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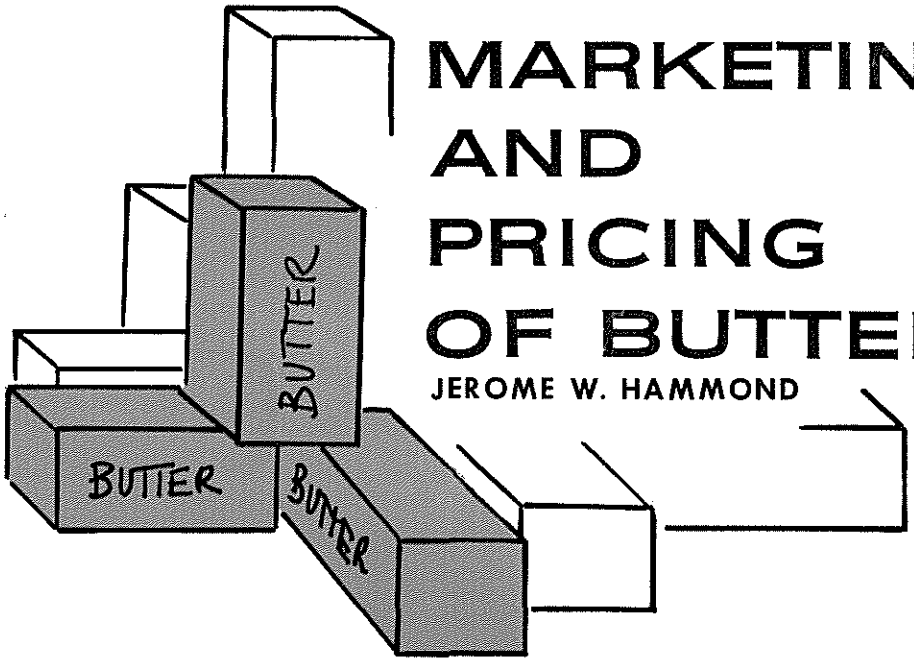

MARKETING AND PRICING OF BUTTER

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In 1963 the Minnesota State Legislature appropriated funds to help the Minnesota dairy industry develop new products and markets. The funds are obtained from a sales tax on colored oleomargarine. The Governor directs expenditures after consulting with the Legislative Advisory Committee.

To help plan the best use of these funds, Governor Karl F. Rolvaag appointed a Governor's Advisory Committee on Dairy Research and Marketing. The committee includes dairy farmers, dairy firm managers, a food scientist, a legislator, a banker, an attorney, several Institute of Agriculture staff members, and the Commissioner of Agriculture.

This committee decided that the principal consideration for using funds should be "to better financial returns of Minnesota farmers from the dairy enterprise." Therefore, the committee agreed that dairy research should be emphasized, including (1) legal and market research and (2) research on product technology. After reviewing research proposals, the committee recommended proposals on product technology and dairy marketing submitted by the University of Minnesota's Department of Dairy Industries and Department of Agricultural Economics, respectively. The committee felt that the University was best equipped for this work.

The first major marketing report, *Marketing Minnesota's Dairy Products: Characteristics, Problems, and Needs* (Univ. of Minn. Agr. Exp. Sta. Misc. Rpt. 63), described and appraised economic, technical, and institutional factors influencing the marketing of Minnesota's milk and milk products. It suggested several areas for marketing research such as demand characteristics and analysis for various dairy products, the optimum organization of plants for the most efficient processing, and the impact of government regulations.

Other phases of this research program have focused on specific problems of the dairy industry. Published results under the project to this point are:

Christiansen, M. K. and J. W. Hammond. July 1965. "Milk Market Regulations, Some Implications for Minnesota." *Minnesota Farm Business Notes* No. 474. Univ. of Minn. Agr. Ext. Serv.

Hammond, J. W. July 1965. "Production and Market Growth of Nonfat Dry Milk." *Minnesota Farm Business Notes* No. 474. Univ. of Minn. Agr. Ext. Serv.

Hammond, J. W. Dec. 1965. "The Outlook Corner." *Minnesota Farm Business Notes* No. 479. Univ. of Minn. Agr. Ext. Serv. (This article described regional production and consumption patterns for manufactured and fluid milk.)

Hammond, J. W. May 1966. "Consumption of Food Fats and Oils." *Minnesota Farm Business Notes* No. 484. Univ. of Minn. Agr. Ext. Serv.

Hammond, J. W. and R. D. Knutson. May 1966. "Milk Control Laws in Trouble?" *Minnesota Farm Business Notes* No. 484. Univ. of Minn. Agr. Ext. Serv.

Knutson, R. D., J. W. Hammond, and E. F. Koller. Sept. 1966. "Price and Trade Regulation in the Dairy Industry." *Minnesota Farm Business Notes* No. 487. Univ. of Minn. Agr. Ext. Serv.

This present report concerns the marketing of butter—an important part of Minnesota's dairy industry. The report basically is an analysis of the structure of butter markets and the methods of price formation in these markets. Results should provide policy guidelines for increasing efficiency throughout market channels.

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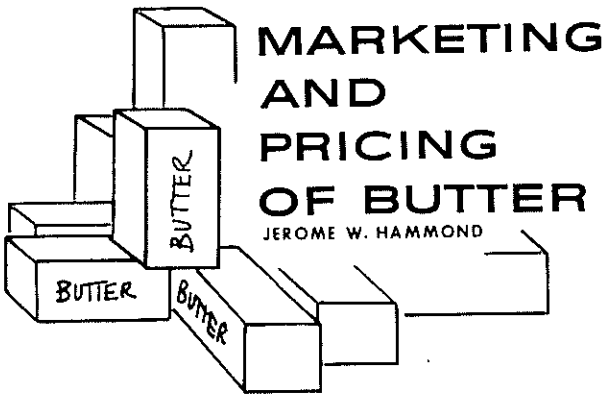


MARKETING AND PRICING OF BUTTER

JEROME W. HAMMOND

From farmer to consumer, the total marketing margin for butter was 21.4 cents per pound in the United States in 1964. The average farm value of butterfat in 1 pound of butter was 53.0 cents. Since the average butter price paid to Iowa, Minnesota, and Wisconsin creameries was 58.1 cents per pound, their operating margin averaged 5.1 cents per pound.

The operating margin for all other levels of the marketing channel averaged 16.3 cents per pound. Therefore, efficiency gains beyond the initial processing plant may be more important than those at the processing plant. Although several studies exist on marketing costs between milk producers and initial processing plants,[1] little data on the later marketing channels are available. What firms are taking this relatively large share of the marketing margin? What is the nature of markets beyond processing plants? What are the characteristics of competition? What changes have occurred? Do monopoly elements increase margins, thereby reducing returns to producers and increasing or maintaining high prices to consumers?

Answers to these questions could be useful to industry representatives and public officials. Marketing and pricing information is needed to determine if industry reorganization or regulatory changes would benefit milk producers, consumers, and other segments of the industry. Any gain resulting from industry adjustments could help slow the downtrend in per capita butter consumption through price reductions. The objectives of this report are:

- To describe the organization of market channels for butter.
- To determine the methods of price formation for butter and the roles played by individual firms.

Jerome W. Hammond is a research associate, Department of Agricultural Economics.

[1] See: A. C. Knudtson and E. F. Koller. June 1957. *Manufacturing Costs in Minnesota Creameries.* Univ. of Minn. Agr. Exp. Sta. Bull. 442.

A. C. Knudtson and E. F. Koller. June 1960. *Processing Costs of Whole Milk Creameries.* Univ. of Minn. Agr. Exp. Sta. Tech. Bull. 236.

S. A. Walker, H. J. Preston, and G. T. Nelson. June 1953. *An Economic Analysis of Butter-Nonfat Dry Milk Plants.* Idaho Agr. Exp. Sta. Res. Bull. 20.

Sources of Data

Although this report concerns butter marketing in the context of a national market, many data are based on a survey of Minnesota creameries. This survey was undertaken by the author to obtain data on marketing practices of creameries. Questionnaires were sent to all Minnesota creameries (300) in March 1966 requesting information on butter sales during November and December 1965. Usable returns were received from 190 plants. These plants represented 70 percent of the butter produced in Minnesota for those 2 months. All Minnesota areas and all types of plants were represented. Some were specialized butter plants while others were diversified into powder, fluid milk, and various manufactured dairy products. The plants varied in size from those producing less than 50,000 pounds to those producing more than 7 million pounds of butter per year. Although results of the survey may not be representative of the entire U.S. butter industry, they do pertain to a large share of it.

Information on buying and selling practices of the major primary receivers was obtained from interviews of industry personnel. Included in these interviews were five cooperative marketing associations, one meatpacker, two chainstore assemblers, one specialized wholesaler, and one national dairy concern.

Discussion with personnel of three regional food chains operating in the midwest provided information on retail practices. Reports of the U.S. Department of Agriculture (USDA), the Bureau of Labor Statistics, and state experiment stations provided many supplementary materials.

Background Information

Past developments in butter production and marketing point to the changing position of butter in the dairy economy. In 1924, 47 percent of all milk production of U.S. farmers was used in farm produced or factory produced butter. This percentage fell to 26 percent by 1964.

Butter not only has failed to maintain its **relative** position in the dairy industry, but **actual** production now is less than it was in the 1930's and early 1940's (see figure 1 and appendix table 1). Creamery butter production increased from 1920 to 1941 when it reached a peak of more than

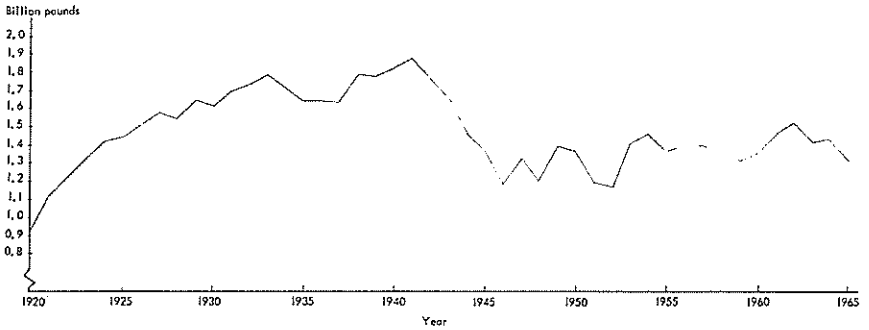


Figure 1. U.S. creamery butter production, 1920-65. (Source: Appendix table 1)

1.8 billion pounds. However, total butter production did not grow as rapidly as indicated because farm butter production was substantially larger in earlier years. Production of both farm produced and creamery produced butter was at about 2.2 billion pounds in 1940. Because of large demands for other dairy products and liberalization of laws regarding margarine sales, total butter production declined during World War II. Since then it has been around 1.4 to 1.6 billion pounds annually. Creamery butter production dropped rapidly after 1941 to about 1.2 billion pounds in 1946 and has since fluctuated between 1.2 and 1.5 billion pounds.

Total and per capita consumption of butter has continued downward for more than 20 years in the United States. From 1909 to 1941, per capita consumption remained relatively constant, between 16 and 18.5 pounds annually, but declined to 6.5 pounds by 1965 (see figure 2). This decline about offset the population effect on total consumption. At the same time, per capita consumption of margarine, the major substitute for butter, increased almost continually. Neither trend shows much sign of abating.

Butter production for the first 5 months of 1966 was 24 percent below the previous 5-year average. Production in May 1966 was the lowest for that month since 1943; production in March and April was the lowest for those months since 1952. The effect on prices was great; wholesale prices rose more than 10 cents per pound in 1966 and were at the highest levels since 1952.

Figure 2. Per capita butter and margarine consumption, United States, 1909-65. (Source: Appendix table 2)

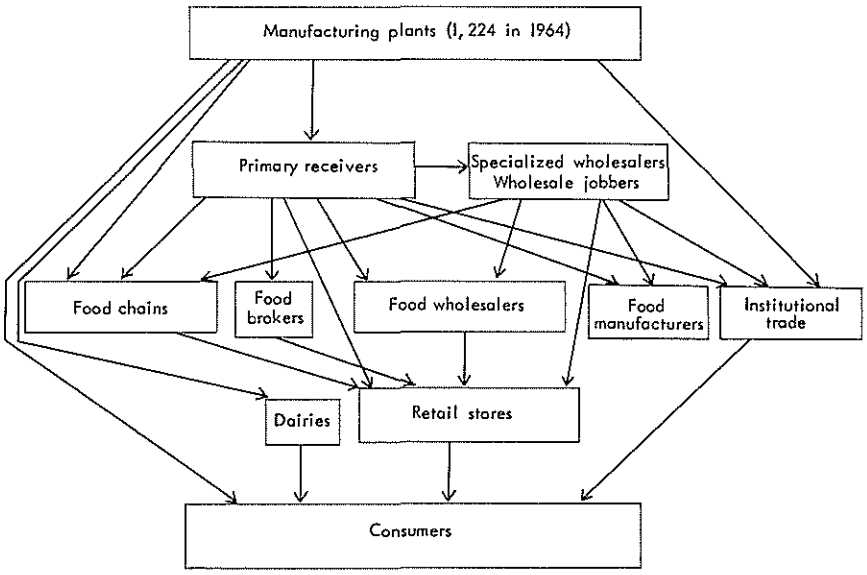


Figure 3. Market channels for butter.

Market Channels for Butter

The marketing functions involved in moving butter to consumers may be grouped into four levels: (1) **manufacturer,** (2) **primary receiver-specialized butter wholesaler,** (3) **food wholesaler,** and (4) **retailer.** As indicated in figure 3, butter may sometimes circumvent one or more levels.

The arrows in figure 3 illustrate the movement of butter from each firm type. Through vertical integration, a firm may perform several functions. Lines that bypass any level indicate integration of functions. Thus, primary receivers may perform the wholesale function of distributing to retail outlets. In some cases, they may produce some of their own butter. Food chains may be important primary receivers of butter from country manufacturing plants.

A detailed description of the market channel follows.

The Manufacturer Level

Plant Numbers and Sizes

The manufacturing level is characterized by a large number of small plants. In 1963, 1,320 plants made butter in the United States (see table 1). The highest concentrations of these plants were in Minnesota (349 plants), Iowa (170), and Wisconsin (142) (see table 2). Of all plants manufacturing butter, 73 percent were located in the North Central Re-

Table 1. Number of plants making butter by production-size groups, by regions, United States, 1963

Region	1963 annual production (thousand pounds)											Percent of U.S. total
	Less than 100	100-249	250-499	500-749	750-999	1,000-1,499	1,500-1,999	2,000-2,999	3,000-3,999	4,000 and over	Total	
	number of plants											
New England	10	.....	1	.....	.....	.....	1	1	.....	1	14	1.1
Middle Atlantic	52	5	6	7	1	4	3	8	2	5	93	7.0
East North Central	59	28	32	22	13	22	13	27	19	29	264	20.0
West North Central	115	99	132	88	67	67	35	38	32	27	700	53.0
South Atlantic	15	4	2	1	1	.....	1	1	1	.....	26	2.0
South Central	19	4	4	3	2	2	3	4	2	3	46	3.5
Mountain	35	24	11	3	2	5	.....	4	1	3	88	6.7
Pacific	34	16	6	7	4	9	2	6	3	2	89	6.7
United States	339	180	194	131	90	109	58	89	60	70	1,320	100.0
	percent of plants											
United States	25.8	13.6	14.7	9.9	6.8	8.3	4.4	6.7	4.5	5.3	100.0	

Source: USDA. Mar. 1965. *Plants Manufacturing Dairy Products by Production Size Groups and Geographic Distribution, 1963.* SRS-5. Crop Reporting Board.

Table 2. Number of plants making butter by production-size groups, by state, North Central Region, 1963

State	1963 annual production (thousand pounds)											Percent of total North Central Region	Percent of U.S. total
	Less than 100	100-249	250-499	500-749	750-999	1,000-1,499	1,500-1,999	2,000-2,999	3,000-3,999	4,000 and over	Total		
	number of plants												
Ohio	16	1	3	1	1	3	.....	2	.....	3	30	3.1	2.3
Indiana	4	4	1	3	1	2	1	1	2	2	21	2.2	1.6
Illinois	6	5	3	1	.....	1	.....	4	2	1	23	2.4	1.7
Michigan	17	6	5	3	1	5	2	5	2	2	48	5.0	3.6
Wisconsin	16	12	20	14	10	11	10	15	13	21	142	14.7	10.8
Minnesota	57	36	55	51	47	48	15	16	12	12	349	36.2	26.4
Iowa	33	40	31	14	10	7	11	9	8	7	170	17.6	12.9
Missouri	3	1	3	2	2	2	1	2	2	4	22	2.3	1.7
North Dakota	7	16	29	10	4	2	2	1	.....	2	73	7.6	5.5
South Dakota	8	3	8	5	1	3	2	3	1	2	36	3.7	2.7
Nebraska	3	2	5	6	2	4	3	3	7	.....	35	3.6	2.7
Kansas	4	1	1	.....	1	1	1	4	2	.....	15	1.6	1.1
North Central Region	174	127	164	110	80	89	48	65	51	56	964	100.0	73.0

Source: USDA. Mar. 1965. *Plants Manufacturing Dairy Products by Production Size Groups and Geographic Distribution, 1963.* SRS-5. Crop Reporting Board.

gion.[2] This region produced 81 percent of the nation's butter while the three leading states accounted for 57 percent.

Plant size varied over a wide range of volumes in 1963 (see tables 1 and 2). Over 25 percent of U.S. butter plants produced less than 100,000 pounds of butter annually. About 38 percent produced from 100,000 to 749,000 pounds and only 16 percent produced over 2 million pounds annually. Average annual production per plant in 1963 was 1,075,000 pounds.[3]

A small butter volume per plant is more characteristic of minor producing regions than of the North Central Region. As opposed to 47 percent for all other regions, only 18 percent of the plants in the North Central Region produced less than 100,000 pounds of butter annually in 1963. In many areas, butter is made only when all other uses are fulfilled. Or it may be a sideline business to complement a firm's milk and ice cream production. But butter plants in the North Central Region usually are specialized butter operations or a regular part of a multiproduct operation.

Plant numbers and size have changed considerably over time. From 1953 to 1965, plant numbers decreased 55.1 percent in the United States

Table 3. Number and average size of butter manufacturing plants, United States and Minnesota, 1953-65

Year	United States		Minnesota	
	Number of plants	Average annual production per plant (thousand pounds)	Number of plants	Average annual production per plant (thousand pounds)
1953	2,566	550	617	434
1954	2,475	585	599	454
1955	2,342	596	575	489
1956	2,207	639	555	552
1957	2,062	685	525	605
1958	1,931	719	495	640
1959	1,780	749	451	714
1960	1,656	829	429	757
1961	1,516	979	394	861
1962	1,411	1,088	367	963
1963	1,321	1,075	349	994
1964	1,224	1,178	329	1,132
1965	1,152	1,148	307	1,164
Percent change 1953-65	−55.1	+108.7	−50.2	+168.2

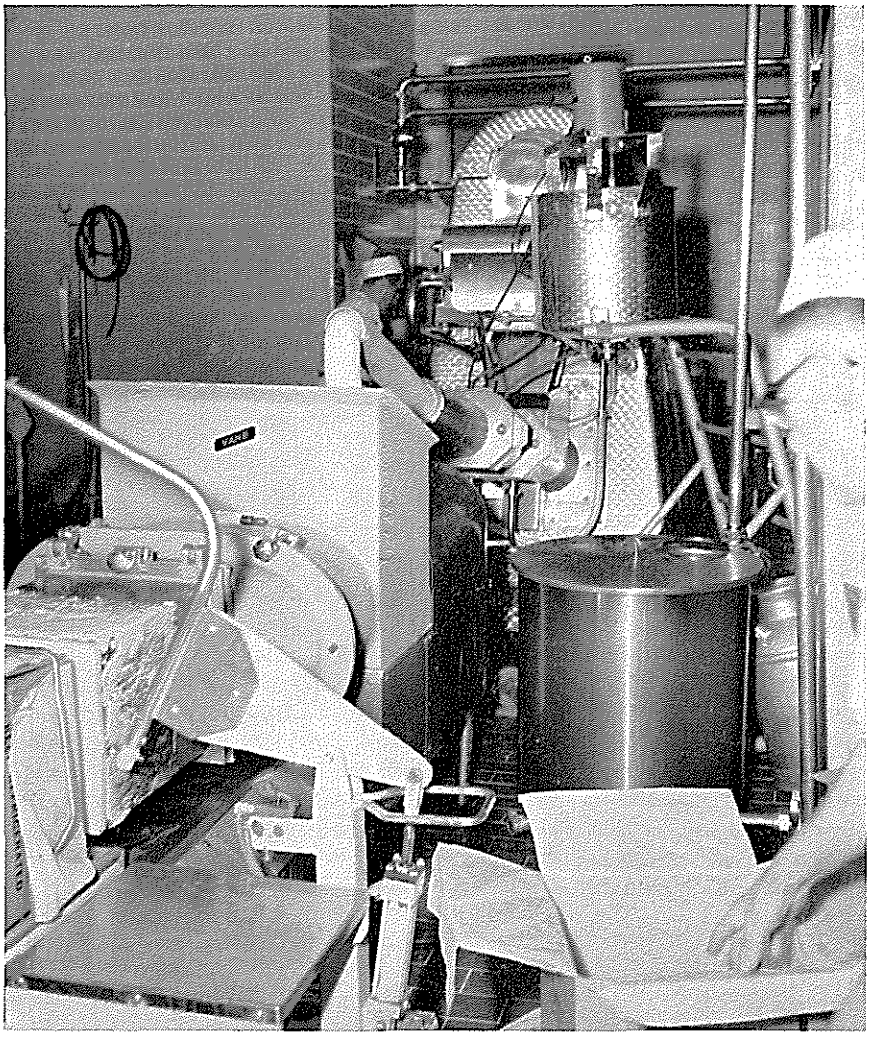
Source: USDA. Annual reports for 1953-65. *Production of Manufactured Dairy Products.*

[2] Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

[3] USDA. Mar. 1965. *Plants Manufacturing Dairy Products by Production Size Groups and Geographic Distribution, 1963.* SRS-5. Crop Reporting Board.

and 50.2 percent in Minnesota (see table 3). Meanwhile, average annual plant production increased 108.7 percent in the United States and 168.2 percent in Minnesota. The trend in plant numbers is likely to continue. Production per plant will depend on the total amount of milk used in butter production.

Changes in plant numbers have not been the same for all size classifications. According to a USDA study of the U.S. dairy industry, plants with less than 500,000 pounds annual production decreased 46 percent from 1957 to 1963 while plants with 2 million pounds or more increased



A continuous butter churn and bulk butter packer in operation.
Picture courtesy of Land O'Lakes Creameries, Inc., Minneapolis, Minnesota.

27 percent.[4] This development indicates substantial economies of size in butter manufacturing.

Of course, annual butter production does not completely define plant size; much butter is produced in multiproduct plants. For example, in 1961, slightly over one-half of all U.S. butter producing plants also produced other dairy products (see table 4); 72 percent of the nation's butter was produced in multiproduct plants.[5] Regional differences in diversification were apparent. Compared to only 37 percent in the West North Central Region, 81 percent of the butter plants in both the New England and Pacific Regions were diversified.

In general, concentration is low at the manufacturing level of the market channel. Although some large multiplant firms exist, only one apparently produces as much as 1 percent of the nation's annual butter production.

Sales Characteristics

Butter from manufacturing plants is commonly packed in 60-, 64-, or 68-pound bulk containers and sold to primary receivers. However, nearly all manufacturing plants print some butter for direct sale to patrons, local consumers, local groceries, and other local dairies.[6] A few plants also print in private labels for primary receivers.

The survey of 190 Minnesota creameries for November and December 1965 showed the relative importance of each type of sale. Total butter sales were distributed as follows:

Bulk sales to primary receivers	86.9 percent
Print sales to primary receivers	4.4 percent
Print sales to local buyers	8.7 percent

Bulk sales were the most important by far. Print sales of butter in the local market were not specifically identified in many returns. For those sales that were identified, direct sales of print butter to patrons were most important, accounting for 62 percent of local butter sales.

Brands and product differentiation are relatively unimportant for most butter manufacturing plants. Bulk butter often has no brand and is sold on a grade basis only. Butter sold in the print form to local trade usually carries the manufacturer's label. Such butter is usually not advertised or promoted except by firms which distribute a full line of dairy products in the local market. Local manufacturing plants also print and package butter under the brand name of a buyer. Of the 190 creameries surveyed, 35 or 18 percent packaged butter under a buyer's label.

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[4] Ibid.

[5] USDA. Oct. 1964. *Flexibility of Operation in Dairy Manufacturing Plants.* Agr. Econ. Rpt. 61. ERS. SRS. P. 21.

[6] Printing of butter refers to the process of cutting and forming bulk packaged butter and sometimes soft butter directly from the churn into sizes and shapes for distribution to consumers. The most common print sizes are the quarter pound, the pound, and the patty for institutional use.

Table 4. Dairy manufacturing plants: number and percentage of plants producing creamery butter only or creamery butter and other specified dairy products, by regions, United States, 1961

Region	Plants producing butter only	Plants producing butter and other dairy products	Total plants	Plants producing butter and one or more of the following products							
				All cheese	Cottage cheese	Dry milk products	Condensed products	Ice cream and sherbet mixes	Ice milk mix	All mixes*	Frozen products†
	number of plants										
New England	3	13	16	2	5	4	3	8	5	9	6
Middle Atlantic	19	67	86	16	34	27	22	24	9	24	16
East North Central	101	209	310	70	59	108	42	63	37	64	60
West North Central	509	302	811	43	36	162	38	103	70	108	131
South Atlantic	12	19	31	....	11	4	8	10	7	12	9
South Central	15	42	57	12	19	16	13	18	14	19	17
Mountain	24	75	99	12	27	19	5	56	52	59	53
Pacific	19	81	100	19	39	32	30	55	47	56	47
United States	702	808	1,510	174	228	372	161	337	241	351	339
	percent of plants										
New England	18.8	81.2	100.0	12.5	31.2	25.0	18.8	50.0	31.2	56.2	37.5
Middle Atlantic	22.1	77.9	100.0	18.6	29.5	31.4	25.6	27.9	10.5	27.9	18.6
East North Central	32.6	67.4	100.0	22.6	18.4	34.8	13.5	20.3	11.9	20.6	19.4
West North Central	62.8	37.2	100.0	5.2	4.4	20.0	4.7	12.7	8.6	13.3	16.2
South Atlantic	38.7	61.3	100.0	....	35.5	12.9	25.8	32.3	22.6	38.9	29.0
South Central	26.3	73.7	100.0	21.1	33.3	28.1	22.8	31.6	24.6	33.3	29.8
Mountain	24.2	75.8	100.0	12.1	27.3	19.2	5.1	56.6	52.5	59.6	53.5
Pacific	19.0	81.0	100.0	19.0	39.0	32.0	30.0	55.0	47.0	56.0	47.0
United States	46.5	53.5	100.0	11.5	15.1	24.6	10.6	22.3	16.0	23.2	22.5

* Includes melloride mix.

† Includes ice cream, ice milk, and milk sherbet mellorine.

Source: USDA. Oct. 1964. *Flexibility of Operation in Dairy Manufacturing Plants.* Agr. Econ. Rpt. 61. ERS. SRS.

Plant Efficiency

Data on plant costs were not assembled for this report, but some indication of production efficiency is available from other cost studies and tables 1 and 2 data. A study of processing costs in whole milk creameries provided the basis for estimates.[7] Data were based on 1956 plant records and 1957 prices. The study reported plant size in whole milk receipts; therefore, data were converted to annual butter volumes for this report.

Cost differences between the given plant sizes of whole milk creameries and the lowest cost plant size are presented in table 5. To achieve near minimum per unit costs, a size of at least 1.5 million pounds annual production apparently was necessary. Technological developments, such as the continuous process churn, in butter production since 1956-57 may change these results. But, they probably would increase both the optimum plant size and the amounts by which costs exceed those of the largest plants.

The magnitude of processing inefficiencies is great. In 1953, almost 80 percent of U.S. butter plants operated at less than optimum size; the percentage was slightly higher in Minnesota. Plants below 500,000 pounds of annual butter production, 54.1 percent of all plants in the United States in 1963, operated with costs more than 5.5 cents per pound higher than the most optimum size plant. Even plants with from 1 million to 1.5 million pounds of annual production, 12 percent of U.S. butter plants, operated with costs of 1.65 to 1.99 cents per pound higher than optimum size plants.

Although total production figures for each size classification are not available, the extra costs of small operations undoubtedly run into millions of dollars. For example, a savings of 5 cents per pound on manufacturing costs could increase producer returns per hundredweight (cwt.) of milk by more than 20 cents. The financial reward for industry reorganization is apparent.

Table 5. Cost reductions associated with variation in size of whole milk creameries

Annual volume of butter (pounds)	Estimated amount by which cost per pound exceeds that of the largest size plant (cents)
300,000-499,999	5.53-9.17
500,000-999,999	2.00-3.76
1,000,000-1,499,999	1.65-1.99
1,500,000-1,999,999	0.81-1.31
2,000,000-2,999,999	0.45-0.81
3,000,000-3,999,999	0.19-0.36
4,000,000-4,600,000	0.00-0.15

Source: Calculated from data in: A. C. Knudtson and E. F. Koller. June 1960. *Processing Costs of Whole Milk Creameries.* Univ. of Minn. Agr. Exp. Sta. Tech. Bull. 236.

[7] Knudtson and Koller. *Processing Costs of Whole Milk Creameries.* Op. cit.

Primary Receiver-Specialized Butter Wholesaler Level

The difference between specialized wholesalers and primary receivers should be noted. A few specialized butter wholesalers do not assemble butter from manufacturing plants but purchase it from primary receivers. Once the butter is purchased, the functions performed by both groups of firms are essentially the same. The most important functions performed at this level of the market channel are:

1. Assembling butter from country manufacturing plants.

2. Storing butter in periods of high production and moving it into consumption channels during low production.

3. Assuming the risk of price change during transit and storage (risk can be transferred by hedging on the futures market).

4. Printing and packaging butter under a private or a buyer's label.

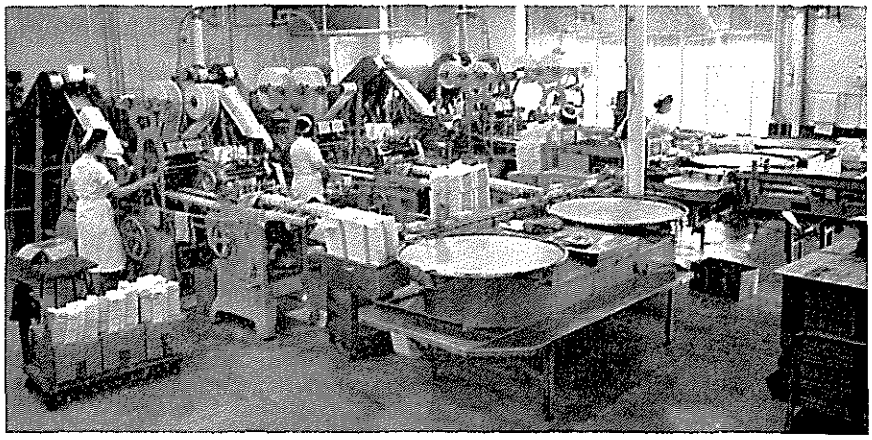
5. Distributing printed butter to food chains, food wholesalers, retail stores, and institutional users.

6. Selling small quantities of bulk butter to food manufacturers who use butter as an ingredient in other foods.

7. Playing a role in price formation in central markets for butter.

8. Making most sales to government when the support price is too high to move all supplies into domestic commercial use.

The number of firms operating at this level of the butter market channel is relatively small. Only 18 primary receivers bought butter from the 190 creameries surveyed in Minnesota. The largest four of these primary receivers purchased 67 percent of all bulk butter assembled by primary receivers in Minnesota in November and December 1965. According to



Butter printing lines in facilities of a primary receiver.

Picture courtesy of Land O'Lakes Creameries, Inc., Minneapolis, Minnesota.

national estimates for May 1965, 37.7 percent of U.S. creamery butter production was channelled through the four largest primary receivers.[8]

The high concentration and few firms may indicate an advantageous bargaining position at the primary receiver level. Because of their relative size, primary receivers perhaps could extract a larger margin than would result from a more competitively organized market level. However, due to other market characteristics, these buyers apparently cannot and do not attempt to extract more than a competitive return. One contributing factor to this situation is the predominance of the cooperative marketing agency which returns to manufacturing plants all earnings of the marketing firm. Moreover, the relatively strong market position of food chains and food wholesalers prevents primary receivers from maintaining excessive returns.

Five types of firms operate at the primary receiver level of the butter market: cooperative marketing associations, meatpackers, grocery chains, national dairy companies, and specialized butter wholesalers. The importance of each type as an outlet for butter production of Minnesota creameries is illustrated in figure 4. Primary receivers made 91.3 percent of all these purchases in November and December 1965 (see table 6).[9]

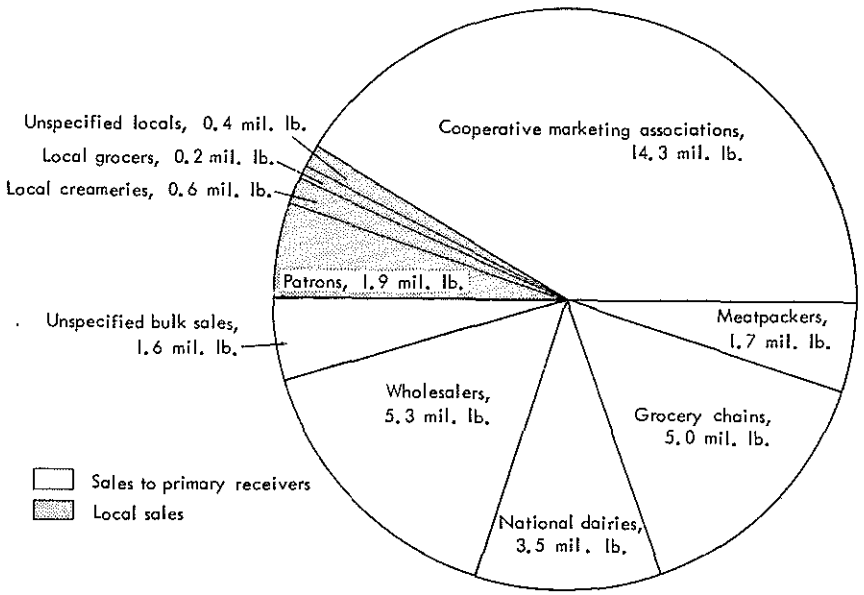


Figure 4. Butter sales of 190 Minnesota creameries by type of buyer for November and December 1965. (Source: table 6)

[8] National Commission on Food Marketing. June 1966. *Organization and Competition in the Dairy Industry.* Tech. Study 3. Wash., D.C. P. 280.

[9] Since manufacturing plants tend to sell to the same buyers for extended periods of time, the figures in tables 6 and 7 for November and December 1965 and May 1965 probably are representative of percentages for the entire year.

Large shifts have occurred in the relative importance of each type of primary receiver, both in Minnesota and the United States (see table 7). The relative importance of each type in Minnesota compared to the United States differs considerably. These differences exist because of regional specialization of primary receivers. Several cooperative receivers, for example, always have concentrated their assembly activities in Minnesota, Wisconsin, and Iowa.[10]

Cooperative marketing associations are the most important primary receivers in Minnesota. They assembled 46 percent of all butter purchased by primary receivers in November and December 1965 compared with 30 percent in 1949. Nationally, cooperative marketing associations have shown more growth than in Minnesota. They assembled only 15 percent of all butter purchased by primary receivers in 1951 but 48 percent in 1965. Besides assembling butter from country plants and processing and distributing it to wholesalers and retailers, these cooperatives also market other dairy and nondairy products.

Cooperatives sell butter under both their own dealer brand and a buyer's brand.[11] However, there have been general shifts to private label butter. Three important cooperative marketing associations reported that more than 50 percent of their branded butter sales were private label in 1965.

The market share of specialized wholesalers, the most dominant of Minnesota's intermediate butter handlers in 1949, decreased from 37 to 17 percent between 1949 and 1965 (see table 7). Nationally, this type of primary receiver maintained its market share at 22 percent between 1951 and 1965. Again, differences between the Minnesota and national percentages are caused by geographic areas of specialization. One large specialized butter wholesaler, H. C. Christians, handles butter, powder, and other dairy products; prints and packages under private label and its own brand; and sells butter to other food processors. Other important wholesalers buy bulk butter from country plants and other primary receivers. They print, package, and distribute in job lots to warehouses, food wholesalers, and retail stores.

The importance of meatpackers as primary receivers of butter is decreasing, due apparently to low margins on butter relative to other areas of operation. Their market share declined from 15 percent in 1949 to 5 percent in November and December 1965 in Minnesota and from 23 percent in 1951 to 11 percent in May 1965 in the national market. Meatpackers also are moving out of the butter production activity. For example, Armour Creameries completely stopped its butter manufacturing in Minnesota and North Dakota. At present, it purchases butter in North Dakota, Minnesota, Wisconsin, and Iowa through its St. Paul division.

National dairy concerns increased their share of butter assembly in Minnesota from 2 to 11 percent between 1949 and 1965, but their share

[10] H. L. Cook, P. L. Kelley, E. F. Koller, and A. H. Miller. June 1952. *Butter Pricing and Marketing at Country Points in the North Central Region.* Univ. of Minn. Agr. Exp. Sta. Tech. Bull. 203. P. 18.

[11] "Dealer brand" as used here refers to brands of the manufacturer or primary receiver and wholesaler.

Table 6. Butter sales of 190 creameries by type of buyer, Minnesota, November and December 1965

Type of buyer	Bulk sales	Print sales	Total sales	Percent of total sales
	— — — — pounds — — — —			
Primary receivers:				
Cooperative marketing associations	14,271,119		14,271,119	41.5
Meatpackers	1,636,569	52,724	1,689,293	4.9
Grocery chains	3,997,937	1,039,882	5,037,819	14.6
National dairy companies	3,276,650	226,616	3,503,266	10.2
Wholesalers	5,105,571	187,214	5,292,785	15.4
Unspecified	1,600,450		1,600,450	4.7
Total	29,888,296	1,506,436	31,394,732	91.3
Local sales:				
Patrons		1,863,501	1,863,501	5.4
Local creameries and dairies		566,016	566,016	1.6
Local grocers		210,027	210,027	0.6
Unspecified local print sales		358,781	358,781	1.1
Total		2,998,325	2,998,325	8.7
Total sales	29,888,296	4,504,761	34,393,057	100.0

Table 7. Percent of butter shipments by type of primary receiver, Minnesota, 1949 and November and December 1965; United States, 1951 and May 1965

Primary receiver	Minnesota		United States	
	1949	November and December 1965	1951	May 1965
	— — — percent of shipments — — —			
Wholesalers	37	17	22	22
Grocery chains	16	16	16	11
Cooperative marketing associations	30	46	15	48
National dairy companies	2	11	24	8
Meatpackers	15	5	23	11
Unspecified	0	5	0	0
Total	100	100	100	100

Source: For Minnesota, 1949: H. L. Cook, P. L. Kelley, E. F. Koller, and A. H. Miller. June 1952. *Butter Pricing and Marketing at Country Points in the North Central Region.* Univ. of Minn. Agr. Exp. Sta. Tech. Bull. 203. P. 18.

For Minnesota, November and December 1965: Survey of Minnesota creameries.

For United States, 1951 and May 1965: National Commission on Food Marketing. June 1966. *Organization and Competition in the Dairy Industry.* Tech. Study 3. Wash., D.C. P. 281.

of the national market decreased from 24 percent in 1951 to 8 percent in 1965. One reason for this difference is that a large national dairy company which is still important in butter assembly is located in Minnesota. But other national dairy concerns generally are deemphasizing butter assembly, even though several were once important receivers of butter and can attribute a large part of their early growth to butter.[12]

Food chains are important primary receivers of butter from country manufacturing plants. Some butter is purchased in bulk and printed and packaged in the chain's own facilities; other chains contract for the printing by the manufacturing plant. Chainstores' share of Minnesota butter shipments remained constant between 1949 and 1965—16 percent for both years. Nationally, the percent of the market controlled by chainstores decreased. A & P undoubtedly purchases more butter direct than any other chain. Most chains that are important butter assemblers also buy some printed butter for their retail stores from local creameries.

Food Wholesaler and Retailer Levels

The primary receiver and specialized butter wholesaler sell butter in various outlets (see figure 3). At the wholesale level, they sell to food chains and other full-line food wholesalers. They sell butter to food manufacturers who use butter in food processing operations. These firms also sell in job lots to retail grocery stores and to institutional users of butter.

As expected, distribution of butter to consumers is principally through retail stores. In 1961-63, retail stores accounted for 47 percent of all butter sold to consumers.[13] Because retail stores of food chains are predominant in food retailing, they probably account for the largest share of retail store butter sales. Corporate, voluntary, and cooperative chains accounted for 91 percent of all grocery sales in 1963.[14] And their share of grocery sales still appears to be increasing.

Butter is also distributed on retail routes with other dairy products such as fluid milk, cream, and ice cream. The amount of butter moving in this manner probably has decreased as home delivery of milk has declined. Some of this butter may be produced in the butter manufacturing operations of the milk distributor. Some is purchased from other butter manufacturers and wholesalers. As described previously, much of this butter may be printed butter sold by manufacturing plants.

A large proportion of all butter, estimated at about 20-25 percent, moves to the consumer through the institutional trade (restaurants, hospitals, hotels, etc.). This outlet is becoming increasingly important.

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[12] For additional discussion, see: W. H. Nicholls. Sept. 1939. *Post-War Development in the Marketing of Butter.* Iowa State College Agr. Exp. Sta. Res. Bull. 250.

[13] *Food Field Reporter.* Aug. 17, 1964. Conover-Mast Pub. New York, N.Y.

[14] National Commission on Food Marketing. June 1966. *Organization and Competition in Food Retailing.* Tech. Study 7. Wash., D.C. P. 33.

Price Formation in Butter Markets

The purpose of this section is to describe: (1) how firms conduct themselves in exchange activities that lead to market prices, (2) the institutions and procedures involved in establishing prices, and (3) some actual price and margin results. In this report, price formation is considered at three levels: the manufacturer-intermediate handler, the intermediate handler-retailer, and the distributor-consumer. Although butter is not always priced and traded at all these levels, these three trades are most common.

The Central Markets

Central markets play a dominant role in butter pricing at all levels. Bulk butter sales at country plants are exclusively tied to central market quotations. Selling prices of print butter by wholesalers and primary receivers usually are central market quotations plus a markup for printing, packaging, and other services.

Location of Wholesale Markets

Most large primary receivers have offices and warehouses in Chicago and/or New York—the principal central markets for butter. Specialized butter wholesalers, who obtain most of their butter requirements from primary receivers, and some specialized butter jobbers, who distribute to retail stores and restaurants, are also located there.

Although other places such as Boston, Detroit, Los Angeles, and San Francisco are important wholesale markets and distribution centers for butter, Chicago and New York are the focal points for price determination. Butter receipts at Chicago and New York, amounting to 27.6 percent of national butter production in 1960 and 27.3 percent in 1959, are much larger than at any other market.[15] Chicago receipts were about 17 percent and New York receipts about 10 percent.

The Chicago and New York Mercantile Exchanges have special facilities for buying and selling commodities under established trading rules. The trades commonly are made for the accounts of primary receivers and butter wholesalers. However, any person or corporation may make a trade through an exchange member.

Types of Trades

The trading activity at these two markets provides a price basis for butter trading at most other market locations and most other levels of

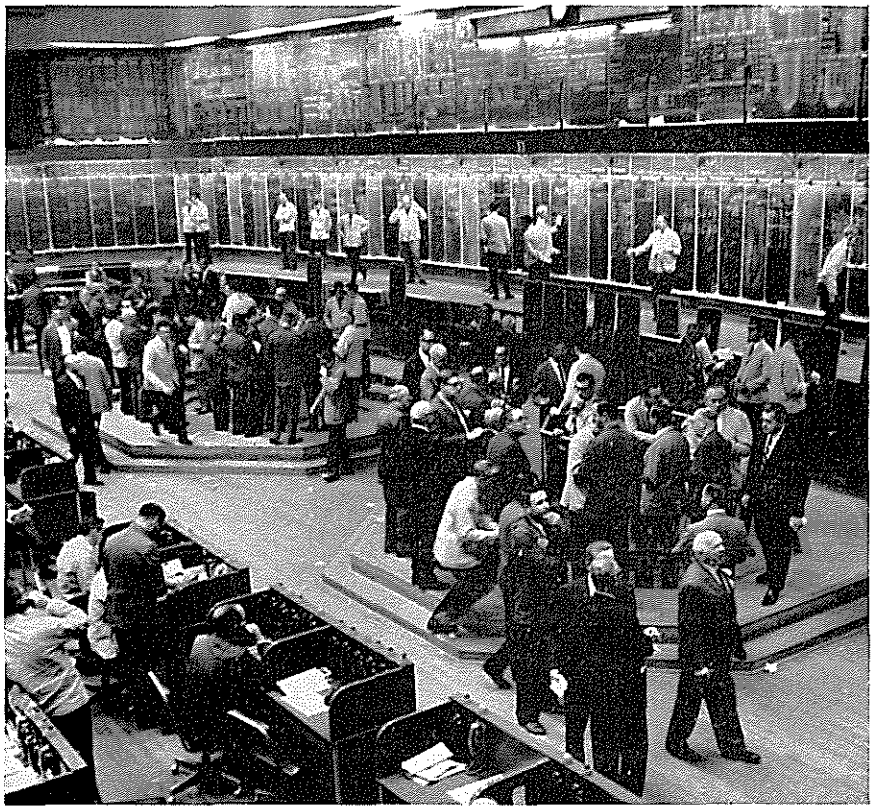
[15] USDA. Apr. 1961. *Dairy and Poultry Market Statistics, 1960.* Stat. Bull. 280. AMS, P. 1. These figures have not been published since 1960.

the market channel. Three types of trading are undertaken in the central markets. Prices in all three are interrelated.

1. **Spot market trades** are made on the Mercantile Exchanges in Chicago and New York. Prices at which trades are made and bids and offers on these markets are the bases of payment for butter at country manufacturing plants.

2. **Open market trades** are made principally between primary receivers or between primary receivers and other butter wholesalers to obtain butter for regular requirements or to dispose of excess. If firms cannot make the desired trades due to prices on the open market, they can make the required purchase or sale in the spot market to bring about an adjustment in the quotation so that the required trade is possible in the open market.

Open market trades are made in Chicago, New York, and other large butter assembly and distribution points. Prices in open market



Trading floor of the Chicago Mercantile Exchange. Each commodity is traded in a specified pit. Prices and trades are reported on boards in the background.

Picture courtesy of Chicago Mercantile Exchange.

trades follow closely the movement of spot market trades but are usually somewhat higher. Open market prices are not used as bases for pricing butter at manufacturing plants.

3. **Butter futures trades** are contracts for delivery and receipt of butter at some future time. Although the actual commodity usually is not delivered because of subsequent offsetting trades, these trades have a role in price formation. A primary purpose of these trades is to hedge stored butter holdings. These trades also are made on the Mercantile Exchanges.

Price Formation in the Spot Markets

Trading in the spot market is conducted by exchange members for their own accounts or for clients. Offers or bids are made by voice and posted until withdrawn. When a bid and offer match, a sale is made. Exchange rules govern the terms of trade such as where, who, how delivered, grade, and size of required lots.

Prices resulting from trading activity on the New York and Chicago Mercantile Exchanges are quoted by market news services for use by the industry. Although a sale is the best basis for making a daily quotation, the latest bid or offer also may be used. A bid becomes the quotation if it is higher than the previous day's quotation or the most recent sale. For example, an unfulfilled bid to buy at 65.0 cents when the last quotation or sale was 64.5 cents would establish a new quotation. An unaccepted offer to sell would establish a new quotation only if the last quotation or sale was made at a higher price.

Spot Markets and Pricing at other Market Levels

Primary receivers use market quotations to determine the prices paid to butter manufacturing plants. The survey of Minnesota plants showed that 96 percent of all bulk butter was priced on the basis of New York

Table 8. Butter traded on Chicago and New York Mercantile Exchanges as percentages of U.S. butter production, selected years, 1947-65

Year	Exchange trades as percentage of U.S. butter production
1947	0.7
1951	0.6
1960	0.2
1965	0.1

Source: Calculated from data in: R. W. March and L. F. Herrmann. June 1953. *The Establishment of Central Market Butter Prices in Chicago and New York.* Marketing Res. Rpt. 53. Production and Marketing Administration. USDA. Pp. 43-44.

USDA. Feb. 1962, June 1965. *Dairy Statistics through 1960* and *Supplement from 1963-64.* Bull. 303. ERS.

USDA. Mar. 1966. *Dairy Market Statistics.* Stat. Bull. 371. C&MS.

or Chicago quotations. Since no interviewed buyer indicated any other basis of pricing, the unspecified 4 percent undoubtedly was based on one of those quotations. The New York market price was the basis for 72 percent of the reported trades in Minnesota for November and December 1965. While a market quotation was not reported as the price basis for many local print butter sales, it probably was related.

Although pricing at the country plant level is tied almost exclusively to central market quotations, actual trading on exchanges is very limited. Since many quotations are based on bids or offers only, hundreds of country plants may sell butter when no trades occur on the exchanges. The annual volume of trading on the New York and Chicago Exchanges did not reach even 1 percent of annual U.S. butter production in the years studied—1947, 1951, 1960, and 1965 (see table 8). In 1965, only 0.1 percent of production moved over the exchanges.[16]

But why is such a small volume of butter traded on the organized exchanges? And does this small amount provide the best estimate of prices that will move all butter through market channels? One study cited the following reasons why the exchanges were not used to buy and sell large quantities of butter:[17] (Remarks in italics are those of the author.)

1. Buying and selling on the spot board has too much effect on prices. *Firms can buy or sell larger quantities in the open market at a given price change than on the exchange.*
2. General payment of premiums *to manufacturing plants* makes it impossible to sell butter profitably on the spot boards in quantity except on a declining market. For this reason very little butter is offered for sale on the spot board and large quantities of butter are just not available there.
3. Specifications given for butter traded on the exchange do not give sufficient detail concerning certain characteristics of butter which are not adequately reflected by grade. Most important of these are color, salt, and storability.
4. It is often inconvenient (especially if the receiver is not located in Chicago or New York) to move butter into Chicago or New York for sale on the exchange, and is often inconvenient for some receivers to take delivery on butter at Chicago or New York.
5. It is generally easier and cheaper to buy and sell on the open market or to buy direct from creameries.
6. Procurement of bulk supplies has already been arranged and most of the butter procured is committed in advance to a regular trade.

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[16] The apparent downtrend here probably represents a general decline in the importance of these markets in establishing butter quotations. Large government purchases during the period meant that butter prices were often at or near the support price level. Because the government was not a great factor in butter markets in 1966, some reversal of the trend may be expected.

[17] R. W. March and L. F. Herrmann. June 1953. *The Establishment of Central Market Butter Prices in Chicago and New York.* Marketing Res. Rpt. 53. Production and Marketing Administration. USDA.

7. *There is a* desire not to be directly associated with activities which are concerned with the process of price establishment.

Industry personnel indicate that the same reasons are still factors today. In addition, when supply is much greater than demand at the support price, there is little need for price adjustments. Nevertheless, seasonal, weekly, and other variations in demand may require price adjustment occasionally, even though annual supplies greatly exceed demand.

Due to the lack of any other system for comparison, the question of whether spot market trade prices afford the best estimate of prices which move all butter through market channels is difficult to answer. Perhaps a discussion of relationships between spot market and open market activities will provide some clues. Suppose a primary receiver receives more butter from his regular suppliers than he can dispose of in regular outlets. He may offer the excess in the wholesale market at the going price. (The wholesale open market price moves with the spot market price but at a margin of about one-half cent.) If he cannot dispose of it at the going price, he may offer it at a lower price.

If the receiver continues to receive more butter than he needs at the quoted market price, he can step into the spot market and offer to sell at a lower price. If a sale is made or the offer is not accepted, a new quotation is established. The new quotation will encourage other primary receivers and wholesalers to buy butter from the primary receiver with excess supplies. It also will ultimately lower the price to consumers which then will stimulate consumption and increase quantities sold to regular outlets by all intermediate handlers.

Because these intermediate handlers are few in number and control a large share of the butter trade, they can readily determine the tone of the markets. They can assess what price is necessary to move all butter through marketing channels. Therefore, the exchange provides a mechanism for quickly bringing about needed price adjustments with small quantities actually traded. If one firm's assessment of the tone of the market and trading activities on the exchange are incorrect, others undoubtedly will make proper compensating adjustments.

Futures Trading of Butter

The Chicago and New York Mercantile Exchanges also provide for butter futures contracts. These contracts are for a specific grade, quantity, and point of delivery and receipt of butter at some future month. These trades deal with the time aspect of butter prices. Futures contracts provide hedges for butter handlers who make forward commitments for delivery or forward sales. These contracts also eliminate some risk involved in storing butter. Speculators also are active in this trading.

In the past decade, the volume of futures trading was relatively small because the government price support program eliminated the risk of price change during storage (see table 9). Moreover, the government performs some storage.

Table 9. Monthly volume of butter futures trading on all contract markets combined, United States, 1946-47 to 1964-65

Year	July	August	September	October	November	December	January	February	March	April	May	June	Total
	number of carlots												
1946-47	0	0	0	3	18	48	105	141	335	436	541	1,932	3,559
1947-48	2,448	2,251	2,565	2,789	2,180	1,653	1,421	641	630	1,796	1,669	598	17,377
1948-49	1,990	2,218	2,335	3,117	2,524	1,900	1,480	477	328	132	278	598	17,377
1949-50	402	336	246	429	621	118	119	11	19	16	43	73	2,433
1950-51	69	59	38	36	85	131	268	316	301	479	802	652	3,236
1951-52	742	529	775	1,090	1,380	1,663	963	140	233	146	281	426	8,368
1952-53	953	759	650	1,480	921	1,300	786	185	157	21	61	20	7,293
1953-54	6	4	12	28	11	1	1	4	2	18	19	9	115
1954-55	1	15	17	3	9	0	0	0	0	21	17	14	97
1955-56	15	4	19	25	10	0	0	0	0	0	0	0	73
1956-57	0	0	0	0	2	0	0	0	0	0	0	0	2
1957-58	0	0	0	0	0	0	0	0	0	0	0	0	0
1958-59	0	0	6	8	5	0	0	0	0	0	0	0	19
1959-60	0	17	7	3	3	2	0	0	0	0	0	0	32
1960-61	0	0	0	0	0	0	0	0	0	0	0	0	0
1961-62	0	0	0	0	0	0	0	0	0	0	0	0	0
1962-63	0	0	0	0	0	0	0	0	0	0	0	0	0
1963-64	0	0	0	0	0	0	0	0	0	0	0	0	0
1964-65	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: USDA. Annual Reports. *Commodity Futures Statistics.* Commodity Exchange Authority.

Since February 1966, butter supplies have been reduced considerably over what they were in previous years for the same months. At times, market prices have been considerably above the support level. As a result, butter futures contracts are again being traded on exchanges.

The Influence of Price Support Activities

Since World War II, the price support program has played a significant role in butter pricing. The proportions of annual butter production purchased for price support and exported under the Payment-In-Kind Program since 1949 are presented in table 10. More than one-fourth of U.S. butter production was involved in government programs in some years.

Prices at which butter is purchased under the support program vary throughout the nation. The current support price, which became effective June 30, 1966, is 67.25 cents per pound in New York and 66.5 cents in Seattle and San Francisco. Butter at other points is purchased at these prices less 80 percent of the lowest published carlot freight rate for moving the product to these points. The support price is a floor below which the price cannot fall.

Table 10. Government purchases of butter for price support and PIK exports, 1949-65*

Year	Purchases	PIK exports	Purchases and PIK exports as percentage of U.S. production
	— million pounds —		percent
1949	114.3		8.09
1950	127.9		9.23
1951	0.2		0.02
1952	16.1		11.35
1953	358.9		25.42
1954	319.7		22.07
1955	162.4		11.74
1956	164.7		11.65
1957	173.5		12.27
1958	183.8		13.22
1959	123.7		9.27
1960	145.4		10.59
1961	329.5		22.20
1962	403.2		26.23
1963	307.8	0.2	21.69
1964	259.2	72.6	26.47
1965	221.3	55.0	20.66

* PIK = Payment-In-Kind Program. Exporters receive subsidy payments in the form of certificates. These certificates then are redeemed in Commodity Credit Corporation award commodities rather than in cash.

Source: USDA. June 1965. *Supplement for 1963-64 to Dairy Statistics through 1962.* Stat. Bull. 303. ERS. P. 127.

USDA news release.

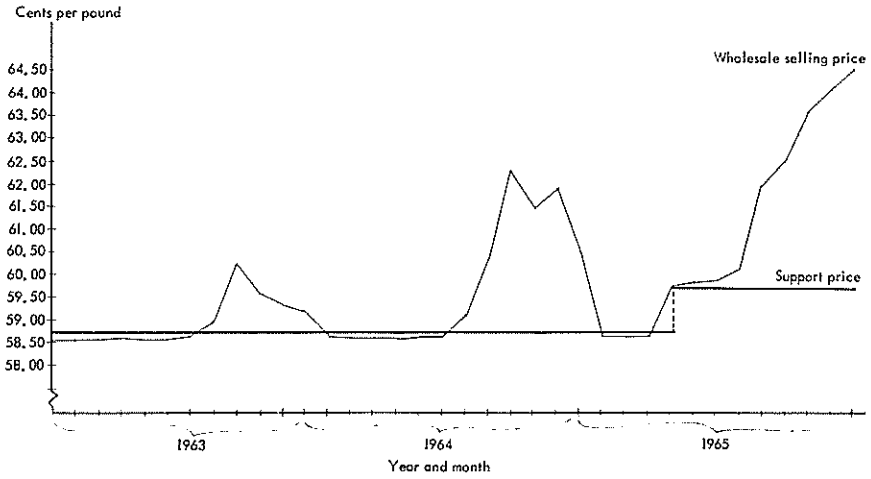

Figure 5. Butter prices: government purchase price and wholesale price in New York, monthly, 1963-65. (Source: Appendix table 3)

While the government holds large uncommitted stocks, the program essentially limits the amount by which prices can exceed the support price. Government stocks in New York, Pennsylvania, New Jersey, New England, and other states bordering the Atlantic Ocean and Gulf of Mexico can be sold currently at 70.5 cents per pound. Stocks in Washington, Oregon, and California can be sold for 69.75 cents per pound and in all other states at 69.5 cents per pound. These prices also became effective June 30, 1966.

Although government programs impose limits on butter pricing, the exchanges still reflect the prices for commercial trades. Price variations do occur, even in years of large surpluses. Because butter production is highly seasonal, shortages and gluts require seasonal price adjustments which are not allowed for under the support program.

Market forces often operate to move butter prices above the support level. As illustrated in figure 5, wholesale prices remained near the support price during flush months of production in 1963-65. During the months of short production, August through November in 1963 and 1964, wholesale prices rose above the support price to about the government resale price. Prices rose above the government resale price in fall 1965 because of depletion of government stock. Wholesale prices for early 1966 were above the support level; the government's role in butter pricing for the year was minor.

In addition to determining price, the support program eliminates some need for storage of large quantities of butter by commercial handlers. If excessive stocks accumulate, the handler sells butter meeting quality requirements to the government. Some large firms can accept all butter shipped to them and still be assured of a market for all butter at a given price. Personnel interviewed for this study indicated that inventory

accumulation is not a serious problem because the government performs the storage function.

Intermediate handlers of butter are the most important sellers to the government. Several handlers specialize in printing and packaging under contract for the government in addition to selling bulk butter for price support only. Some large multiproduct manufacturing dairy firms make government sales but few, if any, small creameries make them. In 1965, 60 firms sold 215 million pounds of butter to the Commodity Credit Corporation (CCC) under the price support program. The largest four firms accounted for 48 percent of all government sales and the largest eight firms for 64 percent.[18]

Prices at the Manufacturer-Intermediate Handler Level

As discussed previously, the manufacturing segment of the butter industry sells into two distinct types of markets: (1) the local market and (2) the primary receiver market. The local market for print butter sales is relatively small, accounting for 8.7 percent of all butter sales by Minnesota creameries in November and December 1965 (see table 6). The primary receiver market is principally an outlet for bulk butter.

Payment plans for manufacturing plants differ among primary receivers. One pays the average monthly market quotation for 92-score butter less transportation for all butter received during the month. Another pays the weekly average price for butter delivered during the week. Another pays the weekly average price following the date of purchase. Extra quality butter receives one-quarter cent per pound from intermediate handlers who base their price on the 92-score quotation.

Methods of assessing transportation charges also vary among buyers. Some buyers purchase butter f.o.b. (free on board) creamery and arrange for transportation. The price paid to the creamery is the central market quotation less transportation costs to the central market. Other handlers require the creamery to ship to the warehouse or printing plant with the creamery paying transportation charges. Then the price paid to the creamery is the central market quotation less transportation between the central market and the warehouse or printing plant.

Firms on the manufacturing side of the market have little or no effect on bulk butter prices received from primary butter receivers. During short supply periods, some receivers pay a one-quarter cent per pound premium over the central market quotation. However, the premium, a strategy of the primary receiver, is not an important practice today.

Structural market characteristics indicate that manufacturing firms lack a strong bargaining position when selling to primary receivers. A large number of sellers, low seller concentration, a highly concentrated group of buyers, and little product differentiation characterize this situation.

[18] These data were calculated from weekly purchase reports of the CCC published by the Minneapolis ASCS office.

Some price leadership at this level among primary receivers is indicated. Two small intermediate handlers stated that they used the central market quotations for purchasing butter. But when setting their prices, they also considered premium and transportation charges of large handlers.

So manufacturing firms are generally "price-takers" for bulk butter. However, as mentioned earlier, the existence of large cooperative intermediate handlers protects manufacturing plants from exploitation.

Average prices received by Minnesota creameries for bulk butter sales were 62.65 cents per pound in November and 61.52 in December 1965. The range in November was about 3 cents per pound, from 60.83 to 63.90; in December it was about 5 cents, from 58.44 to 63.43.

When selling print butter, the manufacturing plant's bargaining position is somewhat stronger than when selling bulk butter. For the sample of Minnesota butter plants, about 5 percent of all butter sold to primary receivers went as print butter. Although prices were based on central market quotations, the manufacturing plant bargained on the markup over the quotation for printing and packaging. Sometimes the buyer and sometimes the seller furnished packaging materials for this butter.

Prices for print butter sales to primary receivers averaged 64.44 cents per pound in November and 63.74 in December 1965, 1.79 and 2.22 cents per pound more than bulk butter prices. The range of prices also was greater for print sales, from 62.92 to 69 cents in November and from 61 to 67 cents in December.

Manufacturing plants are in their strongest bargaining position on print butter sales in their local areas. In addition to cost advantages when selling locally, the plant may benefit from a preference by local buyers for locally produced products. Local buyers include other dairy plants, grocery stores, milk and cream producers for the plant, and individuals who buy direct from the manufacturing plant. Although these sales are only a small proportion of all butter sales, they provide the highest total return per pound to the plant.

In the local market, the manufacturing plant avoids many costs incurred by regular butter wholesalers. There are no assembly costs, no storage costs, and only minimum transportation costs. The manufacturing plant can set a price between the bulk price plus printing and packaging costs and the price which local buyers would have to pay nonlocal suppliers. This price may range up to 8 cents per pound. Minnesota manufacturing plants received average prices of 65.09 cents and 65.64 cents per pound for November and December 1965, respectively, for local print butter sales.

Prices at the Intermediate Handler-Retailer Level

Pricing at this level of the butter market is also based on the central market quotations. Dealer brand butter is sold to retailers or other wholesale distributors at a fixed markup. This margin is calculated to cover costs of assembly, printing, packaging, storing, handling, and dis-

Table 11. Carton and wrapper cost for printed butter, 1965

Quantity of purchased materials for following pounds of butter	Per unit parchment wrapper and carton cost for quartered butter (cents per pound)
50,000	2.55
250,000	2.08
500,000	1.92
5 million	1.65

Source: Calculated from pricelists of Minneapolis-St. Paul dealers.

tributing. Costs vary depending on the services involved. Some dealer brand butter is distributed directly to retail stores; some is delivered to chainstore warehouses.

Price varies according to the kind and volume of packaging materials purchased. Substantial quantity discounts exist with cartons and wrappers (see table 11). In 1965, packaging costs varied from 2.55 to 1.65 cents per pound for 50,000 to 5 million unit purchases of packaging materials.

In some private label arrangements, the buyer provides packaging materials. When the intermediate handler purchases packaging materials, the retailer usually agrees to take all unused materials if the firm should end the arrangement.

Private label printing and packaging are important to most intermediate handlers. When interviewed for this study, several handlers reported that 90-95 percent of their printed butter was packaged under private label. In 1964, a canvas of 188 chainstores in eight midwestern states found that 75 percent carried a private label butter. The average number of private labels carried per store was 1.6. And, in those stores having private label butter, 55 percent of the shelf space allocated to butter was for private label.[10]

Prices for private label butter are usually less than prices for dealer brands. Since promotional costs are not included in costs for private label butter, the handler can pass the savings on to the buyer.

In intermediate handler-retailer transactions, bargaining power advantages usually lie with chainstore buyers. Since chainstores are large volume buyers, they can greatly affect the handler's volume. However, the reverse is not true. The private label also allows the chainstore to switch suppliers without customers knowing it. Interviewed personnel of five intermediate handlers stated that chainstores were dominant in bargaining relations.

Intermediate handlers apparently cannot extract more than a normal profit from their operations. If these handlers could extract more than a competitive return from the market, wholesale margins among markets

[10] These data were provided by the North Central Regional Committee on Dairy Marketing, NCM-26.

Table 12. Retail and wholesale margins for butter in four cities, 1960-65

City	Wholesale margin for butter in one-quarter-pound prints, parchment or foil wrapped in cartons, grades A and AA						Retail margin for butter in one-quarter-pound prints, parchment or foil wrapped in cartons, grades A and AA					
	1960	1961	1962	1963	1964	1965	1960	1961	1962	1963	1964	1965
	cents per pound											
Los Angeles	9.91	9.72	9.12	7.88	8.57	9.96	8.9	5.3	7.3	7.5	6.2	5.3
Philadelphia	10.47	9.35	9.78	9.39	8.68	8.67	4.2	4.3	5.6	6.3	3.7	3.9
Pittsburgh	9.67	10.75	10.80	10.89	10.21	10.72	7.3	6.2	9.3	8.9	7.9	8.1
San Francisco	9.56	10.01	9.28	9.54	10.38	10.47	8.6	5.5	9.1	8.1	5.1	4.8
	high margin as percent of low margin											
	104	115	118	138	121	124	212	144	166	141	214	207

Source: Calculated from data in: USDA. Annual summaries, 1960-65. *Dairy and Poultry Market Statistics.*
USDA. Monthly reports, 1960-65. *Retail Food Prices by Cities* and *Estimated Food Prices by Cities.* Bureau of Labor Stat.

might vary greatly. But wholesale margins among markets are relatively similar (see table 12). During 1960-65, the maximum difference in margin was about 3 cents per pound occurring in 1963. In other years, the maximum difference was about 2 cents per pound. These amounts easily could be accounted for by cost differences for transportation, packaging, and printing.

Prices at the Distributor-Consumer Level

Compared to other market levels, butter prices in retail stores are less easily tied to actual costs and market quotations. Stores usually try to maintain some overall markup on all items; some markups exceed the average and some fall below. Prices are often set for a fixed period—a week or more is not uncommon. Although butter prices at other market levels may change substantially through the period, retail prices may remain stable.

Competitors' butter prices are also considered in retail pricing. However, the area of competition is much more local for the retailer than for other levels of the market channel where the markets are regional or national in scope.

Retail prices are set according to type of brand. Butter stocks in chainstores usually include one or more private label brands, one or more dealer brands with a nationwide distribution, and one or more local dealer brands. Private label butter is sometimes sold at a higher price than dealer brands but usually sells for less (see table 13). In 130 midwestern stores in 1964, the private label price exceeded the dealer brand price in only 9.6 percent of the stores. It was less than the dealer brand price in 85 percent of the stores. Dealer brand prices exceeded private label prices by from 2.1 to 10.0 cents per pound in 53.1 percent of the stores.

Retail margin differences among markets tend to support the hypothesis that the retailer's area of effective competition is more localized than the other market levels. In some markets, retail margins were more than twice as much as in other cities (see table 12). The high margin market as a percent of the low margin market ranged from 141 to 214 percent for the retail margin. But the range was only 104 to 138 percent for the

Table 13. Price comparisons between private label and dealer brand butter in 130 midwestern food stores, summer 1964

	Private label higher by 0.1-13.0 cents	No difference	Private label lower by (cents)			
			0.1-2.0	2.1-5.0	5.1-10.0	10.1 or more
Number	10	7	19	46	36	12
Percent	7.7	5.4	14.6	35.4	27.7	9.2

Source: These data provided by the North Central Regional Committee on Dairy Marketing (NCM-26).

intermediate handler margin in these same cities. These aggregate type data cover many cost differences which may account for margin differences. Nevertheless, it may be difficult to account for observed cost differences of this size among cities on the basis of just differences in stores and retailing practices among the cities.

Table 14. Retail butter prices, United States and selected cities, 1960-64

City	Annual average price				
	1960	1961	1962	1963	1964
	— — — cents per pound — — —				
United States	74.9	76.3	75.2	75.0	74.4
Atlanta	80.5	82.2	81.5	80.4	.....
Baltimore	76.4	77.1	75.9	74.8	73.7
Boston	74.6	76.5	75.2	74.7	73.3
Chicago	74.6	76.4	74.9	75.8	76.5
Cincinnati	77.5	69.5	79.1	78.9	.....
Cleveland	75.8	76.0	75.0	75.1	74.1
Detroit	73.6	74.4	72.0	72.1	70.9
Houston	82.7	83.3	83.1	83.4	.....
Kansas City	74.8	75.5	74.9	74.8	.....
Los Angeles	79.4	79.6	76.8	75.5	75.9
Minneapolis	69.7	70.7	69.3	69.1	.....
New York	73.8	75.3	74.1	73.9	73.5
Philadelphia	74.9	76.2	74.9	75.0	72.5
Pittsburgh	78.4	79.4	79.6	79.0	78.2
Portland	72.0	72.6	70.9	70.0	.....
St. Louis	79.5	80.9	79.9	78.6	79.0
San Francisco	78.7	79.3	78.7	77.3	76.6
Seattle	74.3	74.8	73.3	72.8	.....
Washington	75.2	76.3	74.0	73.7	73.5

Source: USDA. Monthly reports, 1960-64. *Retail Food Prices by Cities and Estimated Food Prices by Cities.* Bureau of Labor Stat.

Table 15. Rail freight rates for butter from Minneapolis to selected cities, July 1964

From Minneapolis to the following:	Carlot rail freight rate for butter per cwt. for cars of indicated minimum size in pounds					
	30,000	35,000	36,000	40,000	50,000	60,000
	— — — — — dollars per cwt. — — — — —					
New York	.....	1.48	.....	1.33	1.26	.....
Chicago	0.54½	0.50½	.....	0.48½	0.41½	.....
Atlanta	1.53	.....	.....	.....	.....	.....
Boston	.....	1.49	.....	1.34	1.27	.....
San Francisco	2.58	.....	2.27	2.07	.....	1.52
Philadelphia	.....	1.48	.....	1.33	1.26	.....
Pittsburgh	.....	1.33	.....	1.23	.....	.....

Average retail prices in cities lend more support to the hypothesis. Butter prices in 1963 varied as much as 14.3 cents per pound among major metropolitan markets (see table 14). Yet the maximum freight charge from Minneapolis to these markets seldom exceeded 2 cents per pound (see table 15).

Numerous disparities exist in the structure of retail butter prices by cities (see table 14). For example, the Chicago wholesale butter price is less than the New York price by about the amount of the freight charge. Government support prices are calculated on this basis. Nevertheless, retail butter prices in Chicago exceeded New York retail butter prices in 1960-64.

Summary and Conclusions

This report mainly describes price and organizational characteristics of butter markets. Its purpose is to provide information for evaluating the overall efficiency of this pricing and marketing system.

The greatest change in the market channel for butter has occurred at the manufacturing level. From 1953 to 1965, plant numbers decreased 55.1 percent for the entire United States and 50.2 for Minnesota. Since total butter production has showed little change, average production per plant has increased greatly.

Many creameries are still below a size necessary for minimum production costs. About 80 percent of all U.S. butter plants and more than 84 percent of all Minnesota butter plants produced at less than optimum volume in 1963.

Manufacturing plants sell butter mainly in bulk form to primary receivers (firms that assemble butter from manufacturing plants). This type of sale accounted for 87 percent of all butter sales of Minnesota creameries in November and December 1965. Most plants sell a small proportion of their butter in print form in local areas. A few plants also sell printed butter to large primary receivers.

The primary receiver level of the market is characterized by a relatively small number of firms. Only 18 primary receivers assembled butter from a sample of 190 Minnesota creameries in November and December 1965. Cooperative sales agencies were the most important primary receivers, accounting for 46 percent of all butter purchased from Minnesota creameries by primary receivers. Four other types of primary receivers also assemble butter: specialized butter wholesalers, chainstore buyers, national dairy companies, and meatpackers.

Primary receivers perform several market functions. Besides assuming price risk, they assemble, print, package, distribute, and store butter. At one time, several primary receivers had brand names with wide national acceptance. But processor brands have given way to private labels of buyers; this trend apparently is continuing.

Pricing of butter, like pricing of several other agricultural commodities, is tied to central market quotations. Of all bulk butter marketed by 190 Minnesota plants in November and December 1965, 96 percent was priced on the basis of these quotations. The quotations are based on trading activity of either the Chicago Mercantile Exchange or the New York Mercantile Exchange. Although only small quantities of butter move over the exchanges, 0.1 percent in 1965, prices for butter at country manufacturing plants are based almost exclusively on these quotations. Buying prices of food wholesalers, food chains, and food stores usually are quoted as a margin over the central market quotation. The margins for printing, packaging, and other services are the only other items for bargaining between the parties.

This present study led to several conclusions regarding the butter segment of the dairy industry:

● Large numbers of butter manufacturing plants with volumes below that necessary for near minimum average unit production costs imply excessive manufacturing costs for the industry. Solution of this problem requires either (1) the elimination of inefficient operations by their going out of business or (2) consolidation of small operations into units large enough for efficient operation. However, consolidation and merger opportunities are not always available.

● The intermediate handler level of the butter marketing channel, consisting of primary receivers and specialized butter wholesalers, probably could reduce marketing costs by contracting for country printing and packaging. Moreover, large butter manufacturing plants could be competitive in direct marketing of printed butter to retail food chains and food wholesalers. This situation also would eliminate costs of bulk packaging and transportation to central printing locations.

Nevertheless, intermediate handlers would still be required to perform several market functions. They would store butter and move it out of storage to adjust seasonal supply to demand. They would assume price risk while storing butter. They would play a role in formation of butter prices. These roles require financial resources and specialization that usually can be provided only by large intermediate handlers.

● Use of the central market quotation as a basis for butter prices appears to be as good a reflection of butter supply-demand conditions as available. Although only a small proportion of total butter production is traded on exchanges, anyone can trade on them through clearing-house members. The firms actually trading are often in the best possible position to evaluate supply-demand conditions.

While the government has been a dominant factor in determining butter prices since World War II, the commodity exchanges still have reflected these prices to the trade. Also, the exchanges reflect price changes which are necessary to move butter in and out of storage because of seasonal production patterns, even though annual production exceeds domestic commercial demand at the support price.

● Margin estimates for butter marketing beyond manufacturing plants point to higher than necessary returns to retailers in some U.S. cities. Because pricing of any single product in a retail store is part of its overall pricing policy, it is difficult to determine what type of policy, if any, would reduce the margins.

Appendix Tables

Appendix table 1. U.S. creamery butter production, 1920-65

Year	U.S. creamery butter production	Year	U.S. creamery butter production
	pounds		pounds
1920	937,190	1943	1,673,788
1921	1,138,408	1944	1,488,502
1922	1,226,437	1945	1,363,717
1923	1,327,101	1946	1,171,339
1924	1,423,116	1947	1,329,094
1925	1,462,924	1948	1,210,324
1926	1,511,537	1949	1,412,111
1927	1,580,647	1950	1,386,408
1928	1,542,603	1951	1,202,981
1929	1,641,707	1952	1,188,170
1930	1,625,864	1953	1,412,109
1931	1,694,236	1954	1,448,872
1932	1,725,373	1955	1,382,914
1933	1,795,010	1956	1,413,344
1934	1,727,844	1957	1,414,060
1935	1,671,509	1958	1,389,575
1936	1,666,070	1959	1,334,385
1937	1,662,374	1960	1,372,901
1938	1,798,404	1961	1,484,126
1939	1,781,737	1962	1,537,143
1940	1,836,826	1963	1,420,149
1941	1,872,183	1964	1,442,400
1942	1,764,054	1965	1,337,100

Source: USDA. Feb. 1962, June 1965. *Dairy Statistics* and *Supplement for 1963-64.* Stat. Bull. 303. ERS.

USDA. Mar. 1966. *Dairy Situation.* ERS. P. 2.

Appendix table 2. Per capita butter and margarine consumption, United States, 1909-65

Year	Per capita consumption		Year	Per capita consumption	
	Butter	Margarine		Butter	Margarine
	– – pounds – –			– – pounds – –	
1909	17.8	1.2	1938	16.6	3.0
1910	18.3	1.6	1939	17.4	2.3
1911	18.6	1.1	1940	17.0	2.4
1912	16.6	1.5	1941	16.1	2.8
1913	16.5	1.5	1942	15.9	2.8
1914	17.0	1.4	1943	11.8	3.9
1915	17.2	1.4	1944	11.9	3.9
1916	17.3	1.8	1945	10.9	4.1
1917	15.7	2.7	1946	10.5	3.9
1918	14.1	3.3	1947	11.2	5.0
1919	15.2	3.4	1948	10.0	6.1
1920	14.9	3.4	1949	10.5	5.8
1921	16.3	2.0	1950	10.7	6.1
1922	17.1	1.7	1951	9.6	6.6
1923	17.8	2.0	1952	8.6	7.9
1924	17.8	2.0	1953	8.5	8.1
1925	18.1	2.0	1954	8.9	8.5
1926	18.3	2.0	1955	9.0	8.2
1927	18.3	2.3	1956	8.7	8.2
1928	17.6	2.8	1957	8.3	8.6
1929	17.6	2.9	1958	8.3	9.0
1930	17.6	2.6	1959	7.9	9.2
1931	18.3	1.9	1960	7.5	9.4
1932	18.5	1.6	1961	7.4	9.4
1933	18.2	1.9	1962	7.3	9.3
1934	18.6	2.1	1963	6.9	9.6
1935	17.6	3.0	1964	6.8	9.7
1936	16.8	3.1	1965	6.5	9.8
1937	16.8	3.1			

Source: USDA. Feb. 1962, June 1965. *Dairy Statistics* and *Supplement for 1963-64*. Stat. Bull. 303, ERS.

USDA. Feb. 1966. *The National Food Situation*. ERS.

Appendix table 3. Butter prices: government purchase prices and wholesale prices, New York, monthly 1963-65

Year	January	February	March	April	May	June	July	August	September	October	November	December
	cents per pound											
1963 support price	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75
1963 New York wholesale price	58.62	58.62	58.62	58.68	58.64	58.62	58.73	59.00	60.30	59.62	59.34	59.26
1964 support price	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75
1964 New York wholesale price	58.74	59.67	58.65	58.62	58.67	58.71	59.14	60.40	62.30	61.55	62.94	60.45
1965 support price	58.75	58.75	58.75	59.75	59.75	59.75	59.75	59.75	59.75	59.75	59.75	59.75
1965 New York wholesale price	58.68	58.74	58.74	59.53	59.75	59.88	60.18	62.05	62.67	63.62	64.09	64.55

Source: USDA. Mar. 1964, Mar. 1965. *Dairy and Poultry Market Statistics.* Stat. Bull. 342 and 355. AMS. C&MS.
USDA. Mar. 1966. *Dairy Market Statistics, 1965.* Stat. Bull. 371. C&MS.
USDA. June 1965. *Supplement for 1963-64 to Dairy Statistics through 1962.* Stat. Bull. 303. ERS. P. 128.