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MILK MARKETING ORDER REGULATIONS

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The dairy industry represents a major part of the U.S. food system. In 1977 consumer expenditures for fluid milk and manufactured dairy products reached $27.4 billion and represented 12.6 percent of the consumers' total food dollar.

Questions are being raised about the impact of the federal milk marketing order program that directly regulates the handling and farm-level pricing of about 65 percent of all milk produced in the United States. The program has been in existence for over 40 years and has played an integral and pervasive part in shaping the U.S. dairy industry. 1/ Before any changes are made in the program, it would be important to untangle and understand the complex economic relationships in order to evaluate the continued need for all or part of these regulations. This paper is an example of post-legislative research designed to help evaluate a long-standing set of regulations.

Generally, the milk order program is not well understood. Some research results have been very controversial, and the points of view vary widely. 2/ Some argue that the entire program does not meet the stated goals outlined by Congress (Masson and Eisenstat) while others argue that the goals have been achieved and the public interest served with a minimum amount of government regulation (Forest). Some studies have attempted to measure the social costs of the program (Ippolito and Masson, MacAvoy) or alternative pricing policy modifications of the program (Buxton 1977; Dobson and Buxton). Other studies have considered

the economic impact of alternative pricing policies under milk orders (Hallberg; Fallert and Buxton).

This paper is divided into three parts. The first part reviews the major regulatory procedures and goals of the federal milk marketing order program. It further develops the economic rationale on how the regulations achieve those goals and reviews the major benefits usually ascribed to milk orders. The second part of the paper contains a discussion of the major economic impacts of milk orders while the third part contains some conclusions and policy implications.

FEDERAL MILK MARKETING ORDERS

On January 1, 1979, there were 47 federal milk marketing orders in the United States. These orders only regulate Grade A milk, which is produced under more stringent sanitary conditions than Grade B milk. Milk must be Grade A in order to be used as a fluid beverage (fluid milk) while manufactured dairy products can be made from either Grade A or B milk.

There are two major regulations used in all federal milk marketing orders: (1) classified pricing whereby milk dealers (handlers) are required to pay different prices for the Grade A milk they buy, depending on how they use the milk, and (2) pooling all revenue from the sale of Grade A milk at the different use prices from which a uniform (blend) price to be paid Grade A farmers is calculated.

Classified Pricing

Federal order regulations require handlers who buy Grade A milk from dairy farmers or associations of dairy farmers and who distribute it in the specified market area to pay at least minimum prices set under

the order for the milk according to how the milk is used. If the milk is used in fluid products such as whole milk, skim milk, low-fat milk, and milk drinks, it is designated as Class I and receives a Class I price.

If the milk is used in manufactured dairy products such as butter, dry milk, and nonfat dry milk, it is designated Class III milk and receives a Class III price. 3/

The same Class III price is used in most federal orders and is set equal to the average price that manufacturing plants pay per 100 pounds of Grade B milk (f.o.b. plant) in the Minnesota-Wisconsin area (often referred to as the M-W price). This price is determined by supply and demand conditions in the manufacturing milk market and moves up and down as supply and demand conditions in the market vary. A floor is effectively placed under this price by the operation of the price support program as the government stands ready to purchase dairy products in amounts needed to keep it from falling below the support price. 4/

A minimum Class I price is separately determined for each federal order by adding a Class I differential to the M-W (Class III) milk price. Under present pricing policy, the minimum Class I price in federal orders east of the Rocky Mountains can be approximated by adding to the M-W price 90 cents plus 0.15 cents for each mile the specific order area is located from Eau Claire, Wisconsin. For example, the minimum Class I price in the Southeastern Florida market order is set at $3.15 above the M-W price (90 cents plus 0.15 cents times the approximately 1,500 miles the order is from Eau Claire, Wisconsin).

Pooling Returns

A second major regulation of federal orders requires that all pay-

ments for regulated Grade A milk in the different use classes be pooled. A uniform (blend) price representing the average value of all Grade A milk sales in the order is calculated and used as a basis for paying dairy farmers or their cooperative associations. In order to qualify for the pool, dairy farmers or their cooperative association must ship designated proportions of their milk to the fluid market for Class I use. The pooling regulation is a mechanism that allows all dairy farmers producing Grade A milk in a given market to receive a comparable price regardless of how their milk is used. Before federal orders were established in 1937, milk cooperatives had instituted similar pricing and pooling programs. However, the depression conditions made such programs difficult to operate without formal government regulation.

Goals of Federal Milk Orders

The major goals commonly ascribed to federal milk marketing orders as presently administered are reflected in the following list: 5/

1. to promote orderly marketing conditions for milk produced by Grade A farmers
2. to set minimum prices consistent with supply and demand conditions and to assure consumers an adequate supply of fluid milk year-round
3. to administer and supervise the terms of trade in deficit milk markets in such a manner as to equalize the market power of buyers and sellers and promote constructive competition
4. to improve the income situation for Grade A dairy farmers

An overriding objective is that milk orders are to be administered so as to be in the public interest. The above goals lack clarity in meaning by using terms such as "orderly marketing" and "adequate supply." These terms should be more precisely defined in order to better understand what milk orders are to accomplish.

The term "orderly marketing" is usually associated with stabilizing fluid milk prices, providing secure and dependable markets for individual Grade A dairy farmers producing milk primarily for the fluid market, and promoting constructive competition by improving the balance of market power between farmers and handlers. "Adequate supply" is usually associated with maintaining a reserve of Grade A milk on a seasonal, weekly, and daily basis that can be drawn from when the Grade A milk supply is tight relative to fluid demand. Such a reserve would eliminate unusually high prices and possible shortages.

The economic rationale on how the classified pricing and pooling regulations of milk orders serve to achieve the goals of milk orders is discussed in the following sections.

Stabilize Fluid Milk Prices. Classified pricing provides an economic incentive for farmers in the aggregate to produce more Grade A milk than is actually needed for fluid use plus an adequate reserve. The impact of Class I differentials being consistently above cost-justified levels is to encourage Grade A dairy farmers sharing in these higher-valued sales to increase their milk production and for some Grade B dairy farmers to convert to Grade A milk production (Buxton 1978). Higher fluid milk prices also discourage fluid milk consumption.

The net result is a Grade A milk reserve that either can be used as fluid when needed or diverted into manufacturing when not needed. This eliminates the probable wide fluctuations in the fluid milk price relative to the M-W price due to seasonal and other unsynchronized variations in supply of Grade A milk and fluid demand.

This approach to stabilizing fluid milk prices works only if a secondary market exists for the Grade A milk not needed to meet fluid demand.

Market Security. Pooling the returns from the sale of all Grade A milk reduces the concern of farmers as to whether their specific milk is used in fluid products at the higher Class I price or in manufactured products at the lower Class III price. Farmers are paid on the basis of a market average price regardless of how their specific milk is used. Without pooling, an individual farmer or his cooperative association would be under economic pressure to sell as much of their own milk as possible in the higher-valued fluid market. Strong competition for the fluid market likely would develop as long as farmers could realize a higher price in that market. Some Grade A farmers probably would be dropped from the Grade A milk market during the season of highest milk production when Grade A milk supply exceeded fluid use. This would leave the farmer seeking an alternative manufacturing market outlet for the extremely perishable milk. Switching back and forth from the fluid to manufacturing market may be difficult and at times results in distressed milk prices and even uncertainty as to whether an outlet exists.

The classified pricing and pooling regulations of milk orders,

then, reduce the need for "switching" outlets and provide Grade A dairy farmers with more secure markets.

Balancing Market Power. For a long time the dairy industry was characterized by many small dairy farmers selling milk to a relatively few large handlers. Minimum Class I prices under milk orders protect dairy farmers from the effects of possible price wars or other price-cutting activities by handlers. Such supervision of the terms of trade is more likely to promote constructive competition for a commodity as perishable as milk.

Increase Farm Income. Classified pricing that charges a higher price for the relatively more inelastic demand for fluid milk is a form of price discrimination. Returns to Grade A dairy farmers are increased by charging a higher price for milk used in the relatively inelastic fluid market than in the manufacturing market.

To summarize, there is a logical rationale by which classified pricing and pooling provisions of federal milk marketing orders can be used to achieve "orderly" marketing and "adequate" supplies of milk and to improve incomes of Grade A dairy farmers. Fluid milk prices have not been more unstable relative to manufacturing milk prices, and fluid beverage milk is available year-round in essentially every grocery store across the United States. Also, Grade A dairy farmers are assured a stable outlet for their milk even when large quantities of Grade A milk are diverted into manufacturing. These aspects of milk marketing are held by many as benefits of the federal milk marketing order program.

Other benefits of milk orders include the collection and dissemination of timely and accurate market information, unbiased audits, and verification of weights and tests of farmers' milk.

The inability to quantitatively measure some of the benefits complicates any attempt to specifically measure public interest. It requires that policymakers must consider the trade-offs and then make decisions on selected provisions of federal milk orders and on the federal milk order program itself.

Although the federal milk marketing order program has generally achieved its goals, two relevant questions remain: (1) Can the same benefits and goals be achieved at a lower social cost? (2) Are there alternative approaches to serving the needs of the fluid milk market? To probe these questions in more detail, the next part of this paper considers some basic economic implications of milk orders.

ECONOMIC IMPLICATIONS OF MILK ORDERS

Well-developed economic principles of milk marketing provide a framework from which many of the economic implications of milk orders are derived. Three particularly useful studies for analyzing the implications of milk orders were by Bressler, Harris, and Kessel.

Seven major implications are identified in the following sections. They are not mutually exclusive, nor are they all-encompassing, but they are separately considered for discussion purposes.

Excess Reserves of Grade A Milk. Grade A milk production has increased dramatically despite relatively small increases in the amount of milk used as a fluid beverage. Grade A milk not used for fluid but

diverted into manufacturing uses increased from about 24.3 billion pounds in 1967 to over 42 billion pounds in 1977. This increase has come about by both expanded milk production of existing Grade A farmers as well as some farmers converting from Grade B to Grade A milk production. The conversion has been especially dramatic in Minnesota and Wisconsin where a large proportion of the remaining Grade B milk is produced. In 1977, 66 percent of the milk produced in Wisconsin was Grade A, compared with only 44 percent in 1967. In Minnesota, the proportion of Grade A milk increased from 19 percent in 1967 to 49 percent in 1977. All milk in the United States will become eligible for fluid use if these trends continue despite the fact that less than half of the milk will likely be used for fluid.

Why are farmers converting from Grade B to Grade A milk production when essentially all the additional Grade A milk is diverted and used in the lower priced manufacturing market? 6/ There are many contributing factors, but one essential factor is a farmer being able to realize a higher price for Grade A than for Grade B milk. 7/ A logical assumption is that unless a farmer realizes or expects to realize a higher price for Grade A than for Grade B milk, he would not be willing to incur the added cost or inconvenience of the higher farm sanitary standards of Grade A milk production. Because a dairy farmer must produce Grade A milk to participate in a milk order pool, the blend price advantage over the manufacturing milk price can provide the economic incentive for a farmer to convert from Grade B to Grade A production. This is how classified pricing and pooling generate a reserve of Grade A milk and therefore

contribute to orderly marketing. If Class I price differentials in milk orders can be set at levels to provide a necessary reserve, it would be possible to set them at still higher levels, which would result in excess reserves. An important implication of the rapid and likely nearly total conversion to Grade A milk is that Class I prices have been set higher than can be justified for stabilizing fluid milk prices, providing market security, providing adequate quantities of Grade A milk for the fluid market, and otherwise achieving orderly marketing conditons. Harris recognized this by pointing out that if classified pricing were used to achieve only market stability and security, that "there would be no tendency toward expansion of supplies beyond the effective demand requirement of the market" (Harris, pp. 66-67).

Geographical Price Distortions. Setting minimum Class I differentials in order markets east of the Rocky Mountains according to how far the market is located from Eau Claire, Wisconsin, ignores supply and demand conditions for fluid milk in those markets. Why should the Class I price in any market reflect transportation costs for fluid whole milk from Eau Claire when that market has more than enough Grade A milk plus a reserve to meet its own fluid demand and no milk is actually transported? For example, in 1977 the New England milk market, where essentially all milk is Grade A, utilized only 59 percent of its milk as fluid while 41 percent was used for manufacturing. This is more reserve than is needed to meet fluid demand by most standards and is evidenced by the fact that no fluid milk is shipped from Eau Claire, Wisconsin, into New England. Yet, in 1977 the average minimum Class I price was

$11.46 in New England compared to $9.74 in the Chicago regional market (USDA 1978, pp. 44 and 52). In the absence of regulation and assuming a reasonable degree of competition, competitive forces would be expected to cause the Class I price to fall in New England.

The present policy of using a single-price basing point in Eau Claire ignores possible multi-basing points in other surplus areas such as New England. The implication of geographically distorted prices is to encourage milk production in relatively inefficient production areas.

Preliminary research indicates that the distortion favors milk production in the Northeast, South, and West relative to the Lake States, Corn Belt, and Plains (Fallert and Buxton). However, additional research is needed on evaluating the exact magnitude of the distortion and the implications of following a policy to reduce this distortion.

Expanded Milk Production. Classified pricing and pooling creates a divergence between the price a farmer receives for his milk and the value of that milk in the marketplace. An additional amount of milk produced will be worth the blend price to the farmer but worth only the Class III price in the market because it must be diverted into manufacturing. The divergence, giving inaccurate price signals to Grade A dairy farmers, would be expected to result in the farmers producing more milk individually and in the aggregate than would be if they received the market value rather than the calculated blend price.

The average price received for fluid eligible milk in 1978 was $10.79 per hundredweight while about 40 percent of that milk was sold at the manufacturing milk price of $9.68 (USDA 1979, p. 28).

Depressed Manufacturing Milk Market. Increasing Class I differentials encourages milk production, as described above. It also discourages fluid milk consumption by increasing fluid milk prices. The combined impact is to increase the amount of milk that must be used to make additional manufactured products to be sold in the manufactured dairy product market. These additional manufactured dairy products tend to depress the manufacturing milk market. The actual impact on the manufacturing milk price (Class III price) depends on whether the market price is at or above the manufacturing milk support price. If the market price is the same as the support price, the government will purchase, under the price support program, the added dairy products resulting from the higher Class I differentials. If the market price is above the manufacturing support price, then the added dairy products would depress manufacturing milk prices. In both cases, classified pricing and pooling provisions under federal milk orders tend to keep the manufacturing milk market depressed.

Benefits Only Grade A Farmers. Only Grade A dairy farmers receive higher milk prices as a result of classified pricing and pooling under milk orders. Because relatively high Class I differentials under milk orders tend to depress the manufacturing milk market, Grade B farmers are worse off, or at best no better off, as a result of them. It is true, however, that many Grade B farmers, by converting to Grade A milk production, can also benefit. However, this is a forced situation because the only alternatives to converting to Grade A milk are to accept the Class III price for their milk or quit dairy farming altogether.

Because milk markets do not benefit Grade B farmers, pursuing the goal of classified pricing to increase the income of Grade A farmers raises a major equity question: Can classified pricing legitimately be used to improve farm income when all farmers do not benefit?

Inefficient Movement of Milk. Once a cooperative that is principally manufacturing dairy products in plants located relatively close to a fluid market ships enough milk to qualify for the pool, the incentive to ship additional Grade A milk to the fluid market is greatly diminished. If it does ship additional milk to the fluid market, it could not pay its producers any more for their milk. There is an actual disadvantage in shipping milk to the fluid market since the cooperatives that have manufacturing facilities would want the largest volume of milk possible to lower unit costs in its own manufacturing operation. Negotiated Class I prices above federal order minimums help provide the incentive for such cooperatives to "give up" the milk in their own manufacturing operation and ship it to the fluid market. This means that increased Class I differentials may still not get the milk needed for fluid use.

This would result in the need to go further distances from the central market to obtain enough milk for fluid demand even though closer supplies existed. To the extent this phenomenon exists, fluid handlers would need to bring milk for fluid use from more distant areas than likely would be the case without regulation. Many factors influence the manner in which cooperatives serve the fluid market; only general forces and implications are pointed out here.

Restrictions on Reconstituted Milk. The present order program

assumes that fluid milk demand must be met with fresh whole milk. As discussed, a reserve of Grade A milk would be needed under this assumption to balance seasonal and day-to-day variations in supply and demand and thereby stabilize prices.

However, it has been technically possible for some time to commercially recombine nonfat dry milk, milkfat, and water into a fluid beverage milk. This reconstituted product could then be blended with fresh whole milk to meet fluid demand. In effect, this would provide a storable reserve rather than a fresh fluid milk reserve. Presently, there are provisions in federal milk marketing orders that effectively raise the cost of reconstituted milk so as to make it an uneconomic alternative. 8/

A recent report has taken a preliminary look at the effects of reconstitution on regional prices, utilization, and production (Hammond, Buxton, and Thraen). Results indicate that the maximum Class I differential would be less than the actual Class I differentials that now prevail under federal and state marketing orders. Generally, the Class I differentials based on fluid transportation costs from Eau Claire, Wisconsin, could no longer hold.

Another implication of this alternative would be that Class I differentials high enough to create a necessary fluid reserve could no longer be justified on the basis of stabilizing fluid milk prices. The storable reserve could achieve the same orderly marketing objectives as previously attributed to the fresh fluid reserve.

More research is needed on the potential of other possible alter-

natives. For example, about 2 pounds of nonfat dry milk and 21.3 pounds of water may be blended with 100 pounds of fresh whole milk of 3.7 percent fat to yield 123.3 pounds of fluid milk with 3 percent fat. The average fat test of all fluid beverage milk is now 3 percent fat. Also, frozen concentrated milk, like frozen concentrated orange juice, would reduce transportation costs, increase shelf life, and may open new markets for fluid milk domestically and overseas.

A major implication of the present milk order regulations is that they distort the economic feasibility of possible innovations in serving the fluid milk market more efficiently without sacrificing orderliness or adequate supply objectives.

This raises an interesting question: What kind of fluid milk industry would evolve if the only economic use of milk was as a fluid beverage? Clearly a reserve, much of which would need to be dumped, would be costly. A great deal of innovation would be expected to avoid waste. Storing fluid milk as nonfat dry and milkfat ingredients or in other forms to be recombined probably would be an integral part of such a dairy industry.

CONCLUSIONS

Economic principles of milk marketing and current research methodology contribute a great deal to evaluating the impact of milk marketing order regulations. However, it does not answer all the questions. There is presently no methodology that could predict with a high degree of confidence what the real world would look like without the federal milk marketing order program. The competitive model may not accurately

reflect the conduct of cooperatives and handlers. Would or could cooperatives step in and impose the same result as achieved under market order regulations? Are some regulations needed to create a healthy competitive environment?

At the present time, no model or methodology exists that can predict whether disorderly and chaotic conditions would definitely appear in the absence of regulation. Could the technological changes in handling and transporting milk and the ability to store fluid milk in ingredient form result in orderly marketing of milk without the present regulations? Even if the answer were yes, would such a change in policy be in the public interest by increasing social welfare? Which groups would benefit and which would lose? What kinds of resource adjustments would be required? These questions require additional research even though considerable work has been done. The research must be a broadly focused, no-holds-barred approach. There is a tendency for a "conventional wisdom" to appear in connection with long-established regulations on why things cannot be done differently.

The economics of milk marketing and research methodology are sufficiently well-developed to identify some of the major economic impacts of milk marketing regulations. A major conclusion is that the goal of increasing returns to Grade A dairy farmers has been explicitly or implicitly pursued beyond that needed to stabilize fluid milk prices and provide market security. Reducing Class I differentials from the present levels would, therefore, be possible without risking the market stability, security, or adequate supply objectives. The decrease would

need to be made over time in small incremental amounts since present research methodology is not able to identify the exact cost-justified Class I differentials in all federal order markets with a high level of confidence.

Although the relevance of welfare theory is still a matter of debate, it represents the best methodology available for evaluating whether lowering Class I differentials would be in the public interest. [9/] The results of the previously mentioned studies indicate that lower Class I differentials would increase social welfare while raising Class I differentials would do the opposite. This would be the conclusions as long as the Class I differentials were not lowered below the level needed to provide a necessary reserve and thereby to stabilize fluid milk prices.

Another significant conclusion based on the economics of milk marketing is that a geographical distortion exists in the Class I price. This distortion results from implicitly assuming only one surplus fluid milk area from which Class I prices in all other markets are aligned according to distance. This ignores supply and demand conditions in various regions of the United States. In addition, welfare theory seems adequate to conclude that reducing the distortion is in the public interest. However, the impact will be quite different among regions. The adjustments imposed on dairy farmers in the regions where price would be most affected (Southeast) would be considerable. Perhaps compensating those most affected would reduce the impact while still moving toward a more efficient system.

A real limitation in analyzing milk orders is a lack of good

estimates on how dairy farmers in selected regions and consumers would respond to significant price changes. Better supply and demand estimates are needed. If obtained, they would, in combination with conventional economic theory, provide a great deal of useful analysis for policy decisions regarding milk marketing regulations.

FOOTNOTES

1/ The Agricultural Marketing Agreement Act of 1937, as amended, provides the legal basis for the federal milk marketing order program (Ward).

2/ For example, see the exchange of ideas between the U.S. Justice Department and the U.S. Department of Agriculture resulting from the original report entitled "The U.S. Justice Department Report on Milk Marketing."

3/ Milk used in certain soft manufactured products is designated Class II and receives a Class II price about 10 cents above the Class III price. Conceptually, these two use class designations can be treated as one.

4/ The government presently supports the U.S. manufacturing milk price, which is normally about 10 cents below the M-W price but moves up and down with it.

5/ Sections 601, 602, and 698c(18) of the Agricultural Agreement Act of 1937, as amended (USDA 1971), contain the specific statements on the objectives of the orders as stated by Congress. Also, a 1976 report to the Secretary of Agriculture by the Federal Milk Order Study Committee (USDA 1962, pp. 12-13) outlined the Committee's views on what were the major objectives of milk orders. See also Ward.

6/ At present, there appears to be no public health concern over the consumption of manufactured dairy products made from Grade B rather than Grade A milk. Therefore, converting from Grade B to Grade A milk

is not nor has it been explicitly stated as a goal of classified pricing.

7/ The economic relationship between classified pricing and excess Grade A milk is explained in Buxton 1978.

8/ Seven states have outright prohibitions on the production and/or sale of reconstituted milk while 9 states have Grade A standards that effectively prohibit the sale or manufacture of reconstituted products (Hammond, Buxton, and Thraen, pp. 18-19).

9/ After review of welfare theory, Currie et al. concluded that it was the most useful tool available for many kinds of policy questions despite some limitations (Currie).

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