ECONOMIC TRENDS IN MILK PRICING AND MARKETING

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This paper discusses several contemporary issues relating to the pricing and marketing of milk and dairy products. We begin at the consumer side of the marketing system, looking at trends in consumption of dairy products and their implications for dairy farmers. We then turn to farm milk pricing institutions, separately examining the current status and fate of the dairy price support program and federal milk marketing orders. Finally, we discuss an assortment of other issues that will influence farm milk prices during the next ten years

Changes in consumers and their preferences

There have been pronounced changes in consumption patterns for dairy products during the last 20 years (Table 1). The most dramatic shift in consumption occurred within the fluid milk category, with low-fat milks increasing and whole fluid milk decreasing. Until recently, the fastest-growing low-fat category was 2 percent milk, but growth in skim milk use has outpaced 2 percent in the last two years.

Table 1. Per Capita Consumption of Dairy Products, 1970 and 1990

Product	Consumption in Lbs. 1970	1990	Change, 1970-90 Lbs.	%
Fluid Products:				
Whole Milk	207.2	88.0	-119.2	-57.5
Lowfat Milk	32.6	104.6	71.9	220.4
Skim Milk	11.5	22.8	11.3	97.6
Buttermilk	5.5	3.5	-2.0	-36.2
Total Beverage Milk	256.9	218.9	-38.0	-14.8
Half & Half	2.9	3.0	0.1	2.6
Light Cream	0.4	0.7	0.4	99.7
Heavy Cream	0.5	0.9	0.4	67.8
Sour Cream & Dip	1.1	2.5	1.4	131.3
Total Cream Products	4.9	7.1	2.2	45.8
Eggnog	0.3	0.5	0.2	65.4
Yoghurt	0.8	4.1	3.3	398.6
TOTAL, All Fluid Products	262.9	230.7	-32.3	-12.3
Butter	5.3	4.4	-0.9	-17.0
American Cheese	7.1	11.1	4.0	56.3
Italian Cheese	2.1	9.1	7.0	333.3
Other Cheese	2.3	4.4	2.1	91.3
Cottage Cheese	5.2	3.4	-1.8	-34.6
Evaporated & Condensed	12.1	7.9	-4.2	-34.7
Ice Cream	27.0	24.6	-2.4	-8.9
Dry Milk Products	5.7	3.4	-2.3	-40.4

Among other dairy products, there have been large consumption gains for yoghurt and cheese, and large declines for butter, cottage cheese, and condensed and dry milk products.

There are numerous reasons for these changes in consumption. Some, like the shift from whole milk to lowfat forms and declining butter usage, are related to changing consumer preferences with respect to dietary fat. But there are anomalies in the trends that caution against a wholesale "fat is bad" inference. In particular, cream and eggnog sales are up, and cheese has shown spectacular gains. Nevertheless, when these trends are combined with the pattern of government purchases of butter under the dairy price support program it is clear that U.S. dairy farmers are producing too much butterfat relative to nonfat solids. There is a related need to modify milk composition according to consumer preferences.

Other factors influencing changes in dairy product consumption are related to demographics, especially income, education, ethnicitity, and age. Generally rising real income of U.S. consumers has boosted usage of cheese and cream products (associated with away-from-home meals), but has probably reduced consumption of cottage cheese (viewed as an inferior substitute for red meat) and fluid milk. Higher levels of education have made consumers more health-conscious and more likely to limit use of butter and whole milk in their diets. Relatively large increases in the Black and Hispanic population has probably reduced use of dairy products in general, as these ethnic groups traditionally have a lower rate of consumption than whites. The graying of the U.S. population has cut into consumption of fluid milk. These demographic trends will continue, with corresponding implications for the pattern of dairy product usage.

The changing demographic make-up of the U.S. population provides some guidance as to what new dairy products we will see in the future. More dairy products in the 21st century will be "low-fat" and "fat-free". They will be more diverse, catering to niche sectors of the population (e.g., Mexican cheeses). Expect a proliferation of fluid milk products, many fortified with added skim milk solids.

Changes in the federal dairy price support program

Farm level milk prices have been supported under federal programs since the early 1930's. The Agricultural Act of 1949 established the formal federal dairy price support program that remained nearly unchanged from 1949 to 1981. The 1949 Act required the U.S. Secretary of Agriculture to support the farm level price for manufacturing milk at between 75 and 90 percent of parity. The Secretary was to consider milk supply and demand factors in making this decision. The objective of the program was to support farm milk prices at a level that would assure an adequate supply of milk over the long run.

The major turning point in this federal milk price support program can be traced to the passage of the Food and Agricultural Act of 1977. In reposnse to dairy lobbyists' arguments that the adequacy of the long run milk supply was in jeopardy because of rising milk production costs, Congress set the minimum support price for manufacturing milk at 80 percent rather than 75 percent of parity. It also required that the support price be adjusted semi-annually rather than once per year to reflect changes in costs of production. These provisions were to be in effect for two years, but legislation in 1979 extended the 1977 Act for two additional years.

The 1977 Act resulted in farm milk prices being supported at levels quite favorable in comparison to other farm commodities. The support price increased $4.84 per hundredweight in a four year period, 1976-1980 ($8.26/hundredweight in October 1976 to $13.10/hundredweight in October 1980). Dairy farmers responded with expanded milk production. Milk production totaled 123 billion pounds for 1977, but grew to over 128 billion pounds by 1980. Concern rose over burdensome government purchases of surplus dairy products. Surplus purchases had grown from 2.7 billion pounds of milk equivalent to 8.8 billion pounds, and federal dairy price support

program costs increased from about $500 million annually to almost $2 billion during this period.

In response to a growing milk surplus problem, congressional action removed the dairy support program from the parity concept by freezing the support price at $13.10 per hundredweight for 1981–82. Despite this action, milk surpluses and program costs continued to increase. To offset rising expenditures, the Omnibus Budget Reconciliation Act of 1982 authorized a 50 cent deduction on all milk marketed that was first collected in April, 1983. An additional 50-cent deduction, implemented on September 1, 1983, was refundable to producers who reduced marketings by a specified amount.

The Dairy and Tobacco Adjustment Act of 1983 lowered the support price to $12.60 per hundredweight effective December 1, 1983. A Dairy Diversion program, operated between January 1984 and March 1985, paid contracting producers $10 per hundredweight for reductions from base milk marketings. The support price was reduced 50 cents per hundredweight on both April 1, 1985, and July 1, 1985, because government purchases of surplus stocks were projected to exceed trigger levels.

The Food Security Act of 1985 set the support price at $11.60 per hundredweight for calendar year 1986, $11.35 for January–September 1987, and $11.10 thereafter. On January 1 of 1988, 1989, and 1990, the support price had to be adjusted by 50 cents, either downward or up, if projected removals of surpluses exceeded 5 billion pounds of milk equivalent or were less than 2.5 billion pounds. The Act also authorized the Dairy Termination Program. Producers whose bids were accepted agreed to slaughter or export all female dairy cattle, have no interest in milk production or dairy cattle for five years, and ensure that their facilities are not used for these purposes during that time. Participating producers exited the industry during April 1986–August 1987. To help defray the program costs deductions were set at 40 cents per hundredweight during April–December 1986 and at 25 cents during January–September. Additional deductions, authorized to help reduce budget deficits were 12 cents during April–September 1986 and 2.5 cents during calendar 1988.

The Omnibus Reconciliation Act of 1990 reinstated assessments against dairy producers to reduce the costs associated with the federal dairy price support program. Assessments are set at levels to collect $700 million during the 1991–1995 period. The level of assessments was set at 5 cents per hundredweight for 1991 and a minimum of 11.25 cents per hundredweight for each of the years 1992–1995. The assessments are refundable after each year to those producers who can demonstrate that they did not increase milk marketings over the previous year.

The previous dairy price support provisions had reduced the support price to $10.10 per hundredweight on January 1, 1990, $3.00 below the peak support price of $13.10 per hundredweight for 1981. The dairy price support provisions contained in the 1990 Farm Bill floor the support price at $10.10 per hundredweight during 1991–1995. If for any calendar year projected milk surpluses are less than 3.5 billion pounds milk equivalent, the Secretary of agriculture is to increase the support price at least 25 cents. If surpluses are projected at more than 5.0 billion pounds, the Secretary is to reduce the support price 25 cents to 50 cents, but not go below $10.10 per hundredweight. Since the odds are slim that projected surpluses will be less than 3.5 billion pounds, the support price will remain at $10.10 through 1995.

The described major changes since 1981 have resulted in a market oriented federal dairy price support program. The $10.10 support price is a relatively low safety net. It is at a level well below the full costs of production and even cash costs of production of most farmers. Consequently, market forces will determine manufactured dairy product prices most all of the time, except for butter. The dairy industry will continue to have a milkfat problem. Government purchases under the dairy price support program during 1991–1995 will be primarily excess milk fat purchased as butter, with limited purchases of cheese and nonfat dry milk. Market forces will continue to generate greater variability in cheese and nonfat dry milk prices and, in turn, farm level prices than occurred during the 1950–1988 period

when the support price was at levels that determined dairy product and farm milk prices the majority of the time.

There appears to be little likelihood that future federal dairy price support legislation will either increase the price support level or implement supply management. The support program will remain market oriented. However, the dairy industry must deal with a growing surplus milkfat problem. The support program has responded to the excess fat problem by tilting the purchase program from a fat to a nonfat solids value. With a support price at $10.10 per hundredweight the Secretary of agriculture has used his authority to reduce the support purchase price on butter and respectively increase the purchase price on nonfat dry milk twice, April 2,1990 and January 14,1992. The butter price was reduced 22 cents per pound ($1.0925 to $.87.25), and nonfat dry milk price increased 12.2 cents per pound ($.79 to $.912) with these two adjustments. Further tilts from fat to nonfat values can be expected under the federal dairy price support program.

Changes in federal milk marketing orders

Federal milk marketing orders (FMO's) have been in existence since 1933. The 40 FMO's in existence during 1991 priced more than 80 percent of grade A milk and 71 percent of all producer milk marketed in the U.S. FMO's were established to ensure an adequate supply of wholesome milk, provide for orderly marketing of fluid milk, equitable prices to producers and processors and reasonable prices to consumers. These objectives are accomplished through classified pricing and pooling. Most FMO's have three classes of milk. Class I includes milk for beverage purposes, class II milk for soft manufactured products (yogurt, ice cream), and class III milk for hard manufactured products (butter, milk powder and cheese). FMO's set minimum prices that processors must pay for grade A milk in markets covered by the orders. Producers receive a weighted average price, called a blend or uniform price, through pooling.

In the early 1960's, FMO's adopted a uniform method of pricing milk. The minimum price for all classes of milk in all FMO's were to be based on the prices paid in Minnesota and Wisconsin for grade B milk, the Minnesota-Wisconsin Price series (M-W). Single basing point pricing for class I milk was also established. Eau Claire, Wisconsin was selected as the single basing point because of its location in the heart of the major source of reserve grade A milk supplies. Class III prices in all orders would be the current month M-W price. Class II would also be the M-W price plus a differential of about 10 cents. However, class I prices would vary with distance from Eau Claire, Wisconsin. Class I prices for all FMO's would be based upon the M-W price two months previous plus a class I differential which increased about 15 cents per hundredweight per each 100 miles from Eau Claire. The 15 cents was to reflect the costs of moving reserve grade A milk from Wisconsin to deficit fluid markets when needed.

The 1985 Food Security Act legislated higher class I differentials in 35 of the 44 FMO's then in place. Major increases in class differentials were in FMO's distant from the Upper Midwest having relatively high class I utilizations. The increases became effective May 1986.

Dairy interests in the Upper Midwest strongly objected to the 1985 increases in the class I differentials. The increases exacerbated already burdensome milk surpluses, resulting in further reductions in the federal dairy support price. Reduced support prices meant lower farm level prices in the Upper Midwest, where the majority of milk is utilized for manufacturing purposes. But for the South and Southeast the increases in class I prices and higher utilization of milk for class I purposes partially isolated producers from lower support prices. This unequitable treatment of producers in the Upper Midwest has led to regionalism in the dairy industry. Regionalism has prevented the dairy industry from becoming united on federal dairy policy issues.

Changes in milk production, processing and transportation technologies since the early 1960's no longer justify a single basing point pricing system nor the differences in class I prices between Upper Midwest FMO's and distant orders. No longer is Wisconsin the only grade A reserve milk supply. Milk production costs do not differ greatly among regions. Improved packaging and transportation no longer necessitates local grade A milk for class I needs. The present FMO pricing system does not reflect a modern dairy industry and discriminates against producers in the Upper Midwest.

Pressure from dairy interests in the Upper Midwest to change orders led then U.S. Secretary of Agriculture Clayton Yuetter to call for national hearings on FMO's. The hearings, held in the Fall of 1990 at 6 locations, dealt primarily with class I pricing. A coalition of Upper Midwest dairy cooperatives, state agencies, and general farm organizations submitted and defended a proposal for more equitable class I differentials among the FMO's

U.S. Secretary Madigan released a 93-page recommended decision on November 18, 1991. There were no recommendations for changing single basing point pricing, the major issue of the hearing. The recommended decision calls for two changes in milk classification. First, all FMO's would have three classes. Second, all orders would be consistent with respect to the products in each class. These changes have only minor effects on FMO's.

A recommendation that calls for changes in pricing of concentrated milk and nonfat dry milk used for reconstituted fluid milk products would be positive for the dairy industry. Under the recommended decision, concentrated milk that can be verified as having been used to make labeled reconstituted fluid milk products will be priced the same as bulk transfers of whole milk. Processors using nonfat dry milk for reconstitution would have the existing down allocation or compensatory payment penalties reduced by $1 per hundredweight (the approximate cost of reconstituting), or have the option of paying into the source market pool the difference between class I and class III values for the milk equivalent of the powder.

The recommended decision on reconstituted milk could benefit both the Upper Midwest and distant FMO's deficit in local grade A milk supplies for class I needs. Deficit fluid markets would benefit from reduced costs of transporting grade A milk from the Upper Midwest to meet class I needs. The Upper Midwest would benefit from added class I value to its grade A milk.

Nevertheless, until the single basing point pricing issue is resolved, Upper Midwest interests will continue to press for amending FMO's or calling for the termination of orders. If appropriate changes cannot be brought about through the hearing process, the courts may be used to change or eliminate FMO's. Termination of FMO's within the next couple of years is a possibility. In any case, lowering of class I prices in most orders and increasing the dependence upon market forces in setting prices under FMO's is likely. Also, there will be a reduction in the number of FMO's through mergers to reflect larger geographic markets.

Finally, within the next few years, multiple component pricing will become incorporated into FMO's. Currently, two FMO's have formal MCP payment plans. The declining value of milkfat relative to solids-not-fat, increased utilization of grade A milk for manufactured dairy products, and increased use of MCP programs outside of FMO pricing provisions are all factors pushing for incorporation of MCP in FMO's.

Other milk pricing and marketing issues

There are several other key issues likely to influence dairy markets during the next 10 years. We briefly discuss three of these here.

Futures markets for cheese and nonfat dry milk are receiving increasing attention in the dairy industry, and some commodity exchanges have begun developing model contracts. Interest in forward contracts stems from two sources: (1) the increased volatility of milk prices since the support price has been lowered to an ineffective

level, and (2) decreased confidence among dairy farmers in the National Cheese Exchange as a legitimate indicator of cheese value.

Greater price volatility means greater opportunity for speculative gains in a futures market. It also means more incentive on the parts of buyers and sellers of the physical commodity underlying the contract to engage in risk-reducing hedging activity. When the dairy price support level was higher, prices for hard manufactured products tended to move in a narrow range around the CCC purchase prices. Hence, there was little incentive or need for futures markets.

To a large extent, milk prices throughout the U.S. are based on trading activity for block and barrel cheddar on the National Cheese Exchange. The Exchange meets for one-half hour weekly. Trading is limited (frequently no transactions occur) and dominated by large cheese buyers and sellers. Practically all cheese is sold on the basis of the Exchange "opinion." In turn, cheese prices are the dominant factor affecting the M-W price, which is the basic formula price for milk under federal orders. A futures market for cheese would provide an alternative market to the National Cheese Exchange, and broaden trading activity.

One of the most attractive aspects of a cheese or nonfat dry milk futures contract is the associated ability to forward price milk. A cheese plant, for example, could offer a fixed or minimum price milk contract to a dairy farmer by forward pricing cheese. This has major implications for farm milk pricing.

Concern about cheese pricing on the National Cheese Exchange is only one example of a broader concern about buyer concentration in the dairy industry. Mergers and acquisitions in dairy processing have resulted in increasing market power, especially in fluid milk and soft manufactured products. The problem of disparate market power between dairy farmers and processors was vividly illustrated in the spring of 1991, when farm milk prices fell by 25 percent and retail prices for most dairy products showed little change.

Dairy cooperatives have also grown through mergers, providing some countervailing market power for dairy farmer members. But with the exception of fluid milk, cooperatives have not been actively involved in setting prices for milk or dairy products. Recently, there has been considerable interest and activity in common marketing by cooperatives for whey products, cheese, and nonfat dry milk as a means of enhancing cooperative market power.

Finally, international trade in dairy products has moved to the forefront of dairy issues as negotiations under the General Agreement on Tariffs and Trade (GATT) enter their final stages and discussions about a North American Free Trade Agreement begin. U.S. dairy farmers have apprehensively followed the GATT talks because of the possibility of losing import protection. Protectionist dairy policies throughout the world have been a major stumbling block in negotiating a GATT treaty.

What is the competitive status of the U.S. dairy industry under liberalized trade? Perhaps the best indicator is relative costs of milk production. While comparable data is sketchy, it appears that the U.S. has lower costs that all major dairy countries except New Zealand, Australia, and Ireland. Expansion of dairy in those countries is limited, suggesting that the U.S. would fare reasonably well under a "free" trade regime. But the question remains as to whether free trade is really possible given the apparent commitment of many countries (e.g., EC, Japan, Canada) to high levels of protection for their dairy sectors.

Summary

Changes in milk marketing and pricing during the last 10 years are precursors to even more dramatic changes by the end of this century. Changing consumer preferences will dictate more attention to pricing the diverse components of milk rather than milk as a homogeneous commodity. Pricing institutions will change to accommodate market orientation and to facilitate the transmission of consumer preferences to dairy farmers. And markets for dairy products will become more global in scope.