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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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**Factors Impacting the Future of the
Dairy Subsector**

5
Chapter

This section gives a look ahead from the perspective of both policies and institutions performing milk production and marketing functions. Emphasis will be placed on institutions and policies having implications for changes in structure, coordinating mechanisms, pricing, and control.

The Politics and Policies of the Dairy Subsector

The dairy industry is among the most highly regulated of any industry in the U.S. economy. From the previous discussion it is evident that government policies have had and continue to have major influence on the structure of the dairy industry including its coordinating control and pricing processes. Many of these institutions are currently being challenged. In many respects the issue *is one of control and influence over the system*.

Present government institutions in the dairy industry grow out of depression conditions of the 1930's and before. The institutions were designed to: (1) stabilize prices at a level which would assure adequate milk supplies; and (2) foster within the producer sector a basis for self-help in the cooperative system. Over the years cooperatives have begun to mature. They have become relatively large farmer-owned and controlled businesses. In some areas they have acquired the power to influence or even establish price. They have become more bold and aggressive in their approach to Washington politics.

In the process many charges have arisen against both dairy cooperatives and dairy policies. Consumer groups and certain government agencies are asking the industry to justify its institutional arrangements. At a minimum they desire a larger voice in program decisions. At a maximum they desire to control the regulatory process to see that it is run in what they consider to be the public interest. What will prevail is likely a compromise—one which could involve either more or less government but will likely involve more consumer influence and control.

The purpose of this section is to discuss the current and prospective status of government policy with regard to the dairy industry. Since the outcome is considered to be heavily influenced by changes in the forces affecting the process of policy formulation, this is where we begin our discussion. Subsequently, specific issues will be developed and discussed.

FORCES AFFECTING FOOD AND DAIRY POLICY

The change in terminology from the use of the words "agricultural policy" to "food policy," reflects a change in the politics of agriculture. Dairy policy is an integral part of food policy. Forces affecting food policy affect dairy policy and

vice versa. This was emphasized by the generally conceded notion that Congress could have overridden the veto of the 1975 farm bill were it not for perceived excesses in dairy and cotton program provisions.

In looking at the politics of agriculture, it is apparent that there has been a dramatic increase in the number of people interested in food policy over what existed in the 1950's and 1960's. The new people interested in food policy are from outside agriculture—from within government such as the Secretary of State, the Secretary of the Treasury, the Council of Economic Advisors, the Justice Department, and the Federal Trade Commission; and from outside government such as consumer groups, labor organizations, and self-appointed watchdog groups such as the Agribusiness Accountability project and Common Cause. These same groups have become vitally interested in dairy policy issues. For example, the stimulus for antitrust investigation of cooperatives, charges of undue price enhancement, and questioning of federal milk orders has come from the Justice Department and the Federal Trade Commission.

Three basic reasons exist as to why these groups have become interested in dairy policy.

- (1) Food has become a key to maintaining the value of the dollar in international transactions. In 1976, food contributed approximately \$11 billion to our balance of trade. At a time when oil prices are rising and industrial trade is confronted with increased competition and a world recession, this contribution has been critical to maintaining a strong dollar. Maintaining high levels of agricultural exports has not only become a national goal but a necessity. Free trade in agricultural products has become increasingly critical to the U.S. economy. It was with this realization that the Flanigan report, indicating a willingness to trade lower U.S. dairy import quotas for trade concessions by other countries in other products, was written.
- (2) From 1972 to 1975 about half of the contribution to inflation was due to rising farm prices. Retail dairy prices increased 34%. Substantial governmental efforts were made to bring inflation under control. Dairy prices were slow to respond to rising feed costs. Requests for increases in support prices and federal order prices were rejected. Increased dairy imports were authorized. Most of these decisions were either made outside USDA or by the Secretary of Agriculture with the realization that administration policy was to put a lid on prices in the short run. During this period consumers found that they were spending an increasing proportion of their income on food—from 15.4% in 1972 to 17.0% in 1975. Consumers wondered what they could do about rising food prices. They thought an answer existed in their ability to influence food programs. Consumer groups began to raise questions about the public interest aspects of large cooperatives and marketing orders.

Labor's interest in food and dairy policy is closely related to the consumer interest. The vast majority of the financial support for the consumer movement comes from organized labor. This fact is a key to understanding why it is that Ralph Nader will attack big business and big cooperatives but never utter a word about big labor. It is the reason why when organized labor changed its position on the 1975 farm bill, which would have raised dairy price supports to 85% of parity, consumer groups also changed their positions.

The question is whether this intense level of consumer and labor interest will continue as farm and food prices moderate as a contributing factor to inflation. One disturbing factor in this picture is the tendency for retail prices paid by consumers for food, including milk, to hold constant or even rise despite falling farm prices. Such inconsistencies generally reflect constant upward pressure on costs of procurement, processing and marketing.

- (3) Both implicitly and explicitly people believe that a *right* exists for people to have an adequate quantity of food to avoid malnutrition. Such a right was realized in the U.S. in the early 1970's with dramatic increases in the food stamp, school lunch, and child nutrition programs. As indicated previously, these programs have substantial positive impact on milk consumption. Today pressure exists to expand this concept to international dimensions. If done on even a moderate scale the implications for the dairy industry could be substantial—but not easily determined. On the one hand, large increase in P.L. 480 shipments of dairy products might be anticipated. On the other hand, pressure might exist to reduce the use of grains as animal feed and increase human consumption of grain.

These changes in the economic forces affecting food policy have brought about a realignment of the forces affecting the process of policy formulation. Changes have occurred both in the Executive and the Congress. In the Executive branch, there has been a proliferation of agencies involved in food policy decisions. Latest estimates indicate that from 26 to 35 separate agencies other than USDA are involved in decisions that directly affect agriculture. Recent additions include OSHA, EPA, and the Council on Wage and Price Stability.

In the process of this proliferation of decision points, the influence of the Secretary of Agriculture has naturally declined. The proliferation of agencies and increased involvement of the Secretary of State led to the formation of the Agricultural Policy Committee during the Ford Administration. This committee encompassed many of the decision makers that directly influence food policy. While the Secretary of Agriculture was chairman, other members included the Secretaries of State, Treasury, Commerce, Council of Economic Advisors, OMB, Consumer Affairs Advisor, Council on International Economic Policy, Special Trade Representative, Presidential Assistants for Economic Affairs, Domestic Affairs, and National Security. The need for this committee serves to emphasize the increased number of con-

siderations in food policy decisions of the Executive branch of the federal government. The sensitivity of food policy decisions in both domestic and international dimensions makes it likely that similar formal or informal structures will exist in future administrations. Thus dairy pricing program decisions will likely continue to be influenced by a variety of domestic and international interests.

Something similar, but not as dramatic, has happened in Congress. The number of committees and offices involved in food policy issues has expanded to include the Senate Committee on Nutrition and Human Needs, House Judiciary Committee, Committee on Science and Technology, Congressional Budget Office, and Office of Technology Assessment. At least of equal significance is the change in the membership of the House Agriculture Committee to include considerable urban representation—particularly from the Northeast. In the process, the dairy industry has lost support on the House Agriculture Committee to urban interests. It lost a strong supporter when Congressman Mills was stripped of power on the Ways and Means Committee.

These reductions in influence will not be easily recouped. While in part a result of unfortunate short-term developments, they reflect a long-term trend toward reduced support for institutions that have been important to the milk industry since the early 1900's as pricing and coordination instruments. Over time there will likely be increasing pressure to place dairy programs in the same basic mold as the other farm programs. This will place increased responsibility on cooperatives to perform functions currently performed by government. Alternatively, there could be a move toward increased regulation with increased consumer influence. A move in either direction has significant control, coordination and pricing implications.

Dairy Policy Issues

The changed political environment for food and dairy policy formulation has raised a number of critical policy issues with respect to the milk industry.

Four issues appear to be particularly critical and warrant in-depth discussion. They relate to international trade policy, antitrust policy, marketing orders, and support prices. It can readily be ascertained that these policies form the basis for much of the current dairy policy undergirding.

INTERNATIONAL TRADE POLICY

The increased importance of exports of agricultural products to the United States and its basic free trade posture creates an inconsistency with our dairy import quotas. When combined with rising prices and tight supplies, the result was a government decision to substantially increase imports of dairy products. Dairy imports reached a peak of 2.3% of production in 1966 and 3.3% in 1973. This compares with less than 0.7% in previous years. Efforts to get the Department

of Treasury to impose *mandatory* countervailing duties on subsidized dairy products from the Common Market countries were accomplished only after action by dairy interests in court.

From 1972 to 1975 there were calls by the Council of Economic Advisors, Executive Office of the President, and the Secretary of Agriculture for freer trade in dairy products. In 1976 the Deputy Special Trade Representative in charge of the Multilateral Trade Negotiations indicated that the U.S. stands ready to make concessions in dairy import policy if such concessions contribute substantially toward freer trade in agricultural products.

How would the U.S. producer fare under a system of free world trade? This question has been extensively studied by USDA. The basic conclusion reached in these studies is that the initial impact of a U.S. free trade policy would be substantial. Milk prices would be reduced 22%, imports would increase to 11% of U.S. production and net income would fall 59%²². New Zealand and Australia can put manufactured products in the U.S. supermarkets cheaper than our industry. New Zealand could capture a substantial share of the U.S. manufactured products market if it had unlimited supplies. But its production is only 8% of U.S. production. Australia's production is only slightly larger. Yet there is little question that the elimination of quotas would mean lowered manufactured product prices and thus lower prices for milk for manufactured purposes.

Impacts would also be felt by the processing sector—particularly smaller proprietary processors and cooperatives would be adversely affected by reduced U.S. production. The effect on large proprietary processors is not as clear. Many of them have multinational operations. Reduced manufactured product production in the U.S. would likely be affected by increased production in countries such as Australia and New Zealand. In the past, major dairy processors have actually been advocates of increased dairy imports in government decision processes.

At current prices subsidized exports from the European Economic Community are a threat. Without subsidies these countries cannot compete with U.S. milk producers. The main tool to prevent such destructive subsidies is countervailing duties.

The future of dairy international trade policy remains uncertain. It likely will be an issue whenever trade negotiations, tight supplies and rising prices develop. Liberalizing trade in dairy products has direct implications for the price support program. If the U.S. dairy industry were thrust into a free trade posture, the

²² Assumes no dairy import quotas or price support program in the U.S. Other countries would be free to pursue their own policies. Results would be similar whether countervailing duties are levied or not. USDA, [66].

major burden for facilitating adjustment of domestic supply and demand would likely fall on the cooperatives.

PRICE SUPPORTS

Ultimately, the undergirding for prices and income in the milk industry lies in the price support program. In this program, USDA stands ready to purchase any excess supplies of butter, nonfat powder, or cheese at the specified support prices. It is, in fact, this commitment which, at least in part, makes import quotas on dairy products a virtual necessity whenever the support prices for these products are above the world price. The support price is currently required to be maintained between 80 and 90% of parity.

Support pricing decisions came under considerable controversy and discussion in 1971 when a decision of the Secretary of Agriculture to hold the line on price supports was reversed by President Nixon. Recently, however, most price support initiatives have come from Congress by raising the minimum support level.

Milk price supports are not in the basic target price-support price framework of the general farm programs. This could be an alternative to the present program if import quotas were substantially increased or eliminated.

Also, the level of government expenditures for dairy programs has over time been an important constraint on the level of price supports. With increased concern about government expenditures and cost of farm programs, this upper constraint could become even more critical in the future.

ANTITRUST POLICY

Issues of antitrust policy arise with respect to the national dairy companies, super-market chains, and cooperatives. Many of these issues relate directly to questions of coordination and control of the dairy industry.

National dairy companies have been the subject of extensive antitrust litigation and regulation. Much of this litigation grows out of extensive acquisitions made by these concerns during the 1920's, 1930's, and 1940's. After the passage of the Celler-Kefauver amendment to Section 7 of the Clayton Act, a suit was brought against several national dairy concerns alleging lessening of competition resulting from the acquisitions. These suits ended in consent decrees that were imposed in 1962. The decrees prohibited the national concerns from acquiring any other dairy concern for a 10-year period without prior FTC approval. Hardly any further acquisitions were approved. The decrees were extended in 1972 with little change in basic underlying philosophy and policy.

In the meantime, two major changes had occurred in the structure of the dairy industry. First, the national dairy companies had diversified to the point where dairy products were frequently less than one-third of total assets and sales. Second, food retailers had become a dominant factor in the milk industry by virtue of its control of shelf space, development of private labels and integration into fluid milk processing. The advent of chain integration into milk processing led to an initial challenge of integration on antitrust grounds. However, the court held that since the integration resulted from internal firm growth and did not involve substantial market shares, it was not in violation of the antitrust laws. As a result of the combined developments of a decline in the national dairy concerns, decline of independent milk processors and the rise of the chain, questions have arisen as to:

- (1) Who is going to serve the needs of the medium and small size milk customer?
- (2) What limits exist to the growth and power of the supermarket chain in the milk industry?
- (3) How do producers organize to serve the fluid milk needs of as well as offset the power of increasingly large buyers of milk?

Antitrust activity against dairy cooperatives dates back to judicial findings in the early 1900's that organizations of producers in bargaining associations constituted a violation of the Sherman Act. This determination provided impetus for passage of the Capper-Volstead Act giving cooperatives the right to be organized by producers of agricultural products. A controversy has always existed as to the extent of exemption provided by the Capper-Volstead Act. In the 1930's, 1950's and 1960's it was established that when cooperatives combine with noncooperatives, they lose their Capper-Volstead exemption. In the 1930's and 1950's it was decided that predatory cooperative practices were not exempt by the Capper-Volstead Act.

In the early 1970's three antitrust suits were filed by the Justice Department against major regional dairy cooperatives alleging monopolization and restraint of trade. These suits have received extensive publicity and analysis. A major 628-page report was written by Eisenstat, Masson and Roddy, Justice Department economists on the AMPI litigation [25]. The report concludes that the structure, conduct, and performance of AMPI substantiate the existence of a monopoly which operates to the detriment of both the nonmember producer and the consumer. The report was particularly critical of cooperative conduct patterns including over-order premiums, the standby pool, full supply contracts, and cooperative pooling practices. It alleged consumer overcharges by AMPI of \$18 million annually for two regions (Northern and Southern) up to 1973 when the alleged rate was \$40 million. The "overcharges" were related to the value of premiums over federal order prices.

This report was subsequently analyzed in depth by three agricultural economists recognized to be knowledgeable on dairy marketing [18]. Cook, Blakley, and

Berry point out among other things that the Masson report was based on a purely competitive static economic model which, of course, does not fit dairy industry conditions. It failed to recognize the concentrated structure of the buyer side of the market which has itself been the subject of extensive litigation. It also failed to recognize either the need for or value of services performed by cooperatives in marketing milk. It ignored the peculiarities of milk as a commodity. It failed to recognize the need for a reserve supply of milk.

Two of the three major cooperatives have entered into a consent decree, and the third is still in litigation. The provisions of the consent decree are extensive and can only be summarized in broadest generalities. The provisions of the AMPI consent decree include:

- (1) A requirement that milk haulers be free to haul nonmembers' milk.
- (2) A prohibition of acquisitions of haulers unless the nonmembers is assured of facilities for hauling on equitable terms.
- (3) Limits voluntary supply contracts to one year, as long as the cumulative effects of such contracts are not anticompetitive.
- (4) Prohibits discrimination against processors who purchase from nonmembers.
- (5) Limits the price differences among processors to those justified by cost.
- (6) Limits the length of a producer marketing agreement to one year with freedom to transfer into production as a nonmember.
- (7) Prohibits qualifying milk for an order with the purpose of coercing the nonmember.
- (8) Requires that for a period of three years the cooperative notify all members when their membership agreement terminates.
- (9) Requires the cooperative market milk for terminating members for a period of three years.
- (10) Prohibits the cooperative from refusing to receive milk.
- (11) Prohibits cooperatives from voting in federal orders as a block where the effect is to terminate an order.
- (12) Prohibits acquiring control of any plant for a period of ten years without prior approval.
- (13) Regulates the operation of the reserve standby pool by opening its membership to any cooperative or nonmember and by making milk supplies available to any handler within the day.
- (14) A requirement that new producers be permitted to earn Class I base. The Class I Base Plan, used in the Southern Region, was terminated December 31, 1977.

The most recent dairy antitrust issue involves the question of whether cooperatives have by virtue of over-order premiums unduly enhanced the price of milk. While the Capper-Volstead Act allows producers to form cooperatives, it prohibits them from unduly enhancing price. Premiums have a long history but expanded persistently beginning in the late 1960's with the expansion of regional cooperatives in the

central and southeast United States. Premiums have been justified on three basic grounds:

- (1) Marketing orders by law only establish minimum prices.
- (2) Cooperatives perform milk procurement, marketing, and surplus handling functions that not only benefit all producers and processors, but were not meant to be included in the federal order price.
- (3) Federal order and support prices have not only been unresponsive to producer income needs but are needlessly variable and unstable.

Charges have been made by processors, antitrust regulatory agencies, and consumer groups that premiums are not only evidence of monopoly power but also of undue price enhancement in violation of the Capper-Volstead Act. The responsibilities for enforcing the Capper-Volstead Act lies with the Secretary of Agriculture. The Secretary has historically enforced Capper-Volstead by investigating complaints of undue enhancement of price. A number of these complaints relate to dairy but there has never been sufficient evidence of undue enhancement to justify a hearing.

Two lines of contention exist with regard to such complaints. One suggests since federal order prices are by law set at a level needed to assure adequate supplies, any premium over federal order prices amounts to undue enhancement [35]. The USDA has rejected this premise on the grounds that enabling marketing order legislation specifically provides for the establishment of "minimum" prices. The other view suggests that while premiums may exist, they have become excessive in certain market situations. Current USDA enforcement strategy recognizes this possibility.

The USDA in 1976 had before it a petition by a consumer group alleging undue enhancement of price by milk cooperatives. The USDA was thus faced with a decision of whether sufficient evidence existed to hold a public hearing on the question. It found no undue price enhancement. However, that finding could be challenged in court or provide impetus for a Congressional investigation of Capper-Volstead enforcement policy.

The future structure of the dairy industry continues to be heavily influenced by questions of antitrust policy largely related to Capper-Volstead issues. Issues of coordination, pricing, and control hang in the balance. Court decisions with regard to cooperative consolidations, integration into milk processing, joint ventures, and over-order premiums will have a decided impact. Absent antitrust constraints, there is no question that both trends and efficiency considerations support concepts of regional cooperatives, increased vertical integration, and joint ventures. Public constraints on adjusting support and federal order prices in concert with economic conditions as well as services performed by cooperatives, dictate over-order premiums.

Repeal or substantial revision of the Capper-Volstead Act would have very adverse consequences for the dairy industry. Concepts of regional cooperatives mergers and over-order premiums would immediately be called into question. At the same time, continuation of a stringent FTC policy against mergers by the major fluid milk processors, raises questions about the future role of the proprietary concerns in the dairy industry.

This maze of forces and potential consequences suggests that cooperatives carefully consider the public policy consequences of their growth strategies [37 pp. 904-912]. Regional cooperatives may increasingly be faced with the reality that internal growth represents the only feasible alternative. Even then, the risk of treble damage or class action suits will be ever present.

Implications of these developments extend beyond the dairy industry. They affect the ability to use the cooperative alternative as a coordinating, pricing, and control instrument throughout agriculture.

MARKETING ORDERS

Like cooperatives, milk marketing orders are also being challenged. However, more is involved than just the attack on orders. A general policy trend exists away from programs designed for specific commodities. Also, milk marketing orders have received adverse spillover effects from fruit and vegetable marketing orders that control production. This relation is aggravated by the existence of a Class I base plan contained in a few milk orders. Production control programs, regardless of their effectiveness, are out of favor with the public and Congress.

Aside from these general effects, specific allegations have been made concerning milk orders. These allegations fall into two major categories:

- (1) Orders unduly raise the price of milk.
- (2) Orders augment the power of cooperatives.

The allegation that orders raise the price of milk originated from a study by an economist named Kwoka [39]. This study found that in 1970 milk prices were 20% higher than competitive levels. The study estimated a social cost to consumers of \$800 million per year and to the economy of \$200 million in terms of resource misallocation.

Like the Masson study, the Kwoka study has come under considerable criticism from agricultural economists and the USDA. Like the Masson study, it failed to recognize the complexity of the milk industry by using a very simplistic model for estimating social costs. Also, it did not consider any of the benefits of marketing orders in terms of supply assurance and orderliness.

There is no question that in a purely static sense, orders raise milk prices. This should not be surprising. Milk orders were designed to stabilize markets and assure adequate supplies. An interagency USDA task force, established in partial reaction to these charges against orders, found that while price enhancement obviously existed, it was not substantial [29]. This conclusion was not, however, based on extensive quantitative analysis. Dobson and Buxton study indicate the net social cost of marketing orders to be approximately \$13.2 million—roughly 2% of the Kwoka estimate [24].

Also there is no question that marketing orders increase the market power of cooperatives in the sense that they assist cooperatives in performing marketing functions on behalf of producers. All producers and consumers benefit from these cooperative marketing functions which are necessary to the handling of a perishable product. Regardless of the logic of the charges, preservation of milk marketing orders stands as a major policy challenge to the dairy industry. Considerable debate exists as to what would happen without milk marketing orders. It seems clear that areas with strong cooperatives would be in much better position to withstand the resulting economic measures. Areas where many competing cooperatives exist could expect substantial instability. Substantial pressures would develop in these areas to consolidate cooperatives.

Related to the overall issue of the cost and need for federal orders are two critical issues with regard to the pricing of milk under federal orders. The first relates to the need for and desirability of the classified pricing system. A major portion of the social cost estimated by the Kwoka study for milk orders relates to the existence of the classified pricing system and the fact that higher prices are charged for milk used for fluid purposes than for milk used for manufacturing purposes. Dobson and Buxton correctly point out that since there is no control over production in the milk industry, if you were to do away with classified pricing there would be a basis in equity for increasing the support price for milk to provide the same producer income. In reality it is difficult to visualize a milk industry without classified pricing. As long as there are substantial quantities of Grade B milk, classified pricing will be required to provide an incentive and reward for Grade A production. Even after all milk has converted to Grade A, imports of dairy products set an upper limit on the level of manufactured product prices. Barriers to imports would have to be substantially tightened if a single price of milk were to be established for all milk. In fact, as discussed above, the forces are in the opposite direction—toward freer trade in dairy products. Free trade in dairy products virtually dictates classified pricing for the same reasons the existence of large volumes of Grade B milk dictates classified pricing.

The second issue relates to the pricing base for changing federal order prices. Federal milk order prices for fluid use have traditionally been a fixed differential over the Minnesota-Wisconsin (M-W) price. When M-W price changed, the other class prices also changed an equivalent amount. The M-W price is thus referred to

as the mover of milk prices. The M-W price, being an average competitive price paid by plants located in Minnesota and Wisconsin for manufacturing grade milk, will however gradually become unreliable and eventually disappear. This will occur as the proportion of manufacturing grade milk continues to decline. Currently 20% of the milk produced in the U.S. is manufacturing grade. The bulk of this is produced in the Minnesota-Wisconsin region where 52% of the milk is still Grade B.

The realization exists that a substitute mover for federal order prices will eventually need to be found. Additional impetus to find a substitute is provided by dissatisfaction in some quarters—particularly the Northeast—with the price instability and price level that has been associated with using the M-W as a price mover.

In 1971 the USDA rejected a proposal by the National Milk Producers Federation to establish an economic formula to move Class I milk prices in federal orders. Economic formulas relate the price of milk to indexes of production costs, consumption, ability to pay, and inflation. In 1972 the USDA established a Milk Pricing Advisory Committee to study the question of alternative milk price movers. It analyzed the M-W price series, economic formulas, and formulas based on the prices of manufactured prices—referred to as product price formulas. It determined that:

- (1) The M-W was still a satisfactory price mover.
- (2) Reliable economic formulas had not been developed but should be studied further.
- (3) If it were necessary to move off the M-W, the best available alternative would be a butter-powder-cheese product price formula [38].

Instability in the manufactured product markets since this study was completed has raised questions in many people's minds about the validity of the product price formula recommendation under today's conditions. Yet the fact remains that the existence of a satisfactory economic formula is still questionable despite efforts of the National Milk Producers Federation to improve on its original economic formula proposal.

It should be noted that the pricing base problem is not unique of milk. It applies to many agricultural as well as nonagricultural commodities. It has been recognized as a problem in eggs and livestock for many years.

Economic Forces Impacting the Future of the Dairy Subsector

Aside from the policy consideration, there are certain basic economic forces currently operating in the dairy industry that have substantial implications for the future structure, control, and coordination strategies. While many of these forces have already been discussed, three seem to be sufficiently important to reempha-

size at this point. They relate to production patterns, vertical market linkages and substitutes.

PRODUCTION PATTERNS

Dairy farm numbers continue to decline across the country. The trend is clearly to larger herd sizes and greater specialization in milk production in all areas. Yet there still exists a basic difference in scale of operation between the major milk producing areas of the South and West as contrasted with the Midwest and Northeast. In the South and West from California to Florida, herd sizes of 300 cows or more have become the rule rather than the exception. At the extreme in California, it is said that a single multifarm operation produces nearly 5% of the milk.

Operations in the South and West are increasingly highly commercialized, sometimes approximating the nature of business operations found in the industrial sector with substantial outside capital, substantial nonfarm interests, largely purchased inputs and the bulk of the labor hired. Despite this increased dependence on inputs from outside the farm operation these farms have been able to compete very successfully in the national milk market. In fact, in California state controlled producer milk prices have risen less rapidly than federal order prices, but yet their proportion of U.S. production continues to increase. From 1970 to 1975 production in the Pacific region increased by 12% while in the U.S. as a whole it decreased by nearly 2% with declines in both the Lake States and the Northeast [62, p.6].

These trends raise several questions. Do such questions set the trend for the future across the country? Some believe that they do. They point to the persistent decline in numbers of dairy farms and corresponding increase in herd size. They point to the fact that dairy farming is becoming increasingly specialized and concentrated in certain production areas. They note that the family labor on which the dairy industry of the Lake States and Northeast is built is gradually disappearing as a free good. In many areas it now is no longer a free good.

While dairy farms of the Lake States and Northeast continue to increase in size, they still maintain a distinctly different character than those of California and Florida. This difference lies in three main areas: (1) size of operation; (2) the reliance on farm produced inputs; and (3) the reliance on family labor. Southern states other than California and Florida lie somewhere between in their stage of development with a generally larger but mixed scale of operation and generally increased reliance on purchased inputs.

How fast will this progression of change occur? What implications does it have for the concentration and regional location of milk production? These are questions which are not easy to answer. However, if, in fact, there is a steady progression toward radically larger scale operations, it could open the door for

new methods of coordination extending even outside the range of the existing cooperative methods. Specific possibilities include direct vertical links by contracts or ownership between conventional processors and/or input suppliers and milk producers. This brings us directly to the question of vertical market structures and linkages.

VERTICAL MARKET STRUCTURES AND LINKAGES

It is apparent from this discussion that vertical linkages in the milk industry are numerous. This is not surprising. The requirements of marketing a highly perishable product such as milk virtually dictates the establishment of vertical linkages between various levels of the market system. The need for such linkages increases as firm size increases, market requirements become more variable, and consumer requirements more stringent. Enduring vertical linkages in the milk industry are established by cooperative membership agreements, supply contracts, and vertical integration by chains and cooperatives. The trend is clearly toward more expanded use of such coordinating mechanisms.

Marketing agreements have existed in milk cooperatives since the early 1900's. They have normally covered a year's production. The difference is that there is increasing tendency to enforce them. Where this is done, producers are finding it more and more difficult to switch from one cooperative or processor to another.

Supply contracts have, as indicated previously, become increasingly prevalent. They exist at three primary levels:

- (1) Contracts have been established between cooperatives and processors to supply them with all or a specified percentage of their milk needs. Such contracts normally extend over a year. They have been the subject of considerable debate and litigation. It is contended by antitrust interests that they potentially foreclose the independent producer from a market.
- (2) Contracts frequently exist between processors, including cooperatives, and major distributors of manufactured dairy products such as Kraft in cheese. Such contracts generally call for cooperatives to deliver all of their production to the processor. Specific provision is made for how the price of the product is to be established. Sometimes such contracts are expanded into a joint venture concept where the processing facility is jointly owned.
- (3) Supply contracts have also become prevalent between processors and retailers of fluid milk. The impetus for such contracts came with the expansion of supermarket milk programs and the related advent of the private label.

The question of who is going to process and distribute fluid milk in the future remains a relatively controversial question. Chain store fluid milk processing continues to increase and expand into by-products. Estimates indicate that 20% of the

fluid milk sold in federal orders is processed by chains. Increased chain processing combined with increasing scale of fluid milk processing plants, continues to place substantial pressure on the position of national, regional, and independent milk companies. Management investment and disinvestment decisions in national and regional concerns will continue to be made based upon the comparative profitability of products, markets, and divisions.

How far is chain processing going to go? Over the past several years chain store fluid milk processing has increased in close relation to the proportion of milk sales through chains. Technologies in milk processing, coordination, and handling in distribution centers and stores continue to favor expanded chain store processing—especially by-product processing. Currently, approximately 35% of the fluid milk in California is processed by chains. It is not beyond one's imagination to visualize chain processors expanding their operations to serve large volume accounts other than their own stores. Examples include the bidding on school milk accounts.

Chains can be expected to continue to expand in the private labeling of cheese. This may involve direct integration into manufacturing. On the other hand, since cooperatives currently are a major force in manufactured products, prospects exist for substantially expanded supply arrangements and/or joint ventures between cooperatives and chains in cheese manufacturing and packaging to specification. If this develops it will represent a significant challenge to proprietary cheese manufacturers and distributors.

Cooperative processing will continue to expand in all areas. Specialty product processing will expand to take advantage of economies of scale and distribution through chains. Cooperatives will gradually expand their processing capability in fluid milk. Some of this expansion may be by default of proprietary processors. One can, however, also anticipate expanded direct internal integration by cooperatives in fluid processing. This will put more and more pressure on the independents and other proprietary concerns.

Turning to the input side of the dairy industry, no one, including most cooperatives, has been particularly active. Cooperatives have tended to focus their attention only on supplies relating directly to milk production and sanitation. The exceptions are organizations such as Land O'Lakes which offer a broader line of supplies and a limited number of cooperatives that offer a full range of supplies, including feed and management services. Services such as least cost formulation of dairy rations and input supply procurement can be anticipated to become more important as off-farm inputs increase in importance. Dairy cooperatives have two main alternatives for accomplishing this. One is to provide a broad supply line in the Land O'Lakes mold with increased services. The other is to contract for these services from another cooperative or even a noncooperative.

The point here is that if there are potential gains in such areas, the question is one of who is going to be first to take advantage of them. The most likely candidates appear to be cooperatives. However, opportunities may exist for significant new thrusts by either chains, proprietary interests, or interests entirely outside the dairy industry such as feed suppliers or artificial insemination firms.

SUBSTITUTES

Dairy product substitutes probably represent the most controversial and debatable variable affecting the future of the dairy industry. There seems little doubt that the competition between dairy products and their substitutes will continue to intensify. The record of dairy products' ability to compete against substitutes has been variable. Bright spots for expanding per capita consumption have been low-fat milk products, cheese, ice cream, and yogurt. Large portions of the butter, sour cream, coffee cream, and whipping cream markets have been lost to substitutes. The scare of the late 1960's concerning the development of a filled milk or non-dairy fluid substitute did not materialize as an acceptable consumer product.

Up to now cheese has had a market pretty much to itself. Newly developing imitation cheese stands as a major challenge to the dairy industry. A number of food concerns have done and are doing considerable research to develop nondairy cheese substitutes. Like many other dairy product substitutes, such products frequently contain substantial casein milk protein. Yet much of the casein is frequently imported. In addition, some of the products being tested contain substantial amounts of soy protein.

Dairy-nondairy price relationships indicate substantial price advantage for nondairy products plus the ability to capitalize on increasing public concern about consumption of animal fats. Nondairy cheeses currently are considered to have their greatest potential in competing for the institutional market in Italian or pizza type cheeses.

Major new inroads by substitutes into dairy product markets have substantial structural implications—the magnitude of which depends on the success of the substitutes in penetrating major markets for dairy products. The overall demand for dairy products and thus the scale of the industry could be directly affected. Industry pricing strategy would be affected by the development of an acceptable cheese substitute—for example, a larger fluid price differential may be required if pay prices for cheese milk were to fall significantly.

Implications, however, extend beyond the producer. The consumer franchise in cheese has been highly concentrated in the hands of a limited number of firms—although it has been eroded somewhat by chain store private labels. Firms that are substantially expanding research and development in dairy substitutes are largely nondairy concerns. However, major national dairy concerns are also work-

ing on substitutes—in part as a defensive strategy. The result is to place much of the burden for promotion and development of new and improved dairy products on the producer and his cooperative.