in the milk industry and the improved performance at the farm level as measured by output per cow has been remarkable.

Innovations in labor saving technology and equipment have continued to occur in milk production at a consistent rate. Modifications of milking parlors, including the use of automatic take-off equipment, and new methods for feed storage and waste disposal are primary examples of such adoption in the mid 1970's.

Figure 4-1. An Illustration of the Seasonality in the Dairy Industry, 1975.



From 1959 through 1974, the total hours of labor used for all farm work declined from 10.3 billion hours to 5.5 billion hours (-47%). Over the same period with total output at approximately the same level, labor input in the dairy enterprise dropped from 1.8 billion hours to 0.6 billion hours (-67%) [58].

The record in improving milk quality at the farm level is less impressive. For the most part, bacteria counts have continued to drop and rapid cooling of milk in the bulk tank is being accomplished on a far more consistent basis. Because general performance has improved, the Food and Drug Administration has been able to adjust the recommended provisions in the Milk Ordinance and Code to specify 40° F as a receiving temperature and 100,000 as a maximum bacteria count. However, flavor problems continue to emerge, if less frequently, and incidents of antibiotic contamination and high leucocyte counts continue to be significant problems.

Overall, the record of progressiveness of the dairy industry, in terms of its opportunities to make cost reducing changes, make general improvements in the quality and type of product, and implement new coordinating mechanisms is a reasonable one.

Ability of Participants to Influence Supply or Demand

The component of the dairy industry with the greatest opportunity to influence, particularly supply, is the government. The actual participants have very limited possibility of influencing supply or demand, especially in the short run. The significant impediments are: (1) the myriad of government regulations; (2) the substantial fixed investments required at all stages; and (3) the inelasticity of supply and demand. Two activities that have attempted to influence supply or demand are: (1) advertising; and (2) various plans to "correct" the seasonality of production.

Advertising to increase consumption has been of two types. The first is advertising by processors and retail outlets for their brand of milk. This advertising may be by a processor for milk or dairy products alone or as a part of an advertisement for a retail store. Although a major objective of this advertising is to increase sales at the expense of competitors, some increase in consumption may occur. The second type of advertising is promotional activities financed by producer organizations to increase the consumption of milk. Although advertising by producer groups has increased in recent years, the advertising dollars spent on fluid milk are miniscule compared to those spent on advertising other beverages—soft drinks, alcoholic beverages, fruit drinks.

Participants as well as government regulators have implemented various programs from simple price incentives to base plans to "correct" the seasonal variations in production as well as limit total production. Open and closed base plans were mentioned in Chapter 3.

Equity with Which Rights, Responsibilities, and Returns are Distributed within Subsector

In any sector at a given time, there are short-run inequities; the dairy industry is no exception. The inequities occur in all stages of the marketing process, though no single stage appears to have fared best or worst over a long period of time.

At the producer level, inequities exist for Grade A milk producers within particular milk sheds, for Grade A producers located in different geographical regions, for Grade A vs. Grade B milk producers, for producers of milk and dairy products vs. producers of other agricultural products, and for producers of milk and dairy products vs. marketing firms and consumers.

Consider *first* the possible inequities for producers in a given milk shed. In a marketwide pool the blend price paid for Grade A milk within a given milk shed is the same for all processors, except for modest differentials for specific plant locations. It could be viewed as an inequity to the regular market suppliers when too much surplus milk is brought on the market, thus diluting the blend. Transportation charges and location differentials are not perfectly correlated with costs for all volume and distance situations, thus minor inequities could result.

Second, inequities result when marketing service expenses are not shared by all producers marketing milk in the milk shed. Generally, the principal cooperative in the market assumes the responsibility for servicing the market as explained in previous sections of this report. Costs of these services may be partially recovered by service charges to handlers such as over-order premiums on Class I milk. However, a substantial share is borne by producers who are members of the cooperatives. A major source of inequity between members and nonmembers in most federal order markets, therefore, is the lack of sharing in the cost of providing marketwide services. The cost to the cooperative is recovered from members through reblending to result in a lower net price paid for milk.

Third, permanent or closed base-surplus plans may result in inequity between producers. Open base plans (with base determined by production) have little effect on equity. Most permanent Class I base plans are initiated using historical production records. Since not all producers would be in long-run equilibrium during this specific historical period, the base quantity desired by each producer for given price and market conditions probably would be different from the historical average. Implementation of a base plan, therefore, might be equivalent to granting a capital gain asset to a producer exiting the industry and constructing a barrier to

entry (an additional capital asset to be purchased or earned) for new producers or producers wishing to expand to more efficient sizes. The value or cost of the closed base quantity is only a part of inequity to be evaluated. The existence of an effective base can increase the blend price of milk for the nonparticipant as well as the blend price of milk for the participant. Consumers also might be affected in a positive way because resources previously employed in producing milk to be used in manufactured dairy products might be employed in the production of products with a higher value to consumers. The effects, whether positive or negative to each group, cannot be determined without knowing the specific base plan and market conditions under which it is implemented.

Fourth, the classified pricing plan will result in different prices for milk in one use (Class I) as compared with another use (manufactured dairy products). To the extent that market demand for the two uses have different price elasticities with the lower price in the more elastic market, the total revenue to producers would be higher than if the same price were charged for both uses. There is danger of oversimplification in analyzing classified pricing. The fact that Class I price is higher than Class III does not necessarily mean that price discrimination is being practiced. There are some costs in almost every instance which result in Class I price necessarily being higher than Class III. Further, the Class I differential in distant markets, which must obtain supplies from alternative sources, is clearly a cost justified situation at least in substantial part, as opposed to price discrimination. Estimates of changes in social costs resulting from changes in milk support prices were made by Buxton and Hammond for 1973 [10]. At the price support level prevailing through August 9, 1973, no social cost was involved because the equilibrium price was higher than the support price of $5.29. After this date, the support price was increased to $5.61, slightly less than the 80% of parity calculation indicating that an annual social cost of $13 million would have been sustained if the price had been $5.64 for the full year.

Estimates of changes in social costs under different regional pricing systems were made by Blakley and Riley for 1973 [4]. They assumed quantities produced as given for 1973, a support price of $5.29, Class I price differentials for the various federal orders, and a spatial equilibrium solution as the base. Dropping the Class I differentials in favor of establishing an identical $7.38 per cwt. minimum Class I price in each market would result in a consumer gain of $22 million and a producer loss of $19 million. Dropping the Class I differentials in favor of establishing an identical $5.49 per cwt. minimum Class I price in each market (support price plus $0.20 handling charge) would result in a consumer gain of $240 million and a producer loss of $158 million. The marketing sector was one large beneficiary of the lower prices. These numbers reported by Blakley and Riley were designed to show regional differences in pricing policies. They obviously are overstatements of consumer gains from lower prices in the longer run since the 1973 quantities would not continue to be produced at the lower prices involving such losses to producers.

Fifth, the classified pricing system also creates the possibility of inequity between those licensed to produce milk for fluid use (Grade A) and those licensed to produce manufacturing grade milk (Grade B). Some state health barriers still exist (e.g., Texas) to impede the interstate flows of Grade A milk, but most producers in the U.S. have the option of producing either grade of milk, at a set of cost differences. At the fringe of conversion, particularly at the farm level in the upper midwest, the net prices appear to be about the same. At the fringe, the additional cost required to produce and market milk which meets the requirements for fluid use approximately matches the additional return from conversion from Grade B to Grade A milk production. For example, above about seven zones in the Chicago shed the actual blend under the order exceeds manufacturing milk prices by no more than the incremental cost of producing Grade A milk.

Consumers feel that inequities result from the classified pricing plan and from the almost certainty that the price increase from any unusual profits resulting from the controlled pricing structure are passed to them. The classified pricing system favors consumers of manufactured dairy products at the expense of fluid milk drinkers. This inequity seems unfair to low income consumers who must purchase fluid milk particularly for their children. Most additional costs or increased profits resulting from controlled prices, base plans, or other regulations are paid for by consumers. It is generally acknowledged that "closed" base plans and to a lesser extent "open" base plans add to the effective cost of production. Many consumer groups have long contended that the controlled prices are much too high and that store prices would be much lower if the controls were lifted.[21]

Little has been said in this section thus far concerning the sharing of risks between producers, handlers, and retailers. Under a federal order system backed up with price supports, price variability at the producer level is considerably less than for other products without such programs. Most variations are upward departures from the support price floor. The extent of risk for producers is greater the lower the floor relative to average costs of production. Handlers and processors, on the other hand, generally can pass a large proportion of changes in raw material prices (milk prices) directly to retailers who in turn pass them on to consumers. Changes in consumer demand directly affect quantities consumed at specific prices with the producer absorbing most of the effects of price changes in the long run through adjustments in the support prices. The division of risks and returns in the marketing sector between first handlers, processors, wholesalers, and retailers appears to vary with the product and market structure with retailers appearing to have some advantage over the other in the 1970's.

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21 See "The Revolt Against Milk Price-Fixing," *Consumer Reports,* July 1976, p. 416.

Causes and Degree of Conflict within Subsector

Conflict within the dairy subsector takes on two substantially different forms. In the one instance, conflict may be described in terms of excessive competition or predatory and coercive behavior. In the second instance, conflict may be described in terms of disagreement or opposing interest views of how various policy measures should be resolved. In addition, the substantial integration of the dairy subsector with other subsectors, especially food retailing, extends the arena of conflict beyond the traditional dairy subsector borders.

In recent years, most of the conflict associated with the dairy subsector can be identified in terms of five problem areas.

1. The member-nonmember problem relative to cooperatives continues to be disruptive. Agriculture operates on an "open shop" basis, but approximately 80% of all milk producers belong to a marketing cooperative. Marketing of milk by nonmembers often interferes with the objectives of the cooperative. As a result, conflict in various forms emerges. In recent years, different approaches to resolving this problem by moving to federal bargaining legislation in agriculture have been proposed, but such proposals have not realized general support.
2. A second area of conflict relates to the differences among markets in the proportions of milk used for Class I purposes and used for Class III purposes. The problem is further aggravated because much of the Grade B milk now converting to Grade A in the upper midwest is being pooled in markets already low in Class I utilization. As a result, differences in producer pay prices among markets are made wider than appears equitable. In effect, the argument is made that the mobility of milk in today's market calls for a broader sharing of Class I sales and a broader responsibility for absorbing the lower prices and higher handling costs associated with reserve milk. Limited efforts have been made to help resolve this problem including market area consolidations and the implementation of a standby pool. However, the problem continues to be a point of contention and may be further aggravated as Grade B milk production facilities in Wisconsin and Minnesota are converted to Grade A quality.
3. Conflict in the processor-processor arena is almost better described in terms of conflict between the Federal Trade Commission and national dairy companies. Technological change in the fluid milk industry, both in processing and distribution, has led to increased market concentration in recent decades. In particular, national dairy companies extended their business through merger actions. The Federal Trade Commission, as a means of maintaining competition, has intervened in the merger process and has restrained eight major dairy companies from making further acquisitions. We saw earlier the FTC essentially has adopted a "middle tier" policy which virtually prevents acquisitions by the large companies, recognizes the inefficiencies of the

small companies, and aims to encourage merger activity by medium-size firms. While the conflict noted here is in a public antitrust context, the conflict has been manifested in the acquisition of smaller local dairy companies by larger national dairy companies. In some instances, this latter conflict was overt in terms of intensive price-cutting competition to gain accounts.

4. Price wars in fluid milk and, to a lesser extent, ice cream have been widely reported at the food store level. Fluid milk serves as a natural price leader or loss leader item because: (a) it is perishable and therefore cannot be stored indefinitely; (b) it has a known quality; (c) it represents a small percentage of food store sales; and (d) fluid milk prices, just as bread prices, are more closely watched by consumers than are most food prices. Some states have sought to prevent such market behavior by implementing various kinds of stabilizing mechanisms, including minimum consumer milk prices or retail store markups. This type of conflict has been outside of the traditional dairy subsector, but its effects extend directly to the organization of the dairy industry. For example, home delivery is vulnerable to the low milk prices that food stores may implement in their pricing strategies. At the present time, 10 states regulate wholesale or retail prices of fluid milk products, or both, in order to avoid this type of conflict in the market system. Additional states have adopted trade practice regulations designed to eliminate activities such as sales below cost, price discrimination, and secret rebates. In general, however, establishment of consumer milk prices continues to be an area of conflict in many markets.
5. Within the past five years, a growing reaction by various consumer-citizen groups to some of the major institutions affecting milk pricing has been observed. In particular, cooperatives and market orders have come under attack. Cooperative opponents cite Class I over-order prices as evidence that organized producers abuse monopoly powers and unduly enhance prices. This will be further discussed in Chapter 5.