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AN ECONOMIC ANALYSIS OF ALTERNATIVE DAIRY IMPORT POLICIES FOR THE UNITED STATES

By

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ABSTRACT

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United States imports of dairy products are limited to about 1.6 percent of domestic production by import quotas, complemented by strict policies restricting entry of subsidized products. Both aspects of this import policy have been controversial for many years and in the Tokyo Round of the Multilateral Trade Negotiations, the United States has come under renewed pressure from the European Community, New Zealand and other exporters of dairy products for liberalization of these restrictions.

In this thesis, a comparative static model is developed to permit estimation of the short-run impacts on price and production in the cheese manufacturing and milk production sub-sectors of the dairy industry as well as the effects on the purchases of the Commodity Credit Corporation under the domestic milk price support program of increasing United States imports of cheese. The import alternatives analyzed with the use of the model are formulated based on the requests for dairy import policy change which the United States has received in the Multilateral Trade Negotiations from exporters of dairy products. The impact estimates are made assuming that the imports of cheese,

disaggregated by type according to Tariff Schedules of the United States import quota category, increase in 1979. The model calculations are done first assuming that domestic milk prices are at, and then above, the support level.

The results of the estimation procedure indicate that though the impacts on manufacturers of particular types of cheese could be substantial, depending on the amount of the import increase, effects on the milk production sub-sector, in the aggregate, would be minimal in most cases. Nevertheless, it is pointed out that in the regions of the affected cheese plants, impacts on the dairy farmers are probably understated by the model results. Further, dairy farmers producing milk used mainly for manufacturing purposes would likely be the most directly influenced by a policy change.

Though no policy prescriptions are made since the benefits of a dairy import policy change are not estimated, it is concluded that the adverse impacts which the model predicts would befall the dairy industry would accentuate several industry trends and have important policy implications. Impetus could be given to the decline in the number of small dairy farms and conversion from grade B to grade A milk production. The latter effect could have ramifications for the method of pricing milk currently used in the United States. Finally, the degree to which milk prices were depressed as a result of an import policy change would bear directly on the level of price support demanded by the dairy industry. This consideration is timely in light of the decision on support level which must be made before October 1, 1979.

To my parents,

Frank H. and Beverly L. Rose

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KEY TO ABBREVIATIONS

AMS	Agricultural Marketing Service
APB	Above Pricebreak
BPB	Below Pricebreak
CAP	Common Agricultural Policy
CVD	Countervailing Duty
DLP	Dairy, Livestock and Poultry Division
EC	European Community
ESCS	Economic, Statistics, and Cooperatives Service
FAS	Foreign Agricultural Service
GATT	General Agreement on Tariffs and Trade
IOL	In Original Loaves
M-W	Minnesota-Wisconsin
MTN	Multilateral Trade Negotiations
NFDM	Non-Fat Dry Milk
NIOL	Not In Original Loaves
NSPF	Not Specifically Provided For
TSUS	Tariff Schedules of the United States
USDA	United States Department of Agriculture

CHAPTER I

INTRODUCTION

The Problem

In 1977, United States imports of dairy products were equivalent to 1.6 percent of domestic production. Restrictive import quotas and strict policies limiting subsidized imports account for the low level of imports and these policies have increasingly become a contentious issue in international negotiations between the U.S. and trading partners who would like greater access to the U.S. market, particularly for cheese exports. The issue has come to a head in the Tokyo Round of the Multilateral Trade Negotiations (MTNs) now underway in Geneva, Switzerland and some nations have tied U.S. action on dairy import policy to their own decisions regarding treatment of imports from the U.S.

With over $27 billion of agricultural exports annually and serious balance of payments problems, the U.S. does not wish to jeopardize its overseas markets. However, opening the U.S. market to substantially greater dairy imports would likely have adverse impacts on employment, output and income in the domestic dairy industry and could significantly increase the costs of the government support program. This study investigates the probable effects on the U.S. dairy industry and the related price support program of opening the U.S. market to greater imports of cheese. The benefits which the U.S. could derive from

making this concession in the MTNs are not estimated here, but policy-makers must, of course, weigh both the costs and the benefits in reaching a decision.

The Objectives

The specific objectives of this study are:

1. To develop a model which will be useful in estimating the magnitude of the short run domestic impacts of liberalizing dairy import policy.

2. Based on requests which the U.S. has received from trading partners for greater market access, to develop import policy alternatives, and, for each alternative, use the model to assess the likely short run effects on the price and production of domestic cheese, the farm price and production of milk and the quantity of dairy products purchased by the government under the milk price support program.

3. From these estimates and from an evaluation of characteristics of the cheese and milk industries, to infer some of the short and longer run adjustments which would likely take place in these two sectors of the economy if dairy imports were expanded.

4. From the above quantitative and qualitative assessments, to draw implications for U.S. dairy import policy and U.S. action in the MTNs.

The Method

A comparative static model is developed which links adjustments made by cheese manufacturers in response to import expansion to prices and production in the milk industry. The model construction permits

estimation of imports, whether the import increase is assumed to occur while milk prices are either at or above the support level.

The import increase is assumed to occur in 1979 and linear projections of relevant variables are developed based on past market performance to permit the desired estimation. The model estimates are incorporated into a discussion of adjustment possibilities in the two industries which takes account of dynamic relationships not captured in the model.

Organization

The next two chapters describe the domestic and international contexts upon which the problem impinges. In Chapter II, the U.S. dairy industry and related government programs are discussed, while Chapter III examines the dairy policies of key trading partners and the developments in the MTNs as they relate to international trade in dairy products. The comparative static model is developed in Chapter IV and Chapter V presents in detail the information necessary for determining the projections to 1979 and for evaluating the model estimates. Chapter VI formulates import alternatives based on requests for concessions on dairy imports which the U.S. has received in the MTNs and, for each alternative, outlines and interprets the import estimates. In the concluding chapter, implications which these results have for resolving the conflict surrounding U.S. dairy import policy are suggested.

CHAPTER II

THE DOMESTIC CONTEXT

Overview of the Dairy Industry

The dairy industry in the United States is an important element of the agricultural sector. In 1974, consumer expenditures for milk and dairy products accounted for sales of $22.7 billion and dairy products made up about 16 percent of the at-home expenditures for food. There were 350,000 farms reporting milk cows in 1974 and dairy processing plants employed about 200,000 people.[1]

Table 2.1 indicates the changes that have occurred since 1970 in some of the important milk production and price variables. Manchester[2] suggests that large Commodity Credit Corporation (CCC) stocks of feed grains accounted for much of the stability which existed in the dairy industry for the twenty years prior to 1973. When feed prices rose sharply in the early seventies, cutbacks in feeding rates and the resulting lower rates of increase in production per cow led to a decline in milk output. CCC purchases under the price support program[3]

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[1]Charles N. Shaw, "Commodity Background--Dairy," Farm and Food Policy--1977, Committee on Agriculture and Forestry, United States Senate, September 15, 1976, p. 252.

[2]Alden C. Manchester, Dairy Price Policy--Setting, Problems, Alternatives, Agricultural Economics Report No. 402, USDA/ESCS, April, 1978, p. 7.

[3]Explained later in this chapter.

Table 2.1

United States Milk Production Industry, Relevant Statistics; 1970-1979

Year	Total Production (Mil. lbs)	Fluid Use[a] (Mil.lbs)	Manufacturing Use[a] (Mil. lbs)	Cows on Farms (Thou)	Production Per Cow (lbs.)	Support Price ($/cwt.)	Percent of Parity (%)	Prices Rec. by Farmers: Manufacturing Milk ($/cwt.)	Prices Rec. by Farmers: All Milk ($/cwt.)	Ending Govt. Stocks[a] (Mil. lbs)
1970	116,962	52,000	64,962	12,000	9,747	4.66	85	4.70	5.71	2098
1971	118,532	51,900	66,632	11,842	10,009	4.93	85	4.86	5.87	1539
1972	119,904	53,200	66,704	11,698	10,250	4.93/5.29	79/85	5.08	6.07	2005
1973	115,385	52,400	62,985	11,409	10,114	5.29/5.61	75/80	6.20	7.14	476
1974	115,553	50,500	65,053	11,219	10,300	6.57/7.24	81/89	7.13	8.33	310
1975	115,326	51,100	64,226	11,140	10,352	7.24/7.71	79/84	7.63	8.75	124
1976	120,356	51,500	68,856	11,049	10,893	8.18/8.26	80/81	8.56	9.66	400
1977	122,957	51,400	71,557	10,984	11,194	9.00	82	8.70	9.72	3800
1978[b]	122,000	51,200	70,800	—[c]	—[c]	9.43/9.86	80/80	9.50	10.50	—[c]
1979[b]	123,000	51,000	72,000	—[c]	—[c]	10.10	80/75	10.20	11.20	—[c]

Source: USDA/ESCS, Dairy Situation, Various Issues, 1970-1978.

[a]Milk equivalent

[b]Estimate

[c]Estimates unnecessary for purposes of this study.

fell to extremely low levels. As feed prices tapered off, milk production rose once more and CCC purchases again reached the high levels of the sixties.

Regionally, milk production costs and prices vary considerably, as shown in Table 2.2 with reference to production areas indicated in Appendix A. Feed costs account for nearly one-half of the estimated production costs. Prices depend importantly on the government programs as shown later in this chapter. Most of the grade B or manufacturing grade milk is produced in the upper midwest though, like other regions, these states are rapidly converting to grade A or fluid grade production.[1] Today only about 20 percent of the U.S. milk production is classified grade B.[2]

Numbers of both commercial dairy farms and processing plants have declined over 50 percent in the last 25 years. According to Manchester, "Both technological and economic forces were responsible for these changes. New technology all the way from the milking parlor to the retail store made bigger units possible at each level. Combined with rising wage rates, the technology changed the economies of scale in every enterprise so that the cost advantage shifted increasingly to larger and larger units."[3]

Cooperatives have become increasingly dominant in milk marketing though their numbers have been declining due to mergers. Today, over

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[1]Grade A milk meets strict sanitary standards for use as fluid milk. Grade B milk meets lower standards which are acceptable because milk undergoes processing at high temperatures for a longer period of time than in pasteurization of fluid milk.

[2] Manchester, Dairy Price Policy, p. 7.

[3]Ibid., pp. 3-4.

Table 2.2

Costs and Returns of Milk Producers in the United States--Twenty-four Production Regions 1976, 1977, 1978

Subregion[a]	1978 Estimated			1977 Preliminary			1976 Final
	Cost of Production	Average Price Received	Net Income	Cost of Production	Average Price Received	Net Income	Net Income
				$/cwt.			
NE-1	$10.08	$10.51	$0.43	$ 9.95	$ 9.97	$0.02	$(0.03)
NE-2	9.47	11.00	1.53	9.40	10.43	1.03	0.88
NE-3	9.79	10.57	0.78	9.50	10.02	0.52	0.39
NE-4	9.58	10.61	1.03	9.56	10.06	0.50	0.44
NE-5	10.13	10.72	0.59	10.06	10.17	0.11	0.12
NE-6	10.07	10.97	0.90	10.13	10.40	0.27	0.44
A-1	10.19	10.57	0.38	10.27	10.02	(0.25)	(0.02)
NC-12, A-2	10.26	10.02	(0.24)	10.43	9.50	(0.93)	(0.87)
SE-1	9.43	11.15	1.72	9.80	10.57	0.77	1.16
SE-10	11.33	12.94	1.61	11.65	12.27	0.62	0.59
NC-7	9.67	9.70	0.03	9.37	9.20	(0.17)	(0.87)
SC-8	12.72	11.19	(1.53)	12.72	10.61	(2.11)	(1.36)
SC-3	10.80	11.29	0.49	10.71	10.71	0.00	(0.25)
NC-14	9.65	9.81	0.16	9.83	9.30	(0.53)	(0.75)
NC-9	9.36	10.38	1.02	9.19	9.84	(0.65)	0.51
NC-10	9.14	10.20	1.06	9.04	9.67	0.63	0.91
NC-11	9.54	10.17	0.63	9.48	9.64	0.16	0.67
NC-8	9.38	9.81	0.43	9.88	9.30	(0.58)	(1.39)
NC-15	9.17	9.70	0.53	9.49	9.20	(0.29)	(1.25)
NC-6	9.51	9.63	0.12	9.96	9.13	(0.83)	(1.86)
NC-2	8.74	9.32	0.58	9.11	8.84	(0.27)	(1.33)
NC-5, GP-7	8.58	9.31	0.73	8.63	8.83	0.20	(1.01)
W-9	8.71	10.26	1.55	8.83	9.73	0.90	(0.09)
W-8	10.18	10.26	0.08	10.27	9.73	(0.54)	(0.91)
Weighted Average	9.52	10.24	0.72	9.64	9.71	0.07	(0.43)

Source: "Super Income Year for Dairymen in 1978, Hoard's Dairyman, September 25, 1978, p. 1093 (Taken from Costs of Producing Milk in the United States--Final 1976, Estimated 1977 and Projections for 1978, prepared by USDA/ESCS for the Committee on Agriculture, Nutrition, and Forestry, United States Senate as mandated by the Agriculture and Consumer Protection Act of 1973, April 21, 1978).

[a] Production subregions indicated in Appendix A.

three-fourths of U.S. milk production is sold by farmers through their cooperatives,[1] with an even higher proportion of fluid grade milk production handled by cooperatives. Over 87 percent of the producers in Federal market orders are members of producer cooperatives.[2] Butter and non-fat dry milk (NFDM) production is dominated by cooperatives, which produce over two-thirds of all butter and more than 85 percent of dry milk products.[3] Cooperatives now account for over 36 percent of natural cheese production, doubling their share of twenty years ago.[4] About 15 percent of the packaged fluid milk market is now in the hands of cooperatives.[5]

Manchester[6] points out that since 1956, per capita consumption of dairy products in the aggregate has dropped 22 percent and total consumption has only risen 2 percent. A third of the decline in per capita consumption is attributed to a drop in domestic sales and the remainder is due to lower levels of consumption of milk on farms where it is produced and to smaller U.S. Department of Agriculture (USDA) donations of government-held supplies.

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[1]Paul W. MacAvoy, ed., Federal Milk Marketing Orders and Price Supports, (Washington, D.C: American Enterprise Institute for Public Policy Research, 1977), p. 47.

[2]Ibid.

[3]Manchester, Dairy Price Policy, p. 7.

[4]Ibid.

[5]Ibid., p. 5.

[6]Ibid., p. 9.

Consumption trends vary by dairy product. Per capita sales of beverage milk dropped 12 percent between 1956 and 1976, while butter and non-fat dry milk sales have declined 42 and 30 percent respectively. Per capita cheese sales on the other hand, have doubled over the 20 years period and cheese production accounts for the largest share of manufacturing milk--using 42 percent of available manufacturing milk in 1977 (24 percent of the total milk supply).[1]

The Cheese Industry

As cheese demand expands and the percentage of marketed milk used in cheese production rises, the cheese industry is becoming an increasingly important determinant of the well-being of the U.S. dairy industry. For this reason and because understanding of domestic cheese manufacturing is important for the analysis later in this study, an overview of the cheese industry is presented here. This discussion is supplemented in Chapter V by a more detailed description.

The number of plants manufacturing all types of natural cheese,[2] except Italian, is declining, and the average plant production is increasing. There were 806 cheese plants in 1977 averaging 4.2 million pounds of production, whereas in 1950, 2159 plants had an average output of 552,000 pounds.[3]

Plants are located in the greatest numbers in the North Atlantic and North Central regions. Production of American-type cheese is

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[1]Ibid., p. 11 and U.S. Department of Agriculture, Dairy Situation, ESCS, July 1978, p. 27.

[2]Natural cheese is made directly from milk by a curdling and aging process. Processed cheese is a blend of natural cheeses heated to a point at which all further aging stops. Emulsifiers and other ingredients may be added.

[3]U.S. Department of Agriculture, Dairy Products--Annual Summary, 1977, Crop Reporting Board, ESCS, June, 1978, p. 16.

heavily concentrated in the North Central region near large milk supplies. Wisconsin and Minnesota are by far the largest production states. Plants in Minnesota are generally much larger, averaging 16.4 million pounds of production in 1977 compared to 3.1 million pounds per plant in Wisconsin. Sixty-one percent of all U.S. cheese production in 1977 was American-type. Wisconsin, New York and California are the largest producers of Italian-type cheeses including Mozzarella, with California and Minnesota having the largest plants. Twenty-four percent of 1977 cheese production was Italian. In 1977, Illinois, Wisconsin and Ohio produced 60 percent of domestic Swiss cheese, a variety accounting for 6 percent of total cheese production. Wisconsin leads in the production of brick, Munster, Blue and other less important cheese types.[1]

A survey conducted by Lough in 1973[2] indicated that 53 percent of the manufacturing plants were proprietary corporations accounting for 59 percent of total natural cheese production, 22 percent were cooperatives producing one-third of the cheese and the remaining plants, privately owned, produced only 8 percent of the total output. A merger movement among cooperatives in the late sixties, particularly in the central U.S., resulted in a consolidation and expansion of many cheese manufacturing facilities and a conversion of some butter-NFDM production capacity to cheese production. As a result, cooperatives have a larger proportion of the higher capacity cheese plants and have an important share of the production in an industry traditionally dominated by small proprietary firms.

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[1] Ibid., pp. 15-29.

[2] Harold W. Lough, The Cheese Industry, Agricultural Economics Report No. 294, USDA/ERS, July, 1975, p. 24.

In 1977, about one-third of U.S. natural cheese production was further processed into pasteurized process cheese products whose manufacture is dominated by large national cheese companies. The natural varieties most often used in these products are Cheddar, Colby (both American types), and Swiss.

The growth of cooperatives in natural cheese production has provided the industry with more flexibility to adjust production to changing market conditions. It is estimated in Manchester[1] that ". . . 15 percent of the current cheese capacity could be converted back to butter-powder production with minimum loss of time and expense." Manchester points out that this flexibility exists primarily in the large regional cooperatives which resulted from the merger movement in the late sixties, but that national cheese corporations, single plant cooperatives and private firms are less flexible because of the specialized nature of cheesemakers, equipment, and storage facilities.

The question of flexibility in the cheese industry is important and will be discussed further with reference to the manufacture of particular types of cheese in Chapter V and VI as the effects of expanded cheese imports are analyzed.

Government Programs

In the 1930's, federal programs were instituted to deal with the level of milk prices, and with problems of milk price instability and dairy farm incomes. The basic structure of these programs is unchanged today.

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[1]Manchester, Dairy Price Policy, p. 7.

There are four interrelated government programs undergirding the industry:

1. The dairy price support program which establishes a floor price for manufacturing grade milk, thus maintaining a floor under all milk prices.

2. The milk marketing order program which establishes minimum prices for fluid grade milk in most of the country.

3. Import controls which protect the price support program and keep the U.S. government from supporting world milk prices.

4. Federal cooperative policy which fosters the development of farmer-owned cooperatives but discourages them from using their market power to raise prices inordinately.

Each program will be described briefly below.

Price Support Program. The Agricultural Act of 1949 requires that the price of milk to producers be supported at such level between 75 and 90 percent of parity as will ensure an adequate supply, reflect changes in the cost of production and assure a level of farm income to maintain productive capacity sufficient to meet future needs. The basic 1949 Act was amended by the Food and Agriculture Act of 1977 by raising the minimum support level to 80 percent of parity through March 31, 1979.[1] The amendment also requires that the support price be adjusted semi-annually, through March 31, 1981, to reflect any estimated change in the Parity Index (index of prices paid by farmers) during the first six months of the marketing year.

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[1]Effective October 1, 1977, the beginning of the marketing year was changed from April 1 to October 1. Therefore, support prices at 80 percent of parity will prevail through September 30, 1979.

The aim of the program is for the annual average price for manufacturing grade milk (average milkfat content of approximately 3.67 percent) to equal the support price announced by the Secretary of Agriculture at the beginning of the marketing year. To accomplish this objective, the CCC offers to buy carlots of butter (U.S. Grade A or higher), cheese (U.S. Grade A Cheddar and U.S. Extra Grade barrel cheese), and non-fat dry milk (U.S. Extra Grade) at prices calculated so as to enable processors to return the support price to producers of manufacturing grade milk. Thus, when necessary, the CCC removes milk from the market, in the form of these dairy products, at prices corresponding to the support price for manufacturing milk. These support purchases and CCC acquisitions under other legislative authority and terms are used in various food distribution programs.

Prices paid to farmers for manufacturing grade milk are determined by market forces and are free to move above the support level if supply and demand conditions warrant. In most years, these prices do move above the support in the short supply season (late fall and winter) and, at times, even in the flush, or peak production, season (spring and early summer).

Minnesota and Wisconsin produce about half of the manufacturing grade milk in the U.S. Several hundred dairy product plants compete actively for this milk and the price determined in this market reflects, in addition to the announced support price, the overall supply-demand situation for milk. For this reason, the Minnesota-Wisconsin (M-W) price is used by the Federal milk marketing orders as an important determinant of the minimum fluid grade prices. It's role in this regard will be discussed further below.

Table 2.1 indicates, for recent years, the support prices, the actual prices received by farmers for manufacturing grade milk, and year-end government stocks of dairy products, which reflects the quantity of CCC support purchases during the year.

Milk Marketing Order Program. The Agricultural Marketing Agreement Act of 1937, as amended, provides the Secretary of Agriculture with the authority to issue, with producer approval, milk marketing orders which are designed to aid in stabilizing market conditions in the sale of milk by dairy farmers to handlers (milk dealers). Within the designated marketing area of a given order, a Federal milk market administrator supervises the following activities:[1]

1. Establishing minimum prices to be paid grade A producers (usually through farmer cooperatives) according to the use made of the milk by handlers.[2]

2. Pooling of the proceeds of the sales, usually on a marketwide basis, so that grade A producers can be paid a uniform "blend" price--a weighted average of the prices received for grade A milk used for different purposes.

3. Impartial auditing of handlers' records to verify the payments of required prices.

4. Verifying the accuracy of weights and butterfat content of milk sold by producers.

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[1]"Marketing Agreements and Orders," Farm and Food Policy--1977, p. 192.

[2]Over 80 percent of the U.S. milk supply is grade A. After bottling needs are met, the remaining fluid grade milk is used in manufacturing products.

5. Providing information on the handling of milk in the marketing area so that interested parties can evaluate the market situation.

In most of the 47 Federal marketing orders, located as shown in Appendix B, the prices for milk used in manufactured products--designated as Class II or Class III milk[1]--are at or near the M-W price. Demand for these products is national and transportation costs are relatively low.

Minimum prices for milk for fluid use--Class I milk--are higher than the M-W price by fixed differentials specified by each order. The Class I price within a given order is based on the distance of the order from the upper midwest, the area which has the largest production surplus with respect to fluid milk needs. As the distance increases, the Class I price rises, reflecting transportation costs and local supplies and demands.

The price received by the farmer is the "blend price" reflecting the proportions of all milk used in the market in Class I and Class II. The blend price is influenced strongly by the amount of fluid grade milk in surplus of fluid use needs, i.e., a greater surplus would mean a lower blend price.

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[1]Some orders have two classes of milk; most have three. Class I products generally include fresh whole milk, skim milk, milk drinks, buttermilk, etc. Class II products, often referred to as "soft" manufacturing products, include sour cream, cottage cheese and similar products. Class III products, called "hard" manufactured products, include such items as hard cheeses, butter, evaporated or condensed milk and dry milk powder.

Orders having only two classes of milk distinguish only between fluid (Class I) and manufacturing (Class II) uses. For simplicity, in further discussion of classified pricing in this thesis, this distinction will be used.

Table 2.3 indicates how Class I minimums vary according to distance from the upper midwest and how the blend prices are sensitive to the amount of order milk used for Class I purposes.

In 1956, the Federal Order system regulated over 50 percent of the nation's grade A milk and about 33 percent of all milk. Coverage has grown and in 1977 over 80 percent of U.S. grade A production and about 66 percent of total milk marketed was regulated by Federal milk orders.

Milk is subject to extensive state regulation which in some cases overlaps with Federal regulation. In total, over 95 percent of grade A milk production is priced under either Federal or state orders.[1]

Import Controls. With U.S. prices of dairy products supported at levels substantially higher than world prices, import controls are required if the domestic market is not to be flooded with foreign dairy products. Section 22 of the Agricultural Adjustment Act of 1933 provides the authority for the President, based on the advice of the Secretary of Agriculture and the findings of an International Trade Commission investigation, to impose fees or quotas on any article which is being imported under such conditions as to interfere with the price support program. Quantitative import controls on dairy products were first imposed in 1951 under emergency legislation and the first use of the authority provided by Section 22 was in 1953. All dairy imports are subject to quotas except certain higher priced cheeses, casein and lactose. The quotas on cheese have the greatest relevance for this study and these are described in detail in Chapter V.

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[1]Shaw, Farm and Food Policy--1977, p. 255.

Table 2.3

Producer Milk Deliveries to Handlers Regulated Under Federal Orders, Deliveries Used in Class I, Minimum Class I and Blend Prices, 1976-77.

Marketing Area[a]	Producer Deliveries		Producer Deliveries Used in Class I		Percent Used in Class I		Minimum Class I Price[b]		Blend Price[b]	
	1977	1976	1977	1976	1977	1976	1977	1976	1977	1976
	(million pounds)		(million pounds)		(percent)		($/cwt.)		($/cwt.)	
New England	4,993.9	4,993.8	2,937.1	2,972.1	59	60	11.46	11.58	10.39	10.44
New York-New Jersey	9,628.9	9.484.2	4,544.0	4,668.4	47	49	11.12	11.24	9.85	9.91
Middle Atlantic	5,664.1	5,387.9	3,265.9	3,278.6	58	61	11.26	11.38	10.10	10.23
Tampa Bay	538.4	540.2	473.2	471.5	88	87	11.42	11.55	11.31	11.39
Southeastern Florida	762.8	775.2	693.5	689.5	91	89	11.63	11.75	11.59	11.63
Upper Florida	666.1	677.9	617.3	598.9	93	88	11.32	11.44	11.36	11.34
Georgia	1,528.0	1,502.5	1,188.5	1,180.8	78	78	10.78	10.90	10.31	10.40
Southern Michigan	4,179.1	4.028.6	2,251.7	2.327.4	54	58	10.08	10.20	9.43	9.50
E. Ohio-W. Pennsylvania	3,493.1	3,488.6	2,098.6	2,133.3	60	61	10.33	10.45	9.59	9.65
Ohio Valley	3,155.9	3,011.6	1,942.4	1,893.6	62	63	10.19	10.30	9.60	9.65
Michigan U.P.	84.2	92.1	48.4	51.3	57	56	9.83	9.95	9.27	9.27
Chicago Regional	10,067.4	9,779.0	3,053.2	3.115.3	30	32	9.74	9.86	9.08	9.06
Lsville-Lxgton-Evnsville	1,197.2	1,207.5	741.7	752.8	62	62	10.18	10.12	9.58	9.52
Indiana	2,023.6	2,160.3	1,332.8	1,413.1	66	65	9.93	10.07	9.48	9.54
S. Illinois	1,095.4	1,126.0	583.4	613.3	53	54	10.01	10.13	9.49	9.55
Central Illinois	258.2	252.7	161.8	142.1	63	56	9.87	9.99	9.43	9.38
Upper Midwest	7.001.3	5,351.5	1,557.1	1,507.6	22	28	9.60	9.70	8.86	8.87
E. South Dakota	292.0	289.7	135.5	136.9	46	47	9.88	10.04	9.25	9.26
Black Hills	73.4	71.4	38.4	38.1	52	53	10.45	10.54	9.58	9.52
Iowa	1,687.9	1,403.0	750.0	719.4	44	51	9.87	9.95	9.25	9.31
Nebraska-W. Iowa	1,091.9	1.137.6	548.8	562.7	50	49	10.08	10.20	9.30	9.33
St. Louis-Ozarks	1,804.8	1,698.8	1,212.2	1,151.1	56	58	10.08	10.20	9.53	9.58
Greater Kansas City	970.9	1,090.9	509.6	566.9	52	52	10.22	10.35	9.45	9.51
Neosho Valley	6.8	7.0	6.2	6.2	91	89	10.15	10.26	9.98	10.05
Wichita	343.2	343.2	204.9	201.9	59	59	10.28	10.40	9.87	9.58
Paducah	120.9	130.4	94.4	103.1	78	79	10.17	10.30	9.86	10.00
Nashville	586.0	590.4	327.3	335.4	56	57	10.33	10.20	9.33	9.47
Memphis	308.4	303.9	259.5	262.6	84	86	10.41	10.55	10.11	10.24
Tennessee Valley	1,159.8	1,100.7	861.1	841.0	74	76	10.58	10.67	10.10	10.15
Cent. Arkansas-Fort Smith	381.6	361.4	322.5	319.0	84	88	10.42	10.54	10.10	10.26
Oklahoma Metropolitan	833.6	809.6	549.2	514.2	66	64	10.46	10.58	9.83	9.83
Red River Valley	131.0	159.7	92.8	114.5	71	72	10.66	10.81	10.07	10.17
Texas Panhandle	103.6	88.8	76.2	73.3	74	82	10.73	10.85	10.12	10.39
Lubbock-Plainview	75.5	77.9	65.1	66.2	86	85	10.90	11.02	10.55	10.61
Greater Louisiana	626.3	528.9	526.9	440.2	34	33	10.94	11.01	10.57	10.57
New Orleans-Mississippi	1,100.0	959.7	789.0	671.3	72	70	11.32	11.40	10.62	10.59
Texas	3,457.3	3.442.8	2,598.7	2,543.3	75	74	10.80	10.92	10.23	10.27
Eastern Colorado	819.5	822.0	605.1	595.0	74	72	10.73	10.90	10.22	10.26
Great Basin	771.0	728.7	423.4	408.6	55	56	10.39	10.49	9.60	9.62
Western Colorado	72.6	58.3	54.5	42.2	75	72	10.48	10.60	10.04	10.03
Central Arizona	865.6	844.7	537.8	517.6	62	61	11.00	11.12	10.10	10.12
Rio Grande Valley	420.7	408.7	329.3	321.0	78	78	10.83	10.95	10.33	10.40
Lake Mead	135.8	131.5	92.4	84.3	68	64	10.08	10.20	9.70	9.71
Puget Sound	1,677.0	1,575.2	688.5	645.3	41	41	10.34	10.44	9.36	9.32
Inland Empire	283.0	253.2	142.6	139.4	50	55	10.44	10.55	9.52	9.59
Oregon-Washington	1,407.3	1,308.1	793.6	753.5	56	58	10.44	10.55	9.66	9.67
All Market Total	77,949.6	74,586.2	41,126.2	40,983.8	53	55	10.59	10.70	9.69	9.75

Source: USDA/AMS, Federal Milk Order Market Statistics, Annual Summary for 1977, Statistical Bulletin No. 611, July 1978, pp. 24-25, 46-47.

[a] Marketing Areas shown in Appendix B.

[b] Milk of 3.5 percent butterfat content, f.o.b. market.
All averages are weighted.

Virtually all of the Section 22 dairy quotas are allocated by country of origin on the basis of the pattern of trade which existed during some representative base period. Import licenses designate country of origin but the USDA may transfer this country designation for the remainder of the quota year if it becomes apparent that the original exporting country is unable to supply its annual allocation.

A second major import regulatory mechanism is the countervailing duty (CVD). Section 303 of the Tariff Act of 1930 directs the Secretary of the Treasury to impose CVDs on imports when it is determined that subsidies are being paid on the articles' production or export. The legislation does not require that any formal proof of injury to domestic industry be demonstrated prior to taking action. The Trade Act of 1974, however, authorized the Secretary to waive the imposition of CVDs if a) countries involved reduce substantially or eliminate the adverse effects of the subsidies, b) there are reasonable prospects that successful trade agreements will be negotiated to reduce or eliminate trade barriers and distortions, or c) imposition of CVDs would be likely to seriously jeopardize the satisfactory completion of negotiations aimed at reaching such agreements. Though it was determined in 1975 that European exporters were paying subsidies on cheese exports, the Secretary of the Treasury granted temporary CVD waivers in the interest of promoting the MTNs. The waiver agreement will be discussed in detail in Chapters V and VI with respect to specific cheese types relevant to this study but generally, on cheeses for which subsidies were not completely prohibited, it was agreed that there would be no significant reduction in prices of these cheeses to the U.S. relative to U.S.

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domestic prices for cheese of similar type. The agreements expire January 4, 1979.

Federal Cooperative Policy. The Capper-Volstead Act of 1922 permits farmers to act together in marketing their products and provides limited antitrust immunity for such activities. Producer cooperatives formed under the authority of the Act perform a variety of functions, including provision of a guaranteed outlet for producer milk, sale of supplies and equipment, coordination of raw milk flows to processors, and manufacture of surplus milk into factory products.

Summary

This chapter has provided a brief description of the domestic dairy industry and related government programs, with somewhat greater emphasis on aspects which are relevant for the analysis of Chapter IV-VII. Chapter III describes the international agricultural trading situation and shows how the domestic dairy program constrains policy-markers' freedom to tailor foreign agricultural policy to satisfy other goals.

CHAPTER III

THE INTERNATIONAL CONTEXT

A nation's international policies, in many cases, can be viewed as extensions of domestic policies and therefore, the objectives of the domestic agricultural policies, politically determined, often constrain action in the international sphere. Further, the beneficial effects of trade may be unevenly divided among nations as well as among population segments within nations. Therefore, in spite of the well developed theory which demonstrates the advantages to global welfare of conducting trade based on the principle of comparative advantage, free trade ". . . remains at best a controversial blueprint of international organizations, and at worst the naive ideal of the theoreticians."[1] The maze of trade restrictions surrounding virtually every country is the result of policy decisions which ". . . are mostly suboptimal for the economist bent on maximization of economic variables. . ."[2] but which reflect the policymarkers' response to the interplay of economic and political forces bearing on their countries.

The U.S. dairy policy described in Chapter II is the product of a decision process which has attempted to balance the interests of

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[1]Klaus Friedrich, International Economics--Concepts and Issues, (New York: McGraw-Hill, 1971), p. 65.

[2]Theodor Heidhues, "Current Problems in North American-European Agricultural Trade," Lecture presented to the Global Issues Group, Michigan States University, October 14, 1976.

consumers, producers, public officials, cooperatives and other agents with an interest in the production and consumption of milk and dairy products. Efficiency has been sacrificed in some areas in the interest of equity goals as the policymakers have sought to improve the "general welfare," as they perceive it.

To understand the agricultural trade policy stances of the major participants in world dairy trade--positions whose incompatibility has led to the problem analyzed in this thesis--it is necessary to understand the underlying domestic policies. The next section of this chapter sketches these domestic policies particularly as they relate to the national dairy industries and to the formulation of agricultural trade policy. A general discussion of the nature of world trade in dairy products is followed by the concluding section in which the controversy surrounding U.S. dairy import policy is elaborated in the context of the Multilateral Trade Negotiations.

National Dairy Policies

European Community. Nearly 90 percent of European Community (EC) farm output, including milk production, is subject to a system of support and protection policies known as the Common Agricultural Policy (CAP). The objectives of the CAP are to increase farm productivity, stabilize markets, ensure a fair standard of living for the agricultural population and for consumers with regular and reasonably price supplies of farm goods.[1] Hudson[2] describes the CAP in terms of three principles:

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[1]Richard B. Schroeter and Omero Sabatini, "The EC's CAP: How It Work," Foreign Agriculture, USDA/FAS, January 9, 1978, pp. 2-5.

[2]John F. Hudson, The Common Agricultural Policy of the European Community, USDA/FAS, November, 1973, pp. 3-4.

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1. Common pricing--Prices are regulated throughout the EC so as to promote and facilitate free trade among the nine member countries. Before 1969, when exchange rates among member countries were fixed, application of the CAP regulations resulted in the price of any farm product being the same throughout the EC. Since then, though support prices fixed by the EC Council of Ministers are applied to all countries, the price of the same product can vary substantially from one country to another. Conable[1] provides a good description of the complex agrimonetary system currently used in the EC to relate mandated support prices to member countries' currencies and to provide an orderly basis for pricing commodities in intra-EC trade.

2. Community preferences--Through the use of minimum import prices, variable import levies and export subsidies, the CAP ensures that EC products will always be cheaper than imports and that their products, supported domestically at high prices, are competitive on world markets.

3. Common financing--All EC member countries agree to share the cost of agricultural support. The CAP cost EC taxpayers $8.6 billion in 1977; and 75% of the total EC budget went to the farming sector.[2] The soaring costs and the unequal distribution of the benefits have made the CAP an issue of contention among the EC member countries.

In dairy, as well as in other agricultural sectors, high guaranteed prices have led to large production surpluses. At the end of

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[1]Dan Conable, "Green Rates and MCA's: Workings of the EC Agrimonetary System," Foreign Agriculture, USDA/FAS, September 11, 1978, pp. 8-10.

[2]"The EEC's Farm Policy," The Economist, April 1, 1978, pp. 60, 63.

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1977, EC stocks of butter and NFDM, the two commodities purchased under the support program to ensure that the market price of milk approximates the announced target price,[1] were at 400 thousand and 1 million metric tons respectively. Though some tendency toward a more restrictive price policy has been shown recently, the announced target price for the 1978-79 marketing year has still been set at about $12.00/cwt., more than 20 percent higher than the U.S. manufacturing milk support,[2] and over 2 percent more than the 1977-78 EC target. The EC purchase prices for butter and NFDM for 1977-78 are $1.60 and $0.65 per pound respectively. (U.S. purchase prices announced October 1, 1978 are $1.135/pound for butter and $0.7375/pound for NFDM.)[3]

Other measures have been considered and tried in an attempt to deal with the surpluses and to stem the chronic overproduction in dairy. An EC Commission recommendation to suspend intervention purchases during some periods of the year was recently rejected by the Council. A "co-responsibility levy"--a marketing fee on milk production which was to be used to stimulate dairy product consumption and to subsidize exports--was instituted at 1.5 percent in September, 1977 but recently lowered to 0.5 percent. A premium system is in effect to encourage withholding of milk production and conversion to beef

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[1] In Italy certain cheeses are also purchased under the support program.

[2] Except for the U.K., the EC does not have classified pricing plans and therefore the EC target price applies to both fluid and manufacturing grade milk. The EC target price might better be compared with the 1978 expected U.S. average price received by farmers for all milk sent to plants of $10.50/cwt. (Table 2.1).

[3] Conversion from EC units of account (u.a.) to dollars is done using the early August, 1978 rate: 1 u.a. = $1.50.

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production. Measures which have caused particular strain in U.S.-EC trading relations have been a now defunct program requiring the incorporation of surplus NFDM into livestock feed, the continuing programs to subsidize NFDM use in hog and poultry rations and subsidization of the export of dairy products.

The subsidies which the EC grants on cheese exports are particularly relevant to this study. Table 3.1 indicates, for selected cheese types, the subsidies which the EC has paid on exports to the U.S. since October 1, 1978. The part which these subsidies play in the controversy surrounding U.S. dairy import policy will be discussed further, later in this chapter.

New Zealand. A recent study by Buxton and Frick[1] showed that because housing the supplementary feeding were unnecessary, the New Zealand dairy industry had the lowest milk production costs of any major dairy producer. About 90 percent of the milk production is used for manufactured products, a large portion of which are available for export. Farmers deliver their milk to dairy manufacturing companies, almost exclusively farmer cooperatives, and receive preliminary payments authorized by the New Zealand Dairy Board. The Board, which has sole responsibility for acquiring and marketing dairy products for export, sets these payments based on expectations of export revenues for the various products and thus the farmers are paid according to the final use of their milk. The preliminary payments are supplemented when actual export returns are realized. There is no direct export subsidy

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[1]Boyd M. Buxton and George E. Frick, "Can the United States Compete with Dairy Exporting Nations?", Journal of Dairy Science, Vol. 59 (January, 1976), pp. 1184-1192.

Table 3.1

Refunds Made By the European Community on Exports to the United States--Selected Cheese Types.

-Effective October 1, 1978-

Cheese	Refund[a] ($/lb.)
Blue-veined	0.26
Cheddar, Colby, Monterey[b]	0
Edam, Gouda, Danbo, Fontal, Fontina, Fynbo, Havarti, Maribo, Samso, Tilsit	0.27
Provolone, Asiago, Caciocavallo, Pagusano	0.62
Parmigiano, Reggiano, Grana	0.59
Emmenthaler and Gruyere[b]	0
Cantal, Cheshire, Wensleydale, Lancashire, Double Gloucester	0.25
Processed Cheese[c]	0.13 - 0.33

Source: European Community, Official Journal of the European Community, Vol. 21, L.275, September 30, 1978, p. 30.

[a] Conversion: 1 unit of account = $1.50

[b] The EC was required to eliminate refunds on these (and certain other) cheeses under the terms of the 1975 countervailing duty waiver agreement.

[c] Refund varies according to fat and dry matter content.

for dairy products but if the Dairy Board has to sell a product at a loss to meet world competition, the loss is made up from profits on other sales.

Milk for fluid and related uses is supplied by designated producers at premium prices.

Australia. The current dairy policy in Australia is to reduce dairy production to cover domestic needs while leaving enough margin for profitable exports. Though 2500 farmers per year have left dairying since 1970 in response to the imposition of quotas, levies and other production disincentives and output has been contracting for several years, the dairy industry remains one of the country's larger farm industries, providing about 8 percent of rural income.[1]

About one-fourth of the country's output is used for fluid consumption. Milk boards in each state determine the fluid milk prices and the amount of milk which any producer can sell for fluid use.

The prices of butter, NFDM, cheese and casein are underwritten by the government at levels designed to allow manufacturing plants to pay a given price per pound of butterfat at the farm gate. In recent years, the government has tried to set these prices so as to keep the incomes of dairy producers stable as it discourages output.

All exports of dairy products except evaporated and condensed milk are controlled by the Australian Dairy Produce Board.

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[1] "Australia's Dairy Exports to Decline," Foreign Agriculture, USDA/FAS, February 27, 1978, p. 15.

Canada. The dual objectives of equitable producer returns and adequate supply to consumers are implemented in Canada through the dairy program's price supports, market quotas and trade policy. The Canadian Dairy Commission purchases NFDM and butter at announced support prices and administers a direct subsidy which producers of manufacturing milk receive for their milk. The marketing of manufacturing milk is regulated under the Comprehensive Milk Marketing Plan through market share quotas (MSQ). The MSQs are administered by Provincial Government agencies or marketing boards on behalf of the Provincial Government. Levies are assessed on deliveries in excess of the quotas and are so high as to be completely confiscatory of the value of over-quota milk. Exports provide the main outlet for products purchased under the price support program. Subsidization of exports is financed by the levies.

Quotas are also in effect on fluid milk.

Other Countries. In addition to the aforementioned major dairy producers, there are several other countries exporting dairy products to the U.S. whose dairy policies have brought them into conflict with the U.S. Austria pays dairy farmers a guaranteed price and subsidizes exports with revenues coming largely from an assessment levied on milk deliveries. Switzerland, like Canada, establishes production quotas, paying a guaranteed price on deliveries within the quota and penalizing any amount over that level. Export subsidies are financed partially by a "check-off" made against milk producers. In Finland, VALIO, the National Dairy Cooperative, purchases surplus dairy products at prices fixed by the government and exports these products, subsidizing to the extent necessary. Norway fixes minimum wholesale prices for

milk, dairy products and dairy product exports. Though government policy does not explicitly provide a subsidy to export sales, a domestic consumer subsidization scheme permits export sales at prices lower than would normally be possible. Sweden's dairy policy provides for a price range for dairy products, region-specific price supports to encourage production in higher cost producing areas, an equalization fund to stabilize prices and ensure that milk producers receive the same prices for their milk deliveries regardless of the milk's utilization, and export subsidies.

The Nature of World Dairy Trade

Although accounting for less than half the world's total milk output, the U.S., EC, New Zealand, Australia, and Canada produce most of the dairy products moving in world trade. Since less than five percent of world milk production is traded internationally, relatively small changes in the quantities entering the world market can have important impacts on world prices and historically these prices have been highly unstable.

As is clear from the previous section, national dairy industries are subject to a variety of government controls designed to provide producers with acceptable incomes and consumers with an adequate supply of milk. While the dairy industries of New Zealand and Australia are highly export oriented, other nations enter the export market mainly in times of domestic over production, subsidizing as necessary to meet the world prices. This practice of treating the world market as a residual outlet for domestic output adds additional uncertainty to an already volatile market.

The world dairy situation changed from a state of surplus and low prices in the sixties to one of relative shortages and high prices in the early seventies and again back to a situation of overproduction beginning in 1976. National stocks of dairy products have grown and in addition to heavy export subsidization, governments have resorted to extra-market devices to induce domestic uses of dairy products that ordinarily would not be commercially feasible. In some cases, these actions have interfered with the trade of other agricultural commodities.[1]

Though some countries have made changes in their domestic dairy programs, reducing the incentive to overproduce, the deep social commitment to dairy producers precludes much reduction of the structural overcapacity existing in most nations. A preferred course is for the dairy producing nations to expand the market for their milk, domestically or internationally, but in addition to a general decline in the demand for dairy products worldwide, import controls inhibit the expansion of export markets.

Buxton and Frick[2] analyzed the competitive position of the important dairy traders in the world market and found that though yields per cow are considerably lower in New Zealand and Australia than those in the U.S., EC or Canada, the low cost, pasture-based dairy industries of those countries are the most efficient in the world. The general conclusion of their study is that New Zealand and Australia can,

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[1]An example of this is the mixing regulation instituted by the EC requiring the use of NFDM in animal feed, displacing the U.S. supplied soybeans.

[2]Buxton and Frick, "Can the United States Compete?", pp. 1187, 1190.

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without export subsidization, supply butter, NFDM and Cheddar cheese to the U.S. east cost at prices below U.S. production costs, but because potential supply from these countries is small relative to world production, this could not drive world prices to the level of their low production costs, even if world trade were conducted without distortion. Buxton and Frick determined that, for the above products, the EC and other exporters were not competitive, price-wise, with the U.S. dairy industry.

Unfortunately, no studies exist which estimate production costs for the large variety of cheeses other than Cheddar which the EC and others produce and would like to ship to the U.S. in greater quantities. For many of the specialized table cheeses, the EC may have a production advantage over the U.S., though as Table 3.1 indicates, subsidization is required on many of their cheese exports to permit entry into the U.S.[1] The specialty cheeses are higher cost and, in many cases, are not subject to import restrictions.

Multilateral Trade Negotiations

From 1973 until the present, delegates from nearly a hundred countries have been meeting in Geneva, Switzerland to discuss the world trading situation and to try to resolve some of the intractable problems in international trading relations. Since World War II, seven such MTNs have been held under the auspices of the General Agreement on Tariffs and Trade (GATT), an international agreement in force since 1948 which sets out agreed rules and principles for governing trade

[1] As shown in Chapters V and VI, the cheeses in Table 3.1 are of the most relevance to the confrontation over U.S. import policy.

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among the contracting parties, and provides an international forum for the discussion and settlement of mutual trading problems.

The need for the current round of talks was first noted in the Smithsonian Agreement on exchange rates in 1971 as the United States, the EC and Japan concluded that the determination of world trade was threatened by mounting protectionist pressures. At a ministerial meeting in Tokyo in 1973, formal approval was given to the new trade talks and the "Tokyo Declaration" declared the negotiations officially open.

As in previous MTNs, agricultural negotiations in the Tokyo Round, carried in Group Agriculture (Appendix C), have proven difficult owing to the unwillingness of the participating nations to compromise their domestic agricultural support policies. Progress has been made in earlier MTNs in reducing tariffs but non-tariff barriers remain largely in place and constitute an important distortion to trade and a serious stumbling block in the negotiations.

The negotiations on dairy trade in the Dairy Subgroup of Group Agriculture have been particularly difficult and the United States has found itself on the defensive from the start. Increased access to the U.S. market for dairy products has been an important goal of the EC, several other western European countries and New Zealand and for this reason the Section 22 quotas have been an important topic of discussion.

In 1955, the contracting parties of the GATT agreed to grant the U.S. a waiver of its obligations under the GATT insofar as those obligations were inconsistent with action required to be taken by the U.S.

under Section 22.[1] The waiver provides that the U.S. shall consult with and give due consideration to the views of the contracting parties affected by the Section 22 actions; that parties adversely affected by action taken shall have recourse to certain compensatory procedures under the GATT;[2] that the U.S. shall remove or relax restrictions imposed under the waiver as soon as possible; and that U.S. action under the waiver shall be reviewed annually by the contracting parties. The U.S. has not removed the quotas and has brought more dairy products under quota since the restrictions were first imposed, and dairy exporters have argued that the time has come for the quotas to be removed or expanded.

A second main issue in the dairy negotiations is the subsidy-countervailing duty question. As noted in an earlier section of this chapter, the policies of most world dairy traders provide for subsidizing exports of dairy products and the practice is widespread. To prevent possible harmful impacts which subsidized impacts might have on the domestic market, the U.S. Trade Act of 1930, as amended by the Trade Act of 1974, provides for the imposition of CVDs on subsidized imports equal to the net amount of the subsidies. The issue here is that GATT Article VI, while permitting importing countries to impose

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[1]The waiver refers to obligations under Article XI, which generally prohibits the use of quantitative trade restrictions. The waiver was granted because of a clause in Article II permitting nations to impose duties or charges in excess of those agreed to on the effective date of the GATT (1948), if such duties or charges are mandated by previously existing legislation. Section 22 was added to the Agricultural Adjustment Act of 1933 by the Act of 1935.

[2]Article XXIII prescribes procedures to be followed in the event that the benefits due to one contracting party under the GATT are impaired by the actions of another contracting party.

CVDs to offset subsidies on production or export, requires the importer to first show that the subsidization is causing or threatening injury to a domestic industry. The 1974 Trade Act does not require that injury be proven by the U.S. prior to levying a CVD. However, the U.S. has never imposed CVDs on imported dairy products though a 1975 investigation by the Department of the Treasury conducted under the authority of the 1930 Act showed that subsidized cheese was entering from the EC, Austria, Finland, Sweden, Norway and Switzerland. Instead, using powers given him by the 1974 Trade Act, the Secretary of the Treasury granted temporary CVD waivers which expire January 4, 1979, on imported cheese from these countries. These waivers will be discussed in more detail with reference to particular cheese types in Chapter V and VI.

Though GATT Article XVI recognizes the harm that subsidies can cause to domestic industries and export markets of third countries, and seeks to limit their use, the Article has not proven to be a very good guide to the use of subsidies in international trade. Consequently, discussions in the Subsidies Subgroup are directed toward tightening GATT language in this area and devising a code on subsidies which would clearly define subsidization practices, specify permissible conduct, and designate procedures to handle code violations.

In the Dairy Subgroup, various proposals have been forwarded which not only suggest method of dealing with the subsidy-countervailing question, but also attempt to resolve the marekt access issue. New Zealand, highly dependent on the export of dairy and other agricultural products for foreign exchange, and confident in its ability to provide low cost dairy products to the world, proposed a new international dairy agreement with provisions for minimum product prices and consultations

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among dairy traders with a view toward expanding access to markets to the extent possible under existing national dairy policies. The EC, anxious to expand dairy exports, retain maximum latitude to subsidize these exports, and offset some of its chronic agricultural trade deficit with the U.S., also proposed a dairy agreement having consultation and minimum price provisions, in addition to a series of "concerted disciplines" for cheese. The "concerted disciplines," as envisioned by the EC, are agreements negotiated between two or among several countries which provide for minimum prices as a discipline on subsidies, improved market access, and in the case of the U.S., institution of an injury test as a condition of levying CVDs.

The aspect of these negotiations which is of particular concern to the U.S. is that the dairy exporters, particularly the EC, have stated that U.S. action on market access in dairy is a sine qua non to their concessions on agricultural items of interest to the U.S. The U.S. is especially anxious to gain EC concessions on beef, tobacco, nuts, rice, canned fruits and juices, citrus and grapes, raisins and prunes, and liberalization of U.S. dairy import policy is a quid pro quo often demanded by the EC. Since the negotiations are being held in a time of growing overall U.S. trade deficit and falling dollar, the U.S. negotiations would surely like to find ways to expand exports.

Summary

This chapter has highlighted some of the important characteristics of the world dairy industry, complementing the discussion of the domestic industry in Chapter II. Against this backdrop, the complex set of issues faced by the U.S. negotiators in the Dairy Subgroup of the

MTNs can be better understood. It is clear that the U.S. is under pressure to provide greater access to its market for foreign dairy products. To respond to the pressure, U.S. policymakers require information on the extent to which the domestic dairy industry would likely be affected if it was agreed to open U.S. markets to larger quantities of imports in exchange for certain concessions by dairy exporters. Agreeing to participate in the "concerted disciplines" of the EC proposed dairy agreement would almost certainly result in greater quantities of foreign-made cheese entering the U.S. The remainder of this thesis is devoted to estimating the impacts on the U.S. dairy industry which might be expected under various scenarios of expanded cheese imports.

CHAPTER IV

THE MODEL

Before a decision can be reached on whether or not to change dairy import policy, decisionmakers must have an understanding of the likely costs and benefits of such a move. This chapter develops methodology to be used to estimate how cheese manufacturers, milk producers and the government dairy support program would be influenced by import expansion. The analysis uses a comparative static model and the estimates derived must be interpreted as short-run impacts, though inferences will be made as to long-run effects outside the model.

In the first section of this chapter, previous studies in this area are reviewed and the distinctive features of this study are indicated. Then the theory underlying the methodology used here is described first diagrammatically, then mathematically. Finally, assumptions and limitations of the model are discussed. Chapter V develops the necessary information base to be used in the estimation procedure and in the interpretation of the results.

Past Research

From the time of the Tokyo Declaration, it was known that the U.S. dairy import policy would be a contentious issue in the MTNs. As a result, several studies have been undertaken in the seventies to estimate the impacts of expanded dairy quotas.

The so-called "Flanigan Report,"[1] the first such study, suggested that United States feed grain and soybean exports could be expanded substantially if the U.S. agreed to import more dairy products. The study concluded that even if the U.S. imported as much as 10 percent of its milk consumption needs,[2] considerably more than the 1.6 percent allowed under the current quotas, the adjustments required in the domestic dairy industry would be small. Research done by the Atlantic Council[3] reported similar conclusions.

Buxton and Fallert[4] developed a static partial equilibrium model to evaluate the short run impact of increased dairy product imports and concluded that additional imports of 500 million pounds of milk equivalent would reduce U.S. milk prices, on the farm about 8¢ per cwt., or nearly one percent.

A U S D A study[5] mandated by the Agriculture and Consumer Protection Act of 1973 analyzed three trade alternatives and traced their

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[1]Council on International Economic Policy, Agricultural Trade and the Proposed Round of Multilateral Trade Negotiations, Report Prepared at the Request of Peter Flanigan, Assistant to the President for International Economic Affairs, (Washington, D.C., April, 1973).

[2]In milk equivalent terms. This amounts to 25 percent of U.S. manufactured milk product consumption.

[3]D. Gale Johnson and John A. Schnittker, eds., "Changing U.S. Agricultural Policies: The Relationship to Trade Negotiations," U.S. Agriculture in a World Context: Policies and Approaches for the Next Decade, Atlantic Council of the United States, (New York: Praeger Press, 1974).

[4]Boyd M. Buxton and Richard Fallert, Impact of Dairy Product Imports on U.S. Milk Price, Staff Paper P74-21, Department of Agricultural Economics, University of Minnesota, October, 1974.

[5]U.S. Department of Agriculture, The Impact of Dairy Imports on the U.S. Dairy Industry, ERS Agricultural Economics Report No. 278, January, 1975.

impacts over the 1975 to 1980 period--a continuation of current policy; free trade with complete elimination of all barriers to dairy product trade and all domestic dairy price support programs in all countries; and an open U.S. market with removal of the import quotas and price support program with dairy policies in the rest of the world remaining intact. The conclusions of this research contrasted sharply with those of the Flanigan and Atlantic Council studies. USDA predicted severe damage to the domestic industry, particularly for the open market policy alternative under which farm milk prices dropped 22 percent immediately, with subsequent adjustment resulting in significant declines in farm and plant numbers. A GAO report[1] criticized the USDA study for analyzing unrealistic trade alternatives and suggested that research should be directed at examining the likely impacts of more viable and incremental modifications to import policy.

Novakovic and Thompson[2] developed an econometric model of the U.S. dairy industry which disaggregated manufactured dairy products into six groupings and traced the adjustment path of relevant variables for ten years following an import policy change in 1974. Policies allowing "twice normal" and the high 1973-74 import levels were contrasted with the current policy and it was concluded that ". . . large changes in import levels are required to bring about substantial

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[1]U.S. General Accounting Office, U.S. Import Restrictions: Alternatives to Present Dairy Programs, Report to the Congress by the Comptroller General of the United States, Washington, D.C., December 8, 1976.

[2]Andrew M. Novakovic and Robert L. Thompson, "The Impact of Imports of Manufactured Milk Products on the U.S. Dairy Industry," American Journal of Agricultural Economics, Vol. 59 (August, 1977), pp. 507-519.

impacts on the dairy industry."[1] Doubling imports changed most variables studied by less than 1 percent, even in the short run.

Hypothesizing that Wisconsin would be particularly adversely affected by dairy import increases, Salathe, et al.[2] used a simulation model to study the impact on Wisconsin farm milk price and other variables between 1976 and 1980 of various policy changes involving dairy imports of from 1.7 billion pounds (the normal level) to as high as 13.4 billion pounds of milk equivalent. They concluded that imports of twice the currently permitted level would necessitate only moderate adjustments in the Wisconsin and U.S. dairy industries. It was estimated that imports of 12 billion pounds of milk equivalent would depress Wisconsin farm prices 18 percent initially, and though prices would recover in three years, this recovery would occur only after 13 percent of Wisconsin's milk producers had left dairying.

The present study extends previous work in that the import alternatives analyzed are based on requests for import policy change actually received by the U.S. in the MTNs. U.S. policymakers are being forced to reconsider the Section 22 cheese quotas and the policies pertaining to the handling of subsidized cheese imports. Consequently, the previous studies which have dealt with alternative levels of imports defined in milk equivalent terms or in highly aggregated product categories are of limited use to policymakers who must decide whether or not to take action affecting the importation of a particular

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[1] Ibid., p. 518.

[2] Larry Salathe, William D. Dobson, and Gustof A. Peterson, "Analysis of the Impact of Alternative U.S. Dairy Import Policies," American Journal of Agricultural Economics, Vol. 59 (August, 1977), pp. 496-506.

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cheese type. This study disaggregates cheese imports according to quota category, formulates import options for each based on MTN requests, and estimates price and production impacts on the particular domestic producers likely to be affected.

This study estimates effects of an import increase on cheese manufacturers as well as on milk producers, and recognizes that farm level impacts would be determined by the adjustments in the cheese market. The domestic supply curves of the particular cheese types are incremented here, and this procedure allows for effects on the demand side of the cheese market to be considered in arriving at estimates of farm milk price changes.

The methodology to be used in the analysis is developed in the next two sections.

Methodology--Diagrammatical Development

Opening U.S. markets to increased cheese imports would have impacts on domestic dairy farmers, as well as on the cheese industry itself. The types of effects will differ, depending on whether or not milk and product prices are at the support level. The analysis described below will estimates short run impact on both segments of the dairy industry under each set of price conditions. As it is a static analysis, all the usual assumptions required to make the relationships exact apply.

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Prices Above Support. Figure 4.1 shows the situation where greater quantities of a particular cheese type are imported at a time when prices are above support. In part B, the supply curve of the domestic cheese manufacturing industry, S, is incremented by the normal amount of imports, BD=AC, to give the total supply curve before quota expansion, S + I. This total supply curve intersects with the demand curve for this cheese, D, to determine domestic industry output, OB, demand, OD, and wholesale cheese price, OP.

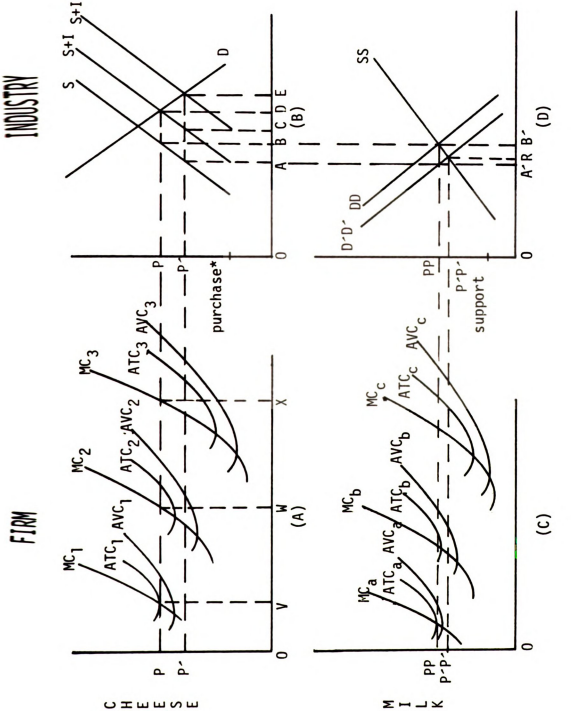
The corresponding situation in the milk production sector can be seen in part D. SS is the supply curve for domestic milk available for manufacturing, i.e., total milk supply net of milk used to satisfy fluid demand. DD is the derived demand curve for this milk. It includes not only demand for domestic milk used by the particular cheese industry shown in part B, but milk needed for the domestic manufacture of all manufactured dairy products. It is the domestic demand curve for U.S. milk needed by domestic dairy product manufacturers to produce goods demanded domestically.

Before additional imports are allowed to enter, the DD-SS intersection establishes a price for manufacturing milk of $O\overline{P}P$, well above support, and a quantity supplied and demanded of OB'.

The left side of Figure 4.1 shows the cost curves of three sizes of firms in the cheese (part A) and milk production (part C) industries. In both industries positive profits are being made and both industries can be expected to attract resources and grow. In the cheese industry, firm 1, the smallest, is producing OV, as determined by the intersection of its marginal cost curve, MC_1, and the wholesale price, P. Firm 1 is covering its average variable costs, AVC_1, and is

Figure 4.1

Short-run Effects of Increasing Cheese Imports
--Prices Above Support--



* CCC purchase price for American cheese.

just meeting its average total costs. Firms 2 and 3 are making profits at output levels OW and OX respectively. In the milk industry, milk producer a is the marginal producer, analogous to cheese firm 1, and milk producers b and c are making profits.

Now cheese imports increase from AC to AE in part B. The total supply curve shifts to S+I′ and a new equilibrium wholesale cheese price of OP′ is established. More cheese is demanded at the lower price, OE, but domestic output of that cheese drops to OA. As cheese manufacture drops by amount AB the demand for domestic milk available for manufacture drops a corresponding amount, A′B′, and the demand curve shifts from DD to D′D′. The manufacturing milk price drops to $\overline{OP'P'}$, still above support, and domestic production drops to OR. Cheese firm 1 and milk producer a suspend production and the other firms in both industries cut back. In the short run, cheese firm 2 and milk producer b will continue production since they are covering average variable costs but if they could not cover average total costs in the long run, they would cease to produce.

Prices At Support. Figure 4.2 describes the situation in which greater quantities of American-type cheese are imported at a time when prices in the industry are at the support level.[1] Prices in the American cheese manufacturing industry are the CCC purchase level, OP, and the price of milk used for manufacturing is at support $\overline{OPP}$. Before import expansion, OA cheese is demanded and OC is supplied domestically,

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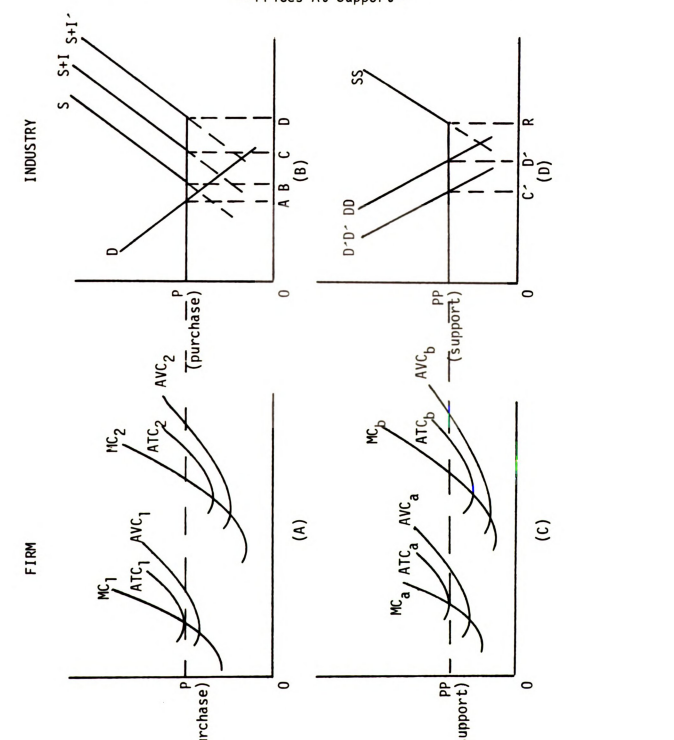
[1]Since American cheese is one of the commodities purchased by the CCC to maintain the dairy support price, the effects on the industry of increasing American cheese imports would be different from those expected if imports of other cheese varieties were expanded in this situation. Hence, the two cases are dealt with separately.

Figure 4.2

Short-run Effects of Increasing American Cheese Imports
--Prices At Support--



of which OB is domestic cheese and BC is the imported foreign production. The excess supply, AC, is purchased by the CCC to maintain the support price. The CCC purchases domestically produced commodities only. Hence, the quantity, AC, of American cheese purchased would be domestic cheese though part B suggests that some of the purchases would be foreign cheese. OR domestically produced milk is available for manufacture and the excess supply, D'R, which is removed by the CCC, includes the milk equivalent of the American cheese purchased, AC, plus that of the butter and NFDM purchased as well. The cost curves on the left indicate that some firms in each industry are making profits and some are just meeting average total costs.

When American cheese imports are increased from BC to BD, CCC purchases of American cheese rise by the amount of the imports, from AC to AD. Domestic cheese production, demand and price are unchanged, though the quantity of domestic cheese going to meet actual commercial needs declines by the amount of the import increase.[1] Therefore, the demand for domestic milk to produce manufactured products for actual consumption requirements drops by C'D', the milk equivalent of the American-type cheese import increase, CD, and the CCC now must buy C'R milk to maintain the support price. Since there is no impact on prices, the firms shown in parts A and C are unaffected.

Figure 4.3 describes the situation where imports of other, non-American type, cheeses are expanded when prices are at support. As shown in part B before the import increase, BD=AC is imported, OB is produced domestically, OD is demanded and the wholesale price is OP.

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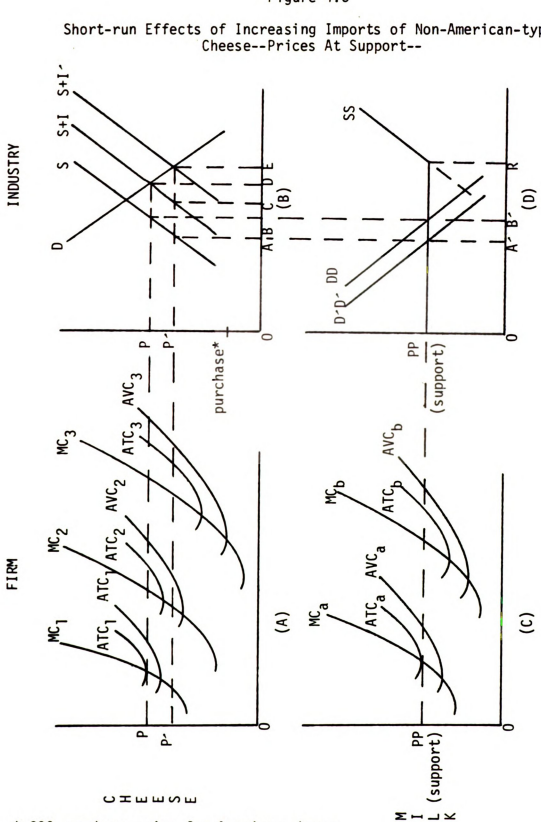
[1]This additional quantity of domestically produced American cheese goes to the CCC.

Figure 4.3

Short-run Effects of Increasing Imports of Non-American-type Cheese--Prices At Support--



* CCC purchase price for American cheese.

The price of milk available for manufacturing is at support, $\overline{OPP}$, as OR is produced and the excess supply, B′R, is purchased by the CCC in the form of butter, cheese and/or NFDM. When imports of this cheese increase from AC to AE, because there is no floor price as was the case in the American cheese example, prices drop to OP′, domestic production falls to OA and consumption rises to OE. The impacts on the firms shown in part A are similar to those described in connection with Figure 3.1. Since domestic production of this cheese falls, the manufacturers need less milk and DD drops to D′D′. Though the quantity of milk needed to produce dairy products actually demanded of domestic manufacturers falls, there will be no decline in the price of milk used for manufacturing. The milk directed from the production of this particular cheese will be purchased in some form by the CCC to maintain the support price. Therefore, CCC purchases will increase by A′B′, the milk equivalent of the milk diverted from the cheese manufacturers in part B. Since there is no price impact, milk producers in part C are not affected and milk production does not change.

The procedures by which the magnitude of the shifts shown in Figures 4.1 through 4.3 are estimated as described next.

Methodology-Mathematical Development

The Cheese Industry. The cheese industry of Figures 4.1 through 4.3 can be described by a demand equation, a supply equation and an equilibrium equation as follows:

(1) $P_c = a + bQ_D$

(2) $P_c = c + dQ_s + eQ_I$

(3) $Q_D = Q_s + Q_I$

where:

P_C = Wholesale cheese price

Q_D = Quantity of cheese demanded

Q_S = Quantity of cheese supplied (domestic output plus normal imports)

Q_I = Quantity of "new" cheese imports (import increase following quota expansion)[1]

These three equations can be solved simultaneously and the relationship between a change in imports and a change in the wholesale cheese price can be expressed in terms of supply and demand elasticities and initial prices and quantities as follows:

$$\frac{\partial P_C}{\partial Q_I} = \frac{-1}{\frac{Q_S}{P_C}(\varepsilon_C + |\eta_C|)}$$

where:

ε_C = Elasticity of supply for cheese

η_C = Price elasticity of demand for cheese

The details of the computation are given in Appendix D.

There are numerous reports in the literature of attempts made to estimate the price elasticity of demand for cheese. Brandow[2] reported -0.7 for the 1955-57 period, Rojko[3] found -.75 to -.9 between 1947 and

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[1] $Q_I = 0$ initially.

[2] G. E. Brandow, Interrelations Among Demands for Farm Products and Implications for Control of Market Supply, Bulletin 680, Pennsylvania State University, August, 1961, p. 17.

[3] Anthony S. Rojko, The Demand and Price Structure for Dairy Products, Technical Bulletin 1168, USDA, May, 1957, p. 105.

1954, and Burk[1] estimated -.1 for the 1947-1967 period. More recently, George and King[2] found an own price elasticity for cheese of -0.46. In a study by Boehm and Babb[3] the following short run retail price response estimates were reported:

Process Cheese	-1.81
Process Cheese Food[4]	-1.17
Process Cheese Spread[4]	- .49
American Natural Cheese	-2.17
Total Natural Cheese	- .85

Since there are no estimates of demand elasticities for each cheese type dealt with in this study, these previous, more aggregative estimates must be used. It will be shown later that a large part of the U.S. production of American and Swiss cheeses--types accounting for about 65 percent of domestic cheese output--is used for processing, though some is consumed as natural, table cheese. Italian and Edam and Gouda cheeses are mostly consumed in their natural form with blue cheese being used for processing as well as table consumption. This study uses two alternative price elasticities of demand based on Boehm and Babb's

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[1]Marguerite C. Burk, Consumption of Dairy Products, An Analysis of Trends, Variability and Prospects, University of Minnesota, Technical Bulletin 268, 1969, pp. 11-12.

[2]P. S. George and G. A. King, Consumer Demand for Food Commodities in the United States with Projections to 1980, Giannini Foundation Monograph No. 26, March, 1971, p. 47.

[3]William T. Boehm and Emerson M. Babb, Household Consumption of Storable Manufactured Dairy Products, Purdue University, Station Bulletin No. 85, June, 1975, p. 4.

[4]Process cheese food is similar to process cheese, but with higher moisture and lower fat and protein contents. Process cheese spread has still higher moisture and still lower fat and protein contents and further ingredients may be added.

findings. For American and Swiss, -0.9 is considered most appropriate, while -0.5 is thought to be more descriptive of the likely response to price changes of the other cheese types. However, results based on both elasticity assumptions will be presented for each cheese type. Since the Boehm and Babb estimates relate to retail price, their figures for process cheese and total natural cheese are converted to a wholesale price basis using the following relationship :

$$\eta_W = \eta_R\left(\frac{P_W}{P_R}\right) \quad 1$$

Where η is the price elasticity of demand and the subscripts w and R refer to wholesale and retail, respectively. The assumption of a constant marketing margin between the wholesale and retail demand curves should not detract from the level of accuracy required in this study.

On the supply side, no work on price response in the cheese industry has been reported in the literature. However, it is assumed in this study that the industry price response is inelastic for several reasons. First, over the short time horizon of this study, it is unlikely that plants would make major changes in their production given their high investment in capital stock. Second, the price impacts of import quota increase will be downward, tending to make output response even more inelastic. Third, even if there were some tendency toward dismantling capital stock in the short run with a price decline, expectations of demand growth in the cheese market would work to offset this tendency. For these reasons, this analysis is carried out under

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[1]William G. Tomek and Kenneth L. Robinson, Agricultural Product Prices (Ithaca, N.Y.: Cornell University Press, 1972), p. 45.

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two alternative assumptions of inelastic cheese industry supply response: 0.3 and 0.7.

The Milk Production Industry. Estimation of the effects of import increases on milk producers is somewhat more complicated than the procedure used for the cheese industry. The method used here is an adaptation of that used by Buxton and Fallert[1] in a study reviewed earlier. As explained in Chapter II, grade A milk is produced under conditions making it appropriate for fluid use while grade B milk is to be used for manufacturing purposes only. The grade A milk going to satisfy fluid demand is called Class I and receives a higher price than that designated Class II--i.e., the grade B milk and the excess grade A milk not needed for fluid purposes which is used for manufacturing. Milk market orders establish minimum fluid, or Class I, prices by adding fixed differentials to the national manufacturing, or Class II, price. Farmers receive a "blend," or "all-wholesale" price which is a weighted price reflecting the proportion of all milk used for fluid and manufacturing purposes. Thus, both the fluid and the all-wholesale price depend primarily on the manufacturing price and can be approximated by adding a constant differential to the manufacturing price.

In Figure 4.4, DD is the demand for milk for manufacturing purposes at various manufacturing milk prices, Pm, and is the same DD appearing in Figures 4.1 through 4.3. D_F is the demand curve for fluid milk at alternative fluid prices, P_F. S is the aggregate supply of milk at various all-wholesale prices, P_w--the prices to which farmers respond. Assuming that the fluid and all-wholesale prices can be

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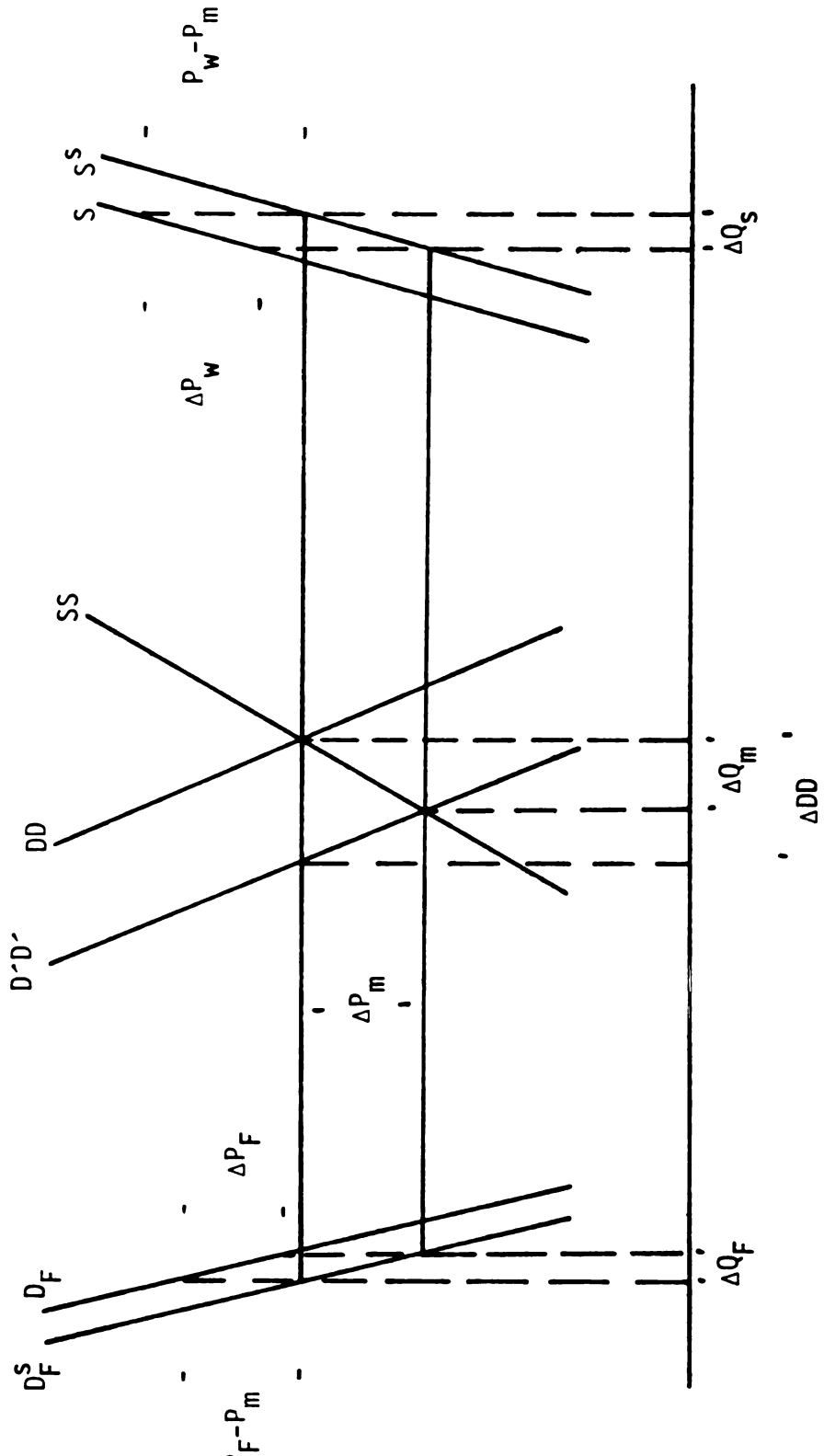
[1]Buxton and Fallert, Impact of Dairy Product Imports.

Figure 4.4

Short-run Effects on Farm Milk Price of Increasing Cheese Imports
--Prices Above Support*--



* Adapted from Buxton and Fallert, Impact of Dairy Product Imports.

approximated by adding constant differentials to the manufacturing price, D_F and S are standardized to the manufacturing by price by shifting D_F down to D_F^S, amount $P_F - P_m$, and S down to S^S, amount $P_w - P_m$. SS, the supply of milk available for manufacturing purposes at various manufacturing milk prices is the SS of Figures 4.1 through 4.3 and is determined by subtracting D_F^S from S^S. The intersection of SS and DD determines the manufacturing price of milk and, by the above reasoning, the all wholesale and fluid prices as well.

When greater quantities of cheese are imported, as for example in Figure 4.1, DD shifts down as domestic manufacturers demand less milk to make the products needed to satisfy domestic consumption. This shift is shown in Figure 4.4 as ΔDD and the intersection of D'D' and SS now determines the new manufacturing milk price (down by ΔP_m) and equilibrium quantity (down by ΔQ_m). The change in P_w and P_F can be found by adding the constant differentials.

The milk industry as shown in Figure 4.4 can be described by the following four equations:

(1) $Q_m = a + bP_m + cC$

(2) $Q_F = d + eP_m$

(3) $Q_S = f + gP_m$

(4) $Q_m = Q_S - Q_F$

where

Q_m = quantity of manufacturing milk demanded by domestic manufacturers to meet demand for manufactured dairy products

P_m = Price of manufacturing milk

C = Domestic production of the relevant cheese

Q_F = Quantity of fluid milk demanded

Q_S = Aggregate milk supplied

Solving the four equations simultaneously yields a relationship between a change in the quantity of manufacturing milk demanded, as a result of an increase in cheese imports, and a change in the manufacturing milk price which can be expressed in terms of supply and demand elasticities and initial prices and quantities as follows:

$$\frac{\partial P_m}{\partial Q_m} = \frac{1}{\varepsilon_S \cdot \frac{Q_S}{P_m} + |\eta_F| \cdot \frac{Q_F}{P_m} + |\eta_m| \cdot \frac{Q_m}{P_m}}$$

where:

ε_S = elasticity of the standardized aggregate domestic supply curve

η_F = elasticity of the standardized demand curve for fluid milk

η_m = elasticity of demand for manufacturing milk

The details of this computation are given in Appendix E.

As in the case of the cheese industry analysis, two alternatives to each elasticity are used in the calculations leading to the results presented in the next chapter. Buxton and Fallert considered supply elasticity estimates of 0.03 by Cochrane,[1] 0.15 - 0.30 by Halvorson[2] and 0.07 by Wipf and Houck[3] before deciding to use 0.15 in their study. This analysis uses 0.15 as the preferred indicator of short run supply

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[1]Willard W. Cochrane, Farm Prices: Myth and Reality (Minneapolis: University of Minnesota Press, 1958), p. 73.

[2]Harlow W. Halvorson, "The Response of Milk Production to Price," Journal of Farm Economics, Vol. 40 (December, 1958), pp. 1107, 1108.

[3]Larry J. Wipf and James P. Houck, Milk Supply Response in the United States--An Aggregate Analysis, Department of Agricultural Economics, Report 532, University of Minnesota, July, 1967.

response, but also performs the calculations using 0.25, a figure suggested by USDA diary experts involved in forecasting and situation reporting.

Buxton and Fallert use -0.35 for the price elasticity of demand for fluid milk, referring to results of their own work as well as estimates of -0.32 to -0.41 by Rojko[1] and -0.32 by George and King.[2] This study uses -0.35 and, for sensitivity testing purposes, -0.5.

Though neither their own work nor that of Prato[3] showed any significant relationship between the farm price of manufactured milk and the quantity of milk used in manufacturing, Buxton and Fallert derived a price elasticity of demand for manufacturing milk of -0.184, from price elasticities of demand for cheese, butter and NFDM, which they used in their study.[4] This figure is taken as the most appropriate for this study. In the derivation of this elasticity, they used an elasticity of demand for cheese at the farm level of -0.46. Though the demand curves labeled DD in Figures 4.1-4.4 are demand for manufacturing milk to be used in domestic production of all manufactured products, farm level demand for cheese is a principle component since over 40 percent of this milk is normally produced into cheese. Therefore, -0.46 is the alternative price elasticity of demand for manufacturing milk used in this study.

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[1]Rojko, Dairy Products, p. 105.

[2]George and King, Consumer Demand, p. 47.

[3]Anthony A. Prato, "Milk Demand, Supply and Price Relationships, 1950-1968," American Journal of Agricultural Economics, Vol. 55 (May, 1973), p. 221.

[4]See Buxton and Fallert, Appendix, for details of this calculation.

Assumptions and Limitations of the Model

It is important that this theoretical representation of the world be qualified in several ways. As noted earlier, because the analysis is static, it is assumed that the relationships among the variables are exact. For example, when cheese price changes, cheese output changes the precise amount indicated by the elasticity. The tacit assumptions needed to cast the analysis in this form fix the production and utility functions, as well as the institutional structure of the economy. It is further assumed that cheese manufacturers, milk producers and consumers possess perfect knowledge and seek to maximize profits and satisfaction.[1] Thus, risk and uncertainty are removed from the world as it is represented here and nothing can be said about the way the economic units move from one equilibrium point to another after the system is shocked by the import increase. These must be discussed outside the model.

It is clear that elasticities play a dominant role in the estimation procedure. It is important to note that an elasticity that is appropriate for a given set of economic conditions, or direction of price movement, may no longer be appropriate when one of these factors changes. For example, in a time of strong milk prices and optimum regarding future market conditions, such as currently prevails in the dairy industry, it might be hypothesized that a downward supply response to a price drop (following a change in dairy import policy) would be less than if the same price drop occurred when future market expectations were not as favorable. For best results, the elasticities

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[1]Glenn L. Johnson, "Needed Developments in Economic Theory as Applied to Farm Management," Journal of Farm Economics, Vol. 32 (November, 1950), pp. 1140-1158.

used here should have been estimated over a time period when market conditions in the dairy industry were similar to those expected in 1979. Because of the difficulty in specifying one elasticity as the most appropriate indicator of each type of response modelled in this study, two alternative elasticities are used in each case.

This analysis estimates short run impacts. Normally the short run is defined as the period of time during which output can be altered but the basic size of the production facility cannot be changed. In the long run output can be altered by varying the level of variable inputs as well as by changing the size of the production facility. The short run as it is used in this study allows for disinvestment. It is shown in Chapter VI that drops in milk production are predicted to follow dairy import policy change. This drop could be explained by altered feeding rates but it might also be due to changes in culling practices or even herd liquidations, both disinvestment activities. Therefore, the time period within which the estimated adjustments take place is short but the types of adjustments occurring between equilibrium points may be like those normally associated with the traditional definition of the long run.

It must be emphasized that Figures 4.1-4.4 describe a partial equilibrium analysis. The model does not deal with demand and supply conditions in exporting countries or in other sectors of the U.S. economy nor does it consider the multitude of other factors which would impinge in some way on the adjustment process.

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Finally, a number of specific assumptions relating to the inability of the model to capture dynamic relationships among the variables should be noted. First, because zero cross-elasticities among cheese types are assumed, the model estimates can be viewed as being maximum impacts, given the supply and demand elasticities used. Second, it is assumed that the support program is a perfect buffer; that milk prices are not allowed to drop below support. In fact, locally there will be price depressing effects even if prices are at support as milk is diverted from one use to another. Third, it is assumed in the model that all the imported cheese competes directly with domestic cheese though it will be shown later that, in some cases, domestic and imported cheese are not perfect substitutes. Fourth, foreign suppliers are assumed to be able to supply all of the allowable imports and importers are able to handle the greater influx of cheese. Finally, lower milk prices are not assumed to be of any influence on the cost curves of the cheese plants and the additional cheese supplies which would likely be elicited as production costs fall are ignored.

Summary

Having described the procedure used in this thesis to determine the short run impacts of expanded imports on the domestic cheese and milk production industries, attention turns in Chapter V to developing the information on domestic and imported cheese necessary for estimation using the model.

CHAPTER V

INFORMATION BASE FOR THE MODEL

The information base required for the analysis is developed in this chapter. The domestic cheese industry is described in the first section and the Tariff Schedules of the United States (TSUS) cheese import categories are detailed in the second section. To shorten and simplify this chapter much important detail is presented in tables.

Domestic Cheese Industry

If a decision is made at the Tokyo Round to increase the Section 22 cheese quotas or change policy regarding import subsidies in exchange for a concession from trading partners, Congressional approval would be necessary and expanded quotas would not be implemented until sometime in 1979 at the earliest. This analysis assumes that the imports are increased in 1979, and therefore conditions in the domestic cheese market are projected to 1979, assuming a continuation of current policies. Making these projections requires an understanding of the characteristics of the sub-industry which manufactures each relevant cheese type. In this section, therefore, historical and projected conditions in the Blue-Mold, American, Edam and Gouda, Italian, Swiss and a residual, "All Other," cheese sub-industries are described. The discussion regarding each specific cheese type will relate to information not given in the tables and to the projections to 1979.

The demand projections will reflect the view that cheese demand in general will remain strong in the near future, though, in percentage terms, demand increases may start to slow. USDA[1] predicts total cheese consumption will increase nearly 5 percent per year between 1976 and 1982. Robinson and Babb[2] predict that household American cheese consumption will rise nearly 6 percent per year between 1976 and 1981, while total household natural cheese consumption is expected to increase 8 percent per year over the same period. They predict retail prices of these cheeses to rise about 4 percent per year. Since there exist no forecasts in the literature for cheese demand disaggregated to the extent needed in this study, trends are generally extrapolated linearly. This procedure will give projections which are adequate for purposes of this study.

Production figures for 1979 are derived from the demand and import projections; the latter to be developed in the next section.

Blue-Mold Cheese (Table 5.1). The Blue-Mold cheese industry accounted for about 1 percent of total U.S. cheese production in 1977. The USDA estimates that 80 percent of the domestic Blue-Mold cheese is manufactured into salad dressings and dips while the remaining 20 percent is used for table cheese. Four of the eleven plants operating in 1977 were in Wisconsin and these plants produced sixty percent of the domestic output of Blue-Mold cheese.

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[1]Organization for Economic Cooperation and Development, Forecasts of the Dairy and Beef Situations in 1979 and 1982--Part 2, Country Chapters, (Paris: OECD AGR (78)8, April 21, 1978) p. 130 (Forecast of U.S. situation prepared by USDA).

[2]T. H. Robinson and E. M. Babb, Forecast of U.S. Dairy Product Consumption, 1977-1981, Agricultural Experiment Station Bulletin No. 186, Purdue University, March, 1978, p. 21.

Table 5.1

Blue-Mold Cheese - Production, Number of Plants, Wholesale Price, Imports and Consumption; United States; 1970-1979

Year	Production (Thousand Pounds)	Plants (Number)	Wholesale Price[a] (¢/lb)	Imports[b] (Thousand Pounds)	Imports as a Percentage of Production (Percent)	Consumption (Thousand Pounds)
1970	23,250	12	78	4664	20	27,914
1971	25,219	12	81	4429	18	29,648
1972	28,549	14	87	4463	16	33,012
1973[c]	29,759	14	105	6014	20	35,773
1974	28,262	13	112	4828	17	33,090
1975	28,506	12	121	4328	15	32,834
1976	33,885	11	133	4352	13	38,237
1977	34,776	11	135	3459	10	38,235
1978[d]	36,000	—[e]	143	4000	11	40,000
1979[d]	37,000	—[e]	153	4000	11	42,000

Sources:

USDA/ESCS, Dairy Products - Annual Summary, 1970-1977.

USDA/ESCS, Dairy Market Statistics - Annual Summary, 1970-1977.

USDA, News, Various Issues, 1970-1977.

USDA/ESCS, Dairy Situation, September, 1977, June, 1978.

[a]Wholesale selling price at seller's dock or warehouse at Chicago (less than trucklot)

[b]Imports under quota 950.07 - Blue-Mold

[c]The import quota was temporarily increased for the period April 25 through July 31 by 2,508,500 pounds

[d]Estimates

[e]Estimates unnecessary for purposes of the study

Consumption and wholesale price of Blue Mold are projected to increase about 3 percent and 7 percent per year respectively between 1977 and 1979.

American Cheese (Table 5.2). In 1977, 61 percent of the cheese produced in the U.S. was American-type. Nearly 75 percent of this was Cheddar and Colby accounted for most of the remaining 25 percent. A large portion of this cheese is processed. Miller[1] estimated that in 1971 around half of the Cheddar and most of the other American types were processed, mainly into pasteurized process American cheese. Over half of the plants operating in 1977 were located in Wisconsin but these plants were smaller than the national average and accounted for only 43 percent of the output. Minnesota, the second largest producing state, had much larger plants, on average, as 4 percent of the nation's plants produced 17 percent of total output.

Consumption and wholesale prices of American-type cheese are projected to rise 4 percent and 8 percent annually between 1977 and 1979. The 1979 price is expected to be above the CCC purchase price calculated from the projected support price for manufacturing milk shown on Table 2.1.

Edam and Gouda Cheese (Table 5.3). There is one firm in the U.S. producing Edam and Gouda cheese and 1977 output of these cheeses from the firm's two plants accounted for less than one percent of total U.S. cheese production.

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[1]Robert R. Miller, "The Changing U.S. Cheese Industry," Dairy Situation, USDA/ERS, July, 1971, pp. 18-33.

Table 5.2

American-Type Cheese[a] - Production, Number of Plants, Wholesale Prices, CCC Purchase Price, Imports and Consumption; United States; 1970-1979

Year	Production (Thousand Pounds)	Plants (Number)	Wholesale Price[b] (¢/lb)	CCC Purchase Price[c] (¢/lb)	Imports[d] (Thousand Pounds)	Imports as a Percentage of Production (Percent)	Consumption (Thousand Pounds)
1970	1,423,399	669	55/—	52	38,495	3	1,431,000
1971	1,510,662	636	56/—	54.75	30,937	2	1,520,000
1972[e]	1,644,287	613	60/—	54.75	47,780	3	1,614,000
1973[f]	1,672,515	592	73/75	62/65	79,777	5	1,661,000
1974[g]	1,858,602	608	80/83	70.75	148,856	8	1,811,000
1975	1,654,495	567	87/91	77.25/ 79.25/	41.025	2	1,762,000
1976	2,048,828	542	96/101	90.5/92.5	45,102	2	1,951,000
1977	2,042,370	541	97/102	98	50,892	2	1,958,000
1978[h]	2,009,000[i]	—[j]	106/113	103/107	51,000	2	2,060,000
1979[h]	2,111,000[i]	—[j]	113/120	110	51,000	2	2,162,000

Sources: See Table 5.1

[a]Includes Cheddar, Colby, washed curd, stirred curd, Monterey, Jack, and comparable imported types.

[b]Wholesale prices of 40 pound blocks at Wisconsin assembly points (carlot or trucklot)/Less than trucklot

[c]Cheddar 40-lb. blocks, grade A or higher, standard moisture basis.

[d]Includes imports under the following quotas:
950.08A Cheddar (including unlicensed Canadian quota)
950.08B American-type
950.10D Other-NSPF (BPB only)

[e]Other-NSPF import quota expanded from 25,090,000 to 40,730,000 pounds

[f]Import quotas were temporarily increased for the period April 25 through July 31 by the following amounts:

Cheddar	9,235,500 pounds
American	3,048,300
Other-NSPF	17,496,000

[g]Cheddar import quota was temporarily increased by 100 million pounds for the period January 3 through March 31.

[h]Estimates

[i]Estimated production required to meet domestic demand only. Derived from import and consumption estimates.

[j]Estimates unnecessary for purposes of this study.

Table 5.3

Edam and Gouda Cheese - Production, Number of Plants, Wholesale Prices, Imports, and Consumption; United States; 1973-1979[a]

Year	Production[b] (Thousand Pounds)	Plants (Number)	Wholesale Price[c] (¢/lb)	Imports[d] (Thousand Pounds)	Imports as a Percentage of Production (Percent)	Consumption (Thousand Pounds)
1973[e]	13,224	N.A.	94/N.A.	12,927	98	26,151
1974	13,665	N.A.	112/110	9,832	72	23,497
1975	13,885	N.A.	122/126	9,380	68	23,265
1976	14,326	N.A.	130/136	9,229	64	23,555
1977	14,767	2	134/138	8,327	56	23,094
1978[f]	15,000	—[g]	143/145	9,000	60	24,000
1979[f]	15,000	—[g]	153/155	9,000	60	24,000

Sources: USDA/FAS/DLP, "Summary of the Proposal of the European Community on EC Cheese Exports to the United States," 1978.

USDA, News, Various Issues, 1973-1977.

USDA/ESCS, Dairy Market Statistics - Annual Summary, 1973-1977.

N.A. Not Available

[a]Production and price data unvailable prior to 1973.

[b]One firm accounts for virtually all of the production and ESCS cannot release actual figures. These production estimates were derived from ESCS consumption figures by FAS.

[c]Edam (4 pound unit)/Gouda (large). Wholesale selling prices at seller's dock or warehouse at New York. (less than trucklot)

[d]Includes imports under the following quota categories:
950.09A Edam and Gouda
950.09B Processed Edam and Gouda

[e]Import quotas were temporarily increased for the period April 25 through July 31 by the following amounts:
Edam and Gouda 4,600,200 pounds
Processed Edam and Gouda 1,575,500 pounds

[f]Estimates

[g]Estimates unnecessary for the purposes of the study

Over one-third of domestic needs are supplied by imports. Consumption is nearly stagnant and the projection calls for a rise of only two percent per year between 1977 and 1979. Wholesale prices are expected to rise seven percent annually.

Italian Cheese (Table 5.4). Only hard Italian-types (e.g., Romano, Provolone, Parmesan) are included in this category so that it is comparable with imports under the two Italian cheese quota categories. Mozzarella, the Italian-type accounting for 69 percent of total domestic Italian production in 1977, is included in the "All Other Cheese" category below.

Production of hard Italian-types accounted for 5 percent of U.S. cheese production in 1977. Wisconsin and New York are the largest producers with 38 percent and 17 percent of the 1977 output.

Consumption and wholesale prices are projected to rise four percent and five percent respectively between 1977 and 1979.

Swiss Cheese (Table 5.5). Illinois, Wisconsin, and Ohio together accounted for 60 percent of the domestic Swiss production in 1977, and total manufacture of the variety made up 6 percent of all U.S. cheese output. A large share of domestic Swiss moves into processing though some higher quality product is used as table cheese.

Consumption is projected to rise four percent per year between 1977 and 1979 while wholesale prices are forecast to increase five percent annually.

All Other Cheese (Table 5.6). The preceding five categories of cheese include the domestic types which would be competitive with the cheeses that would be permitted to enter in greater quantities if the

Table 5.4

Italian Cheese[a] - Production, Number of Plants, Wholesale Prices, Imports and Consumption; United States; 1970-1979

Year	Production (Thousand Pounds)	Plants[b] (Number)	Wholesale Price[c] (¢/lb)	Imports[d] (Thousand Pounds)	Imports as a Percentage of Production (Percent)	Consumption (Thousand Pounds)
1970	96,834	140	92/89	7,411	8	104,245
1971	106,150	149	97/91	8,167	8	114,317
1972	115,058	143	102/94	11,495	10	126,753
1973[e]	113,873	135	122/109	12,340	11	126,213
1974	132,970	136	142/129	9,953	7	142,923
1975	130,017	130	170/143	11,228	9	141,245
1976	150,410	126	190/155	12,143	8	162,553
1977	154,559	130	192/157	10,812	7	165,371
1978[f]	162,000	—[g]	198/163	11,000	7	173,000
1979[f]	169,000	—[g]	210/175	11,000	7	180,000

Sources: See Table 5.1

[a]Includes cow's milk Romano, Provolone, Parmesan, other hard Italian cheeses and comparable imported types.

[b]Numbers of domestic plants producing non-Mozzarella Italian types. Prior to 1973, these figures are estimates derived from numbers of plants producing all Italian type cheeses.

[c]Parmesan/Provolone - giganti (25 pound units and up). Wholesale selling prices at seller's dock or warehouse in New York (less than truck-lot)

[d]Includes imports under the following quotas:
950.10 Italian - IOL
950.10A Italian - NIOL

[e]Import quotas were temporarily increased for the period April 25 through July 31 by the following amounts:
Italian - IOL 5,750,050 pounds
Italian - NIOL 747,000 pounds

[f]Estimates

[g]Estimates unnecessary for purposes of the study.

Table 5.5

Swiss Cheese - Production, Number of Plants, Wholesale Prices, Imports and Consumption; United States; 1970-1979

Year	Production (Thousand Pounds)	Plants (Number)	Wholesale Price[a] (¢/lb)	Imports[b] (Thousand Pounds)	Imports as a Percentage of Production (Percent)	Consumption (Thousand Pounds)
1970	143,957	90	68/75	40,267	28	184,224
1971	153,843	82	66/78	35,990	23	189,833
1972[c]	177,773	76	73/81	56,125	32	233,898
1973[d]	164,221	75	85/93	65,239	40	229,460
1974	175,345	70	101/112	79,108	45	254,453
1975	173,758	70	113/123	58,902	34	232,660
1976	196,327	70	127/138	75,674	39	272,001
1977	189,259	69	130/139	73,863	39	263,122
1978[e]	200,000	—[f]	136/146	74,000	37	274,000
1979[e]	211,000	—[f]	143/153	74,000	35	285,000

Sources: See Table 5.1

[a]Swiss grade A blocks (80-100 lb)/Swiss grade A cuts. Wholesale selling prices at seller's dock or warehouse at Wisconsin (less than trucklot).

[b]Includes imports under the following categories:
Emmenthaler - APB and BPB
Gruyere-Process - APB and BPB

[c]Import quotas were increased in 1972 as follows:
950.10B Emmenthaler - from 4,271,000 to 20,420,000 pounds
950.10C Gruyere-Process - from 3,285,000 to 11,242,000 pounds

[d]Import quotas were temporarily increased for the period April 25 through July 31 by the following amounts:
Emmenthaler - 10,210,000 pounds
Gruyere-Process - 4,712,500 pounds

[e]Estimates

[f]Estimates unnecessary for purposes of the study.

Table 5.6

All Other Cheese[a] - Production, Number of Plants, Wholesale Prices, Imports, and Consumption; United States; 1970-1979

Year	Production (Thousand Pounds)	Plants[b] (Number)	Wholesale Price[c] (¢/lb)	Imports[d] (Thousand Pounds)	Imports as a Percentage of Production (Percent)	Consumption (Thousand Pounds)
1970	481,656	375	NA/64	46,901	10	528,557
1971[e]	556,695	381	NA/65	42,898	8	599,593
1972	612,593	375	NA/69	67,357	11	679,950
1973[f]	695,658	370	75/83	54,010	8	749,668
1974	721,244	372	86/94	64,282	9	785,526
1975	800,179	373	100/102	52,886	7	853,065
1976	866,016	364	107/111	59,480	7	925,496
1977	912,988	359	109/113	56,055	6	969,043
1978[g]	(588,000)	—	115/—	—	—	—
1979[g]	(635,000)	—	121/—	—	—	—

Sources: See Table 5.1

N.A. Not available

[a] Includes Mozzarella and other soft Italian, brick, Limburger, Munster, cream, and all other domestic and imported types not designated specifically in Tables 5.1-5.5.

[b] The sum of the numbers of plants producing each type of "Other" cheese. These figures likely overstate the actual plant numbers somewhat.

[c] Mozzarella (Wisconsin)/Brick and Munster, 5 pound loaves (Chicago) Wholesale selling prices at seller's dock or warehouse (less than trucklot)

[d] Includes imports under the following categories:
Other-NSPF, APB
Other-Low Fat, APB and BPB
Non-quota cheeses

[e] Other-Low Fat quota established

[f] Other-Low Fat quota was temporarily increased by 4,010,000 pounds for the period April 25 through July 31, 1973.

[g] Projections of production and prices of Mozzarella only are needed for the purposes of this study. Projections of Mozzarella consumption and imports are not made because there is no way of knowing past levels of imports and hence domestic consumption. Production figures are available. Because price impact estimates will be based on the domestic production figure rather than on a total domestic supply figure, these estimates will be biased upward.

Section 22 quotas were increased.[1] The types in this, "All Other Cheese," group would not be as directly affected by quota expansion, but could be influenced by certain changes in subsidization practices of suppliers which might be permitted if alternative import policies were pursued. Mozzarella accounts for over one-half of the production of cheeses included in Table 5.6 and imports of this cheese could be affected by changes in the U.S. position on subsidies. Substantial increases in these imports could have important impacts on the industry and import alternatives affecting Mozzarella imports are analyzed later. Since this is the only cheese with which the analysis deals, the 1978 and 1979 projections of price and production are made for Mozzarella only. Production and price are assumed to rise eight percent and five percent per year respectively. Wisconsin, California and New York are the largest producers of Mozzarella.

Imported Cheese

In this section, the TSUS cheese import categories that cover cheese types comparable to the six groupings of domestic cheese are described and the projections of imports to 1979 shown in Tables 5.1-5.6 are explained. As in the previous section, much of the descriptive detail presented in the tables is not discussed in the text. Nevertheless, this detail is necessary for understanding of the foreign supply situation and the requests for concessions being made of the U.S. in the MTNs, described in the next chapter.

In most cases, the Presidential Proclamations establishing the Section 22 quotas specified shares to be filled by particular countries.

[1] The degree to which foreign cheeses under each quota category compete with domestic types is discussed in the next section.

However, the regulations governing the import licensing program provide for adjustment of quota shares within the course of a year if it is determined that the originally designated country will be unable to fill its share for that year. Therefore, for each year shown in Tables 5.7-5.17, some countries may have allocations which allow them to supply more than their Presidential Proclamation share while others have smaller allocations. The initially specified quota shares are used as a base to which each country's yearly supplies are compared. In cases where no country quota shares were established by Proclamation, the allocations for the first year in the table are used as a reference.

Blue-Mold Cheese (Table 5.7). Denmark supplies the most of the cheese under this quota. USDA estimates that these imports are generally of higher quality than domestic Blue-Mold cheese, with 80 percent going for table use and 20 percent for processing--the reverse proportions from those applying to use of domestic cheese. The imports may not, therefore, displace domestic Blue-Mold cheese on a pound for pound basis.

Imports were down in 1977 because of the year-end dock strike, and are projected in Table 5.1 to return to more normal levels.

American Cheese (Tables 5.8-5.10). Imports in quota categories 950.08A, 950.08B and 950.10D are comparable to domestic American-type cheese. Miller[1] estimated in 1971 that 80 percent of the imported Cheddar, quota 950.08A, and "practically all" of the imported Colby, the principle import under quota 950.08B, is processed in direct competition with these domestically produced varieties. In addition,

[1]Miller, "Cheese Industry," p. 19.

Table 5.7

Imports of Blue-Mold Cheese, 1970-1977

(Quota 950.07)

Country[a]	1970 Allocation[b]	Quota Use Rate[c] 1970	1971	1972	1973[d]	1974	1975	1976	1977
					(percent)				
Denmark	4,694,434	96	91	91	83	100	89	90	72
Italy	221,022	44	36	53	38	50	50	42	30
France	10,305	76	57	75	77	51	99	97	116
Norway	78,430	83	65	73	28	35	26	19	13
Sweden	9,430	100	97	96	97	97	99	41	98
Argentina	3,300	0	0	0	0	0	100	0	0
TOTAL	5,016,999	93	88	89	80	96	86	87	69

Sources: USDA, NEWS, Various issues, 1970-1977.

USDA/FAS/DLP, "Import Controls Under Section 22 of the Agricultural Adjustment Act, As Amended", 1978.

USDA/FAS/DLP, "Summary of the Proposal of the European Communities on EC Cheese Exports to the United States", 1978.

[a] Specified by the Presidential Proclamation establishing the quota.

[b] The establishing Presidential Proclamation did not specify quota shares. For Blue-Mold imports, these shares have been derived from import records on the basis of importations of eligible importers during the representative period 1948-50. To illustrate how the abilities of eligible countries to supply blue-mold cheese has changed over the eight year period the 1970 set of allocations is used as a base.

[c] Imports as a percentage of the 1970 quota allocations.

[d] The quota was temporarily increased 2,508,500 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

Table 5.8

Imports of Cheddar Cheese, 1970-1977

(Quota 950.08A)

Country[a]	Quota Share[a] (lbs.)	Quota Use Rate[b] 1970	1971	1972	1973[c]	1974[d]	1975	1976	1977
		(percent)							
Licensed									
New Zealand	5,502,498	100	98	98	99	99	99	85	108
Australia	1,696,150	98	99	98	100	100	107	105	138
Ireland	562,250	99	99	98	99	12	68	11	2
Canada	612,352	53	44	60	84	99	95	87	6
Sweden	130,850	83	100	96	88	74	0	0	0
Other[e]	308,400	82	47	70	80	61	27	17	78
SUB-TOTAL	8,812,500	95	93	74	98	98	75	80	97
Unlicensed[f]									
Canada	1,225,000	100	100	100	100	100	72	42	55
TOTAL	10,037,500	97	94	95	98	93	92	76	92

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] Imports as a percentage of the quota share specified by the Presidential Proclamation.

[c] The licensed and unlicensed quotas were temporarily increased 8,623,000 and 612,500 pounds respectively for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

[d] The Cheddar quota was temporarily increased by 100 million pounds for the period January 3 through March 31, 1974. Entries were on an unlicensed, first-come, first-served basis and therefore those imports are included in the total quota use rate calculations but not in the individual country percentage figures.

[e] Austria, Belgium, Bulgaria, Denmark, Israel, Italy, Netherlands, Portugal, Switzerland, United Kingdom, and West Germany (aggregate).

[f] Quota allocated to Canada for natural Cheddar, aged 9 months or more. Administered by the U.S. Customs Service on a first-come, first-served basis.

Table 5.9

Imports of American-type Cheese, Other Than Cheddar, 1970-1977

(Quota 950.08 B)

Country[a]	Quota Share[a] (lbs.)	Quota Use Rate[b] 1970	1971	1972	1973[c]	1974	1975	1976	1977
		(percent)							
New Zealand	3,360,000	98	99	98	100	99	110	108	104
Australia	1,680,000	99	99	97	100	99	130	119	141
Ireland	560,000	94	98	100	99	1	8	0	0
Sweden	125,000	100	100	98	91	99	0	0	0
Other[d]	371,600	95	87	89	85	40	1	5	30
TOTAL	6,096,600	98	98	97	99	86	98	93	98

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] Imports as a percentage of the quota share specified by the Presidential Proclamation.

[c] The quota was temporarily increased 3,048,300 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

[d] Austria, Belgium, Bulgaria, Italy, Denmark, Israel, Netherlands, Portugal, Switzerland, United Kingdom, and West Germany (aggregate).

Table 5.10

Imports of Other Cheese--Not Specifically Provided For, 1970-1977

(Quota 950.10 D)

Country[a]	Quota Share[b] (lbs.)	Quota Use Rate[b] 1970	1971	1972[b]	1973[c]	1974	1975	1976	1977
					(percent)				
Austria	199,000	--	--	--	96	109	219	215	366
Belgium	469,000	97	2	95	128	20	0	0	0
Canada	2,670,000	--	--	--	58	17	8	2	202
Denmark	16,820,000	95	79	97	91	108	41	32	16
Finland	1,239,000	94	82	102	99	124	88	114	115
France	2,882,000	11	3	98	98	28	2	1	1
Iceland	649,000	86	99	116	100	100	72	11	154
Ireland	161,000	93	81	34	32	100	67	1	30
Israel	145,000	--	--	--	52	0	67	398	910
Netherlands	422,000	0	0	0	1	9	0	0	0
New Zealand	7,556,000	98	39	99	105	97	143	240	296
Norway	356,000	83	75	70	66	80	74	45	9
Poland	2,064,000	99	67	99	98	100	125	119	116
Portugal	227,000	0	0	0	0	0	0	0	0
Sweden	1,707,000	99	99	99	97	98	100	84	10
Switzerland	215,000	0	0	0	11	5	3	0	0
United Kingdom	496,000	94	78	38	80	67	0	0	0
West Germany	2,148,000	73	44	75	93	89	34	4	9
Other[d]	288,000	75	36	34	59	76	164	336	808
TOTAL	40,730,000	92	62	95	90	87	64	78	88

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] On June 6, 1972, the quota was expanded by Presidential Proclamation from 25,090,000 to 40,730,000 pounds and the country quota shares shown were specified. See footnote b, Table 5.15, for an explanation of the quota change and the method by which quota use rates were obtained.

[c] The quota was temporarily increased by 17,496,000 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

[d] Allocated for importation from any other country.

New Zealand Cheshire, Danish block and certain other cheeses entering under quota 950.10D, Other-NSPF, are industrial-type cheeses, suitable for processing, and compete directly with domestic American-type cheese.[1]

European countries supplying cheese in the Other-NSPF quota have had to cut down their shipments as a result of the 1975 agreement on subsidy limitation. The EC countries and Sweden were forced to give up subsidies on Cheddar and other American cheeses at the same time. Since 1975, import licenses have been transferred away from many European countries and given to other suppliers[2] and in 1977 imports under these three categories have returned to near normal levels. Imports of American-type cheese are projected to continue at these 1977 levels in Table 5.2.

Edam and Gouda Cheese (Tables 5.11 and 5.12). Edam and Gouda enters under quotas 950.09A and 950.09B and Netherlands is the principle supplier.

Imports were low in 1977 because of the dock strike and, in Table 5.3, are projected to return nearer the more normal levels of 1978 and 1979.

Italian Cheese (Tables 5.13 and 5.14). Quotas 950.10 and 950.10A cover imports of hard Italian cheeses comparable with the domestic

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[1]It is assumed that all imports under this quota compete with domestic American-type production though some other types of cheeses also enter. One important cheese, Mozzarella, falls in the Other-NSPF category but it is assumed that most of this cheese is priced above pricebreak and is not imported under the quota. Therefore, Mozzarella imports are included in figures shown in Table 5.18.

[2]New Zealand has been the principle beneficiary.

Table 5.11

Imports of Edam and Gouda Cheese, 1970-1977

(Quota 950.09 A)

Country[a]	1970 Allocation[b] (lbs.)	Quota Use Rate[c] 1970	1971	1972	1973[d]	1974	1975	1976	1977
		(percent)							
Netherlands	8,567,619	99	99	98	77	100	96	94	80
Denmark	249,735	84	69	74	35	42	45	31	19
Argentina	259,042	100	62	94	24	5	89	103	106
Portugal	10,247	100	30	70	67	52	26	49	135
Norway	29,924	96	51	61	35	29	32	18	18
Sweden	81,495	100	90	86	100	95	85	78	83
Finland	2,335	100	0	0	112	110	116	230	220
TOTAL	9,200,400	98	97	97	75	93	94	92	79

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] The establishing Presidential Proclamation did not specify quota shares. For Edam and Gouda imports, these shares have been derived from import records on the basis of importations of eligible importers during the representative period 1948-50. To illustrate how the abilities of eligible countries to supply Edam and Gouda cheese has changed over the eight year period, the 1970 set of allocations is used as a base.

[c] Imports as a percentage of the 1970 quota allocations.

[d] The quota was temporarily increase by 4,600,200 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

Table 5.12

Imports of Processed Edam and Gouda Cheese, 1970-1977

(Quota 950.09 B)

Country[a]	Quota Share[a] (lbs.)	Quota Use Rate[b] 1970	1971	1972	1973[c]	1974	1975	1976	1977
		(percent)							
Denmark	1,714,000	81	28	5	2	20	0	3	0
Ireland	331,000	70	77	59	24	4	6	1	0
Netherlands	169,000	84	35	49	97	81	54	60	106
West Germany	513,000	76	86	73	190	80	30	42	0
Norway	368,000	72	73	92	87	82	86	86	12
Other[d]	56,000	100	26	91	210	100	251	60	1477
TOTAL	3,151,000	78	48	36	55	40	23	23	33

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] Imports as a percentage of the quota share specified by the Presidential Proclamation.

[c] The quota was temporarily increased by 1,575,500 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

[d] Allocated for importation from any other country.

Table 5.13

Imports of Italian Cheese--In Original Loaves, 1970-1977

(Quota 950.10)

Country[a]	1970 Allocation[b] (lbs.)	Quota Use Rate[c] 1970	1971	1972	1973[d]	1974	1975	1976	1977
				(percent)					
Argentina	4,784,489	45	65	150	84	122	141	169	140
Italy	6,715,611	69	61	45	42	43	48	46	42
TOTAL	11,500,100	59	63	88	62	76	86	97	83

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] The establishing Presidential Proclamation did not specify quota shares. For Italian-IOL imports, these shares have been derived from import records on the basis of importations of eligible importers during the representative period 1948-50. To illustrate how the abilities of eligible countries to supply Italian-IOL has changed over the eight year period, the 1970 set of allocations is used as a base.

[c] Imports as a percentage of the 1970 quota allocations.

[d] The quota was temporarily increased 5,750,050 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

Table 5.14

Imports of Italian Cheese--Not In Original Loaves, 1970-1977

(Quota 950.10 A)

Country[a]	Quota Shares[a]	Quota Use Rate[b] 1970	1971	1972	1973[c]	1974	1975	1976	1977
Argentina	1,347,000	46	68	97	79	87	95	71	97
Italy	104,500	11	3	8	6	12	12	7	6
Australia	13,700	98	0	40	5	0	0	0	0
Other[d]	28,800	41	8	33	12	0	0	0	0
TOTAL	1,494,000	44	62	89	72	79	86	65	88

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] Imports as a percentage of the quota share specified by the Presidential Proclamation.

[c] The quota was temporarily increased by 747,000 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

[d] Allocated for importation from any other country.

Italian types of Table 5.4. The cheeses from Argentina are cheaper than those from Italy and are more directly competitive with domestic cheese. Cheese from Italy is produced by different methods, is more expensive than the U.S. product, and hence, is somewhat less competitive.

In Table 5.4, the 1977 imports are projected to continue to 1979.

Swiss Cheese (Tables 5.15 and 5.16). Quotas 950.10B and 950.10C cover imports of Swiss cheese. Imports under quota 950.10B are both processing and table cheese, the latter type being generally of higher quality than the domestic table cheese. Quota 950.10C covers processed Swiss, usually made from off-grade cheese. USDA considers these imports to be highly sensitive, being directly competitive with domestic Swiss and, to a lesser extent, with domestic American cheese used for processing.

The EC, Austria, Sweden and Norway were required to eliminate restitutions on these cheeses in 1975 and Finland and Switzerland were required to exercise restraint in their subsidization. Imports declined somewhat initially but as a result of import license transferring operations, imports have increased in the past two years and the 1977 imports are projected to continue in Table 5.5.

All Other Cheese (Tables 5.17-5.19). Imports of one quota cheese, 950.10E, the four categories of above pricebreak (APB) cheese[1] and the non-quota cheeses are of the type considered in Table 5.6. The U.S. does not produce the cheese covered in the Other-Low Fat quota category

[1]See footnote a, Table 5.18 for a description of the pricebreak system.

Table 5.15

Imports of Swiss or Emmenthaler Cheese, 1970-1977

(Quota 950.10 B)

Country[a]	Quota Share[b] (lbs.)	Quota Use Rate[b] 1970	1971	1972[b]	1973[c]	1974	1975	1976	1977
		(percent)							
Austria	8,222,000	99	98	103	80	57	34	53	59
Finland	6,111,000	96	71	88	90	88	89	103	116
Norway	1,672,000	55	11	0	18	61	9	71	38
Israel	60,000	--	--	--	0	0	0	0	32
Switzerland	269,000	98	90	98	83	2	0	0	0
Denmark	3,396,000	69	7	59	81	15	1	9	0
West Germany	292,000	0	0	35	119	17	7	0	3
Netherlands	210,000	--	--	--	126	89	11	20	0
Other[d]	188,000	41	19	40	446	81	161	63	292
TOTAL	20,420,000	84	59	83	81	62	51	60	64

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] On June 6, 1972, the quota was expanded by Presidential Proclamation from 4,271,000 to 20,420,000 pounds and the country quota shares shown were specified. The quota was increased in conjunction with the institution of the flexible pricebreak system whereby the pricebreak on this cheese, previously fixed at 47¢, was pegged at a level 7¢ above the CCC purchase price for Cheddar. For the last half of 1972, transitional non-licensed quotas were administered by the Bureau of Customs, and, effective January 1, 1973, the quota increases were incorporated into the USDA licensing system. For the years 1970 through 1972, quota use rates are based on the 1970 quota allocations; thereafter, they are based on the quota shares shown. The amount entering under the 1972 transitional quota is included in the total quota use rate calculation but not in the individual country percentage figures.

[c] The quota was temporarily increased by 10,210,000 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

[d] Allocated for importation from any other country.

Table 5.16

Imports of Gruyere--Process Cheese, 1970-1977

(Quota 950.10 C)

Country[a]	Quota Share[b] (lbs.)	Quota Use Rate[b] 1970	1971	1972[b]	1973[c]	1974	1975	1976	1977
		(percent)							
Austria	1,406,000	95	92	95	99	115	176	200	173
Finland	1,606,000	99	92	97	119	104	183	197	228
Switzerland	2,234,000	0	0	0	1	4	1	0	21
Denmark	3,435,000	51	47	39	45	34	1	2	1
West Germany	1,818,000	96	71	93	145	86	46	96	105
Ireland	210,000	--	--	--	69	80	0	10	0
Norway	82,000	--	--	--	0	0	0	14	0
Portugal	275,000	--	--	--	90	4	189	96	306
Other[d]	176,000	66	63	7	16	6	0	3	0
TOTAL	11,242,000	94	82	59	62	56	61	72	83

Sources: See Table 5.7

[a] Specified by the Presidential Proclamation establishing the quota.

[b] On June 6, 1972, the quota was expanded by Presidential Proclamation from 3,289,000 to 11,242,000 pounds and the country quota shares shown were specified. See footnote b, Table 5.15, for an explanation of the quota change and the method by which quota use rates were obtained.

[c] The quota was temporarily increased by 4,712,500 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

[d] Allocated for importation from any other country.

Table 5.17

Imports of Other--Low Fat[a] Cheese, 1971-1977[b]

(Quota 950.10 E)

Country[d]	Quota Share[d] (lbs.)	Quota Use Rate[c] 1971	1972[e]	1973[f]	1974	1975	1976	1977
				(percent)				
Denmark	6,680,000	48	118	105	122	92	52	37
United Kingdom	791,000	32	32	97	48	20	60	10
Ireland	756,500	30	45	0	0	0	0	0
West Germany	100,000	34	60	47	65	47	42	33
Poland	385,600	0	0	0	0	0	0	0
Australia	123,600	0	0	0	0	259	621	1478
Iceland	64,300	0	0	0	0	0	0	0
TOTAL	8,901,000	41	96	93	97	75	54	50

Sources: See Table 5.7

[a] Cheese containing 0.5 percent butterfat or less.

[b] Quota established January 1, 1971.

[c] Imports as a percentage of the quota share specified by the Presidential Proclamation.

[d] Specified by the Presidential Proclamation establishing the quota.

[e] The pricebreak system under which this quota is administered was changed in 1972. See footnote b, Table 5.15 for an explanation. The quota for Low Fat Cheese was not increased in 1972, however.

[f] The quota was temporarily increased by 4,010,000 pounds for the period April 25 through July 31, 1973. The quota use rates apply to the countries' total allocations for the year.

Table 5.18

Imports of Cheese Above Pricebreak[a], 1970-1977

Cheese	1970	1971	1972	1973	1974	1975	1976	1977[b]
				(thousand pounds)				
Emmenthaler	22,762	21,809	30,366	24,725	51,158	36,279	48,499	45,494
Gruyere--Process	10,800	8,937	9,882	5,703	9,018	5,322	6,741	5,881
Other--NSPF	22,631	18,812	31,820	21,241	35,853	26,155	34,405	31,940
Other--Low Fat[c]	[d]	--	--	--	--	--	--	--

Source: USDA/ESCS, Dairy Situation, July, 1978, p. 22.

[a] Imports priced under the pricebreak are subject to quota restrictions (see Tables 5.10, 15-17). Imports priced above pricebreak are free from quota. Until June 6, 1972, the pricebreak was fixed at $.47 but after that date, the pricebreak was pegged at $.07 above the CCC Cheddar purchase price. Thus, the $.47 pricebreak was changed to $.62 on June 6, 1972; to $.69 on March 15, 1973; to $.72 on August 29, 1973; to $.78 on April 1, 1974; to $.84 on January 16, 1975; to $.86 on April 9, 1975; to $.92 on October 16, 1975; to $.98 on April 14, 1976; to $1.00 on October 19, 1976; to $1.05 on May 5, 1977; to $1.10 on April 1, 1978; and to $1.13 on October 1, 1978.

[b] Preliminary.

[c] Figures on above pricebreak imports of Other--Low Fat cheese are not available. Imports are thought to be small.

[d] The Other--Low Fat category was established January 1, 1971.

Table 5.19

Imports of Non-Quota Cheeses, 1970-1977

Cheese	1970	1971	1972	1973	1974	1975	1976	1977[a]
				(thousand pounds)				
Pecorino	20,621	16,566	22,976	17,215	16,465	17,114	16,728	15,825
Roquefort	2,063	1,671	2,543	2,126	1,439	1,392	1,560	1,620
Gjetost	413	397	438	454	473	512	517	512
Bryndza	156	257	322	309	679	400	543	464
Gammelost/ Noekkelost	256	473	748	698	716	628	627	503
Goya	761	1,039	3	6	41	18	325	781
TOTAL	24,270	20,403	27,030	20,808	19,813	20,064	20,300	19,705

Source: USDA/ESCS, Dairy Situation, July, 1978, p. 22.

[a] Preliminary.

and USDA does not believe that quota expansion would have a significant impact on domestic programs. This study does not attempt to estimate the magnitude of such an impact. The APB cheeses are the same types as those covered by quotas 950.10B-E but because they are priced above the pricebreak they are allowed to enter free of quota.[1] The non-quota cheeses are not produced in the U.S. and these imports displace little domestic output.

Information on these imports is provided mainly for completeness, since, except for the case of Mozzarella, imported mainly in the Other-NSPF-APB category, this analysis does not look at the domestic effects likely to accompany their increase.

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[1] The pricebreak system does not, however, provide a perfect method for separating higher priced, non-competitive imports from those which would compete with domestic cheese and some cheeses entering in these groupings displace domestic production.

Summary

This chapter has developed the information base which is used in estimating and evaluating the short run impacts of allowing more foreign-produced cheese to enter the U.S. The results of the analysis are presented and interpreted in Chapter VI.

CHAPTER VI

RESULTS AND INTERPRETATION

The model described in Chapter IV and the information base developed in Chapter V are used in this chapter to derive estimates of short run impacts of Section 22 dairy import quota increases and/or more liberal policies regarding subsidized imports. The chapter has three sections. In the first section, requests for dairy import policy liberalization which the U.S. has received in the MTNs are explained and the estimates of impacts derived from the model are presented. Likely cheese industry adjustments are also discussed in this section. Then the model is modified slightly in an effort to define more precisely the impacts on domestic milk producers of pursuing the import alternatives described in the first section. Finally, the sensitivity of the model to parameter and projection alternatives is examined.

Impacts of Import Expansion

Table 6.1 indicates the estimated impacts on the domestic cheese manufacturers, milk producers and CCC purchases of expanding imports by 100 million pounds of milk equivalent in the form of each cheese type. From this table, estimates of impacts of expanding imports of any of the types to any level can be derived by converting this milk equivalent to cheese using the conversion factors in Table 6.2 and multiplying by an appropriate factor.

Table 6.1

Short-run Impacts on United States Cheese Manufacturers, Milk Producers and Government Support Purchases of Increasing Imports in 1979 by 100 Million Pounds of Milk Equivalent in the Form of Various Cheese Types[a]

	Supply Elasticity for Cheese	Direction of Variable Change	Price Elasticity of Demand for Cheese -0.5		-0.9	
Milk Prices Above Support						
Milk						
Price[b] ¢/cwt		Decline	0.78	(0.07%)	0.52	(0.05%)
Production[c] mil.lbs		"	14.1	(0.01%)	9.4	(0.01%)
Blue-Mold						
Price[d] ¢/lb		"	50.6	(33.1%)	33.7	(22.1%)
Production mil.lbs		"	4.2	(11.3%)	2.8	(7.5%)
American						
Price[d] ¢/lb		"	0.7	(0.6%)	0.4	(0.4%)
Production mil.lbs		"	3.8	(0.2%)	2.5	(0.1%)
Edam/Gouda						
Price[d] ¢/lb		"	79.7	(52.1%)	53.1	(34.7%)
Production mil.lbs	0.3	"	3.8	(25.0%)	2.5	(16.7%)
Italian						
Price[d] ¢/lb		"	17.4	(9.9%)	11.6	(6.6%)
Production mil.lbs		"	5.4	(3.2%)	3.6	(2.1%)
Swiss		"				
Price[d] ¢/lb		"	7.8	(5.5%)	5.2	(3.7%)
Production mil.lbs			4.7	(2.2%)	3.1	(1.5%)
Mozzarella		"				
Price[d] ¢/lb		"	3.4	(2.9%)	2.3	(2.0%)
Production mil.lbs			5.4	(0.9%)	3.6	(0.6%)
Milk Prices At Support[e]						
Milk						
Price[b] ¢/cwt		"	0		0	
Production[c] mil.lbs		"	0		0	
American						
Price[d] ¢/lb		"	0		0	
Production mil.lbs		"	0		0	
Other Cheese						
Price[d] ¢/lb		"	Same as Above Support		Same as Above Support	
Production mil.lbs						
CCC Purchases						
A[f] mil.lbs		Increase	100.0		100.0	
B[g] mil.lbs		Increase	38.0		25.0	

Table 6.1 (Cont.)

		Supply Elasticity for Cheese	Direction of Variable Change	Price Elasticity of Demand for Cheese	
				-0.5	-0.9
Milk Prices Above Support					
Milk					
Price[b]	¢/cwt		Decline	1.22 (0.11%)	0.91 (0.08%)
Production[c]	mil.lbs		"	22.1 (0.02%)	16.5 (0.01%)
Blue-Mold					
Price[d]	¢/lb		"	33.7 (22.1%)	25.3 (16.6%)
Production	mil.lbs		"	6.5 (17.5%)	4.9 (13.1%)
American					
Price[d]	¢/lb		"	0.4 (0.4%)	0.3 (0.3%)
Production	mil.lbs		"	5.9 (0.3%)	4.4 (0.2%)
Edam/Gouda					
Price[d]	¢/lb		"	53.1 (34.7%)	39.8 (26.0%)
Production	mil.lbs	0.7	"	5.9 (38.9%)	4.4 (29.2%)
Italian					
Price[d]	¢/lb		"	11.6 (6.6%)	8.7 (5.0%)
Production	mil.lbs		"	8.3 (4.9%)	6.3 (3.7%)
Swiss					
Price[d]	¢/lb		"	5.2 (3.7%)	3.9 (2.7%)
Production	mil.lbs		"	7.3 (3.5%)	5.5 (2.6%)
Mozzarella					
Price[d]	¢/lb		"	2.3 (2.0%)	1.7 (1.4%)
Production	mil.lbs		"	8.3 (1.4%)	6.3 (1.1%)
Milk Prices At Support[e]					
Milk					
Price[b]	¢/lb		"	0	0
Production	mil.lbs		"	0	0
American					
Price[d]	¢/lb		"	0	0
Production	mil.lbs		"	0	0
Other Cheese					
Price[d]	¢/lb		"	Same as	Same as
Production	mil.lbs		"	Above Support	Above Support
CCC Purchases					
A[f]	mil.lbs		Increase	100.0	100.0
B[g]	mil.lbs		Increase	59.0	44.0

[a]Impacts for each cheese type are calculated assuming the 100 million pounds of milk equivalent entered in the form of that particular cheese. Amounts of each cheese entering are:

Blue	11.1 million pounds	Italian	14.3
American	10.0	Swiss	12.5
Edam and Gouda	10.0	Mozzarella	14.3

[b]Percentage impact based on all-milk wholesale farm price. For each set of elasticities, the price impact on milk is invariant with respect to the form in which the milk enters.
Price impacts calculated based on the following elasticities:
Elasticity of aggregate milk supply 0.15
Price elasticity of demand for fluid milk 0.35
Price elasticity of demand for manufacutring milk 0.184
See Table 6.10 for the range of milk price impacts under different elasticity assumptions.

[c]Production impact refers to aggregate milk production. For each set of elasticities, the production impact is invariant with respect to the form in which the milk enters.

[d]Wholesale price for particular price on which the impact is based; see Table 5.1-5.6.

[e]Estimated impacts are the same as the situation with milk prices above support for all variables except those noted. There would be no CCC support purchases if prices were above support and the import increases did not drive prices down to the support level.

[f]Increase in CCC purchases assuming imports are in the form of American cheese.

[g]Increase in CCC purchases assuming imports are in the form of other (not American) cheese.

Table 6.2

Conversion Factors[a]

Cheese Type	Factor (pounds)
Blue-Mold	9
American	10
Edam and Gouda	10
Italian	7
Swiss	8
Mozzarella	7

Source: Derived from the following:

a. Conversion Factors and Weights and Measures for Agricultural Commodities and Their Products, U.S.D.A., May, 1952 (as revised).

b. Cheese Varieties and Descriptions, Agriculture Handbook No. 54, U.S.D.A., August, 1974.

[a] Pounds of whole milk required to produce one pound of cheese.

The milk price and production impact estimates in Table 6.1 are derived using the aggregate supply elasticity of 0.15, fluid demand elasticity of -0.35, and manufacturing milk demand elasticity of -0.184. For each set of cheese demand and supply elasticities, the estimates of impacts on milk producers are identical; i.e., these estimates are invariant with respect to the form in which the increased imports enter. Buxton and Fallert[1] in 1974 estimated a price depressing impact of about one percent on the all-wholesale milk price of increasing imports by 500 million pounds of milk equivalent. It is estimated in this study that farm prices of milk would drop between one-quarter and

[1] Buxton and Fallert, Impact of Dairy Product Imports, p. 12.

one-half percent depending on the elasticity assumptions for cheese. If the increased imports are viewed as incrementing the supply of manufacturing milk, as in Buxton and Fallert formulation, the farm price impact estimated here agrees with their study. However, the model used here is more realistic in that the import increase is in the form of cheese and that farm level impacts depend on the supply and demand adjustments which occur in the domestic cheese market. Likely impacts on milk producers will be discussed further in the next section.

In the remainder of this section, the estimates relevant to each cheese type are described in detail. In each case, requests made of the U.S. serve as the basis for the import alternatives analyzed. The EC proposal for "concerted disciplines" on cheese applies to all of the import categories except the two American quotas. Under this plan, which is one component of the EC proposed international dairy agreement discussed in Chapter III, minimum import prices would be established for cheese entering the U.S. at levels designed to prevent injury to the domestic milk and cheese industries and the U.S. would be obliged to adopt an injury test[1] as a condition for levying countervailing duties. Superimposing such a system on the current quota framework could have impacts on above-pricebreak (APB) imports as well as on those restricted by the quotas (BPB and absolute quotas). Thus, the import alternatives for which impact estimates are given below, relate not only to quota expansion, but to changes in the U.S. policy on subsidized imports as well.

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[1]See Chapter III.

Blue-Mold Cheese Imports. There have been no formal requests other than the EC request for "concerted disciplines" in the Blue-Mold quota category (950.07). Two import alternatives are analyzed:

Alternative A. In the first alternative, it will be assumed that, instead of the 80 percent quota fill rate projected in Table 5.1 for 1979, the quota is 100 percent filled. For this to occur, it would be necessary to alter current import administration procedures by, for example, changing the individual EC country shares of the quota into an aggregate EC quota, giving quota shares to countries not having them under the establishing Presidential Proclamation and/or allowing subsidized imports to fill the quota.[1] Thus, under this alternative, about 1 million pounds of cheese would enter above normal levels (25 percent above normal imports).

Alternative B. In the second alternative, the quota is doubled to 10 million pounds and it is assumed that exporters take full advantage of the quota increase so that an additional 5 million pounds of Blue-Mold cheese substitutable for domestic cheese enters the U.S.

Allowing greater quantities of Blue-Mold to enter under either alternative would be of considerable benefit to the EC. Denmark's allocation in 1977 was 97 percent of the quota and that country would likely be able to supply additional quantities if permitted. Cheese production in Italy is not sufficient to meet internal demand and since

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[1]The 1975 CVD waiver allowed the EC to continue subsidizing Blue-Mold exports to the U.S. but it was agreed that the subsidies were to remain at the same level relative to U.S. prices as they were at the time of the agreement. The agreement thus inhibits the EC's freedom to subsidize at present.

this production deficit is projected to increase,[1] it is unlikely that that country could supply increased quantities of cheese to the U.S. However, according to USDA, France regularly asks for an increased quota allocation and West Germany, not now entitled to a share, officially asks for a quota share each year. Among the EC countries in the aggregate, the cheese production surplus is projected to grow and it is likely that additional quantities of Blue-Mold could be supplied to the U.S.

Table 6.3 shows that if cheese exporters are allowed to completely fill the current quota (Alternative A), the model estimates that cheese prices would drop 1.5 to 3.0 percent in the short run. If milk prices are above support, farm prices would be expected to drop only slightly and if prices are at support, farm prices would not change but CCC purchases would rise by between 2.7 and 5.4 million pounds. Doubling the quota (Alternative B) leads to much more drastic domestic repercussions as shown in the table.

Since nearly 60 percent of domestic Blue-Mold cheese is made in Wisconsin and 4 of the 11 plants are located there, the most severe impacts of import expansion would likely be felt in that state. Plants that produce Blue-Mold cheese generally do not produce other cheese types because of problems associated with bacterial control and therefore the affected plants would not likely be able to easily shift to production alternatives. If the quota is doubled, the model estimates that domestic production of Blue-Mold cheese could decline nearly 8 percent and prices could drop 15 percent. Revenue would fall considerably and plant closings would be conceivable, depending on the actual

[1] OECD, Forecasts, p. 66.

Table 6.3
Short-run Impacts on the United States Blue-Mold Cheese Manufacturers, Milk Producers and Government Support Purchases of Increasing Imports of Blue-Mold Cheese in 1979

	Units		Price Elasticity of Demand			
			-0.5		-0.9	
			Elasticity of Supply			
			0.3	0.7	0.3	0.7
Import Alternative A[a]						
Milk Prices Above Support						
Wholesale Cheese Price Decline[b]	cents/lb	(%)	4.6 (3.0)	3.0 (2.0)	3.0 (2.0)	2.3 (1.5)
Cheese Production Decline	mil. lbs	"	0.4 (1.0)	0.6 (1.6)	0.3 (0.7)	0.4 (1.2)
Farm Milk Price Decline[c]	cents/cwt	"	0.07 (0.01)	0.11 (0.01)	0.06 (0.01)	0.07 (0.01)
Milk Production Decline	mil. lbs	"	1.3 (0.00)	2.0 (0.00)	1.0 (0.00)	1.3 (0.00)
Milk Prices At Support						
Wholesale Cheese Price Decline[b]	cents/lb	"	4.6 (3.0)	3.0 (2.0)	3.0 (2.0)	2.3 (1.5)
Cheese Production Decline	mil. lbs	"	0.4 (1.0)	0.6 (1.6)	0.3 (0.7)	0.4 (1.2)
Farm Milk Price Decline[c]	cents/cwt	"	0 —	0 —	0 —	0 —
Milk Production Decline	mil. lbs	"	0 —	0 —	0 —	0 —
CCC Support Purchases Increase[d]	mil. lbs		3.6 —	5.4 —	2.7 —	3.6 —
Import Alternative B[e]						
Milk Prices Above Support						
Wholesale Cheese Price Decline[b]	cents/lb	(%)	22.9 (14.9)	15.2 (10.0)	15.2 (10.0)	11.4 (7.5)
Cheese Production Decline	mil. lbs	"	1.8 (5.0)	2.9 (7.7)	1.2 (3.3)	2.1 (5.8)
Farm Milk Price Decline[c]	cents/cwt	"	0.33 (0.03)	0.54 (0.05)	0.22 (0.02)	0.39 (0.03)
Milk Production Decline	mil. lbs	"	6.0 (0.00)	9.8 (0.01)	4.1 (0.00)	7.1 (0.01)
Milk Prices At Support						
Wholesale Cheese Price Decline[b]	cents/lb	"	22.9 (14.9)	15.2 (10.0)	15.2 (10.0)	11.4 (7.5)
Cheese Production Decline	mil. lbs	"	1.8 (5.0)	2.9 (7.7)	1.2 (3.3)	2.1 (5.8)
Farm Milk Price Decline[c]	cents/cwt	"	0 —	0 —	0 —	0 —
Milk Production Decline	mil. lbs	"	0 —	0 —	0 —	0 —
CCC Support Purchases Increase[d]	mil. lbs	"	16.2 —	26.1 —	10.8 —	18.9 —

[a]Imports increase by one million pounds (25 percent).

[b]Less than trucklot price, sellers dock or warehouse, Chicago.

[c]Percentage based on projected all-wholesale price of milk on the farm.

[d]Milk equivalent.

[e]Import quota 950.07 doubled. Imports increase by five million pounds.

cost curves.[1] The impacts on the domestic industry may be somewhat dampened if the imports are not directly substitutable for the domestic cheeses. As indicated earlier, imports of Blue-Mold cheese tend to be higher quality than the domestic product.

American Cheese Imports. New Zealand has requested that its share of the Cheddar quota (950.08A) be increased from 5,502,498 to 12,100,000 pounds and that its share of the American quota (950.08B) be increased from 3,360,000 to 7,100,000 pounds. The EC "concerted discipline" proposal does not apply to these import categories.

Two import alternatives are analyzed:

Alternative A. If the New Zealand requests are granted, imports of American-type cheese could rise by 10.3 million pounds (20 percent). Impacts resulting from this increase are estimated under the first alternative.

Alternative B. The U.S. may not be able, under international trading rules, to more than double New Zealand's quota share without increasing the shares of other countries as well. GATT article XIII requires that, when import restrictions are imposed, a distribution of trade is assured that approximates the distribution that would exist in the absence of restrictions. Australia, for example, has consistently supplied its full quota share and would likely demand a larger share if New Zealand's request were granted. Therefore, under alternative B both quotas are doubled and an additional 16.1 million pounds of American-type cheese are assumed to enter.

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[1] See Figure 4.1.

Increasing imports of American cheese in this way would be of little benefit to the EC. Ireland, the EC country with the largest share, has not been able to supply much cheese since export subsidies were eliminated under the 1975 CVD waiver agreement. If the EC were permitted to, once again, subsidize exports of these cheeses, it would derive greater benefit but it has agreed to effectively give up subsidies on American-type exports in the "concerted discpline" proposal.

Sweden would also be able to export cheese to the U.S. if subsidization were allowed. That country has not shipped any American cheese to the U.S. since it was required to stop subsidizing in 1975.

Table 6.4 shows the estimates of impacts under each alternative. Meeting New Zealand's requests (alternative A) would result in an estimated decline of less than one percent in cheese and milk prices with prices above support. If prices are at support, neither milk nor cheese prices would be affected,[1] but CCC purchases would necessarily rise by the full amount of the import increase, in milk equivalent terms. Doubling both quotas would cause greater impacts, as shown on the table. Under both alternatives, the greatest impacts are on CCC purchases.

Nearly 60 percent of the American-type cheese production in 1977 was in Wisconsin and Minnesota. Wisconsin has over 50 percent of the plants but average plant production is well under the national average. Minnesota has entered the cheese industry more strongly in recent years and has, on the average, much larger plants than Wisconsin, using newer technology. Lough[2] attributes this to three factors. First,

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[1] See Figure 4.2.

[2] Lough, The Cheese Industry, pp. 17-18.

Table 6.4
Short-run Impacts on the United States American-Type Cheese Manufacturers, Milk Producers and Government Support Purchases of Increasing Imports of American-Type Cheese in 1979

	Units	Price Elasticity of Demand: -0.5; Elasticity of Supply: 0.3	Price Elasticity of Demand: -0.5; Elasticity of Supply: 0.7	Price Elasticity of Demand: -0.9; Elasticity of Supply: 0.3	Price Elasticity of Demand: -0.9; Elasticity of Supply: 0.7
Import Alternative A[a]					
Milk Prices Above Support					
Wholesale Cheese Price Decline[b]	cents/lb (%)	0.7 (0.6)	0.4 (0.4)	0.4 (0.4)	0.3 (0.3)
Cheese Production Decline	mil.lbs "	3.9 (0.2)	6.1 (0.8)	2.6 (0.1)	4.5 (0.2)
Farm Milk Price Decline[c]	cents/cwt "	0.80 (0.07)	1.26 (0.11)	0.54 (0.05)	0.93 (0.08)
Milk Production Decline	mil.lbs "	14.5 (0.01)	22.9 (0.02)	9.8 (0.01)	16.9 (0.01)
Milk Prices At Support					
Wholesale Cheese Price Decline[b]	cents/lb "	0 —	0 —	0 —	0 —
Cheese Production Decline	mil.lbs "	0 —	0 —	0 —	0 —
Farm Milk Price Decline[c]	cents/cwt "	0 —	0 —	0 —	0 —
Milk Production Decline	mil.lbs "	0 —	0 —	0 —	0 —
CCC Support Purchases Increased[d]	mil.lbs "	103.0 —	103.0 —	103.0 —	103.0 —
Import Alternative B[e]					
Milk Prices Above Support					
Wholesale Cheese Price Decline[b]	cents/lb (%)	1.1 (0.9)	0.7 (0.6)	0.7 (0.6)	0.5 (0.5)
Cheese Production Decline	mil.lbs "	6.1 (0.3)	9.4 (0.4)	4.0 (0.2)	7.1 (0.3)
Farm Milk Price Decline[c]	cents/cwt "	1.25 (0.11)	1.94 (0.17)	0.83 (0.07)	1.47 (0.13)
Milk Production Decline	mil.lbs "	22.7 (0.02)	35.2 (0.03)	15.1 (0.01)	26.6 (0.02)
Milk Prices at Support					
Wholesale Cheese Price Decline[b]	cents/lb "	0 —	0 —	0 —	0 —
Cheese Production Decline	mil.lbs "	0 —	0 —	0 —	0 —
Farm Milk Price Decline[c]	cents/cwt "	0 —	0 —	0 —	0 —
Milk Production Decline	mil.lbs "	0 —	0 —	0 —	0 —
CCC Support Purchases Increased[d]	mil.lbs "	161.3 —	161.3 —	161.3 —	161.3 —

[a]Imports increase by 10.3 million pounds (20 percent).

[b]Carlot prices of 40-lb. blocks of Cheddar cheese, Wisconsin assembly points.

[c]Percentage based on projected all-wholesale price of milk on the farm.

[d]Milk equivalent

[e]Import quotas 950.08A and 950.08B (Cheddar and Other American-type)doubled. Imports increase by 16.1 million pounds.

Minnesota was one of the centers of the cooperative merger and consolidation movement of the late sixties and early seventies. Second, because butter plants had already consolidated to some degree in Minnesota, the procurement and transportation systems already established made it easier to build the large cheese plants. Third, demand for fluid milk in Wisconsin has been increasing, drawing milk away from cheese production in that state, increasing the opportunities for Minnesota cheese producers. The larger, more efficient, plants, primarily operated by regional cooperatives, have greater production flexibility and it is estimated by Manchester[1] that 15 percent of the current cheese capacity could be converted to butter-powder production with a minimum loss of time and expense. Thus, though the impacts estimated in Table 6.4 seem small, the smaller plants such as those in Wisconsin would likely be the first affected and increased imports could give further impetus to plant merger and consolidation and accentuate the decline in the proportion of cheese produced in states where small plants predominate.

Lough[2] found in his survey of the cheese industry that though three-quarters of the plants producing American cheese manufacture that cheese variety only, it is also produced in plants in which the main cheese type is Swiss or Italian. When American is produced with either of these cheese types, it only accounts for about five percent of plant output. Thus, these plants have greater flexibility than the single variety plants and if the American cheese industry were adversely impacted by import increases, these plants might be expected to shift

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[1]Manchester, Dairy Price Policy, p. 7.

[2]Lough, The Cheese Industry, p. 29.

resources out of American production more readily than the single variety plants.

Edam and Gouda Cheese Imports. The EC "concerted disciplines" request is the only request relevant to the two Edam and Gouda import categories.

Again, two import alternatives are analyzed:

Alternative A. In the first alternative, it is assumed that by agreeing to the "concerted disciplines," the U.S. will permit subsidization practices that will allow both Edam and Gouda quotas (950.09A, 950.09B) to be completely filled. Thus, an additional 3.4 million pounds of cheese (38 percent) is assumed to enter in 1979 above the projection in Table 5.3.

Alternative B. Though such a quota increase would be extreme, it is assumed in alternative B, that both quotas are doubled and whatever subsidization practices necessary for filling the quotas are allowed. Thus, imports are assumed to rise by 12.4 million pounds.

Most of the benefits received by exporters under each alternative would accrue to the EC if EC countries were to retain their present quota shares. The Netherlands currently has a 93 percent share of the Edam and Gouda quota (950.09A) and Denmark holds a 3 percent share. USDA indicates that Belgium, currently an ineligible supplier, would also like a share of the quota. Denmark holds a 54 percent share of the processed Edam and Gouda quota (950.09B) and West Germany, Ireland and Netherlands have 16, 11 and 5 percent shares respectively. The 1975 CVD waiver has required the EC to maintain its export subsidies on these cheeses at the 1975 levels relative to U.S. cheese prices and

this restriction has likely hurt EC exports though not as much as subsidy limitation on other categories. The processed Edam and Gouda quota has been less than 50 percent filled in most recent years and in 1977 Denmark, Ireland and West Germany were unable to supply any of their quota shares. It is assumed under both alternatives that subsidization would permit fuller use of this quota.

Table 6.5 shows the impact estimates for each alternative. If the present quotas are filled by allowing more liberal export subsidization practices, cheese prices could fall as much as 17.7 percent and domestic production could drop 13.2 percent. Doubling the quotas could result in very severe impacts on the cheese industry; production is estimated to drop nearly 50 percent in the most extreme case. Milk prices are estimated to fall only slightly under each alternative. CCC purchases are estimated to rise by as much as 20.0 and 72.0 million pounds of milk equivalent in alternatives A and B respectively.

Only two plants, operated by the same firm, produce this cheese domestically. The firm produces other types of cheese as well and it is likely that if the Edam and Gouda industry experienced serious adverse impacts, resources would be diverted to the production of other cheese. Given the slow demand growth for Edam and Gouda, a substantial increase in imports, such as occurs under alternative B, could result in a permanent disinvestment in domestic cheese manufacturing capacity. Whereas manufacturers of cheese for which increasing demand is projected might expect that after a short run production cut-back, demand growth would permit production to start increasing again, Edam and Gouda manufacturers may not have the same optimistic long run view.

Table 6.5
Short-run Impacts on the United States Edam and Gouda Cheese Manufacturers, Milk Producers, and Government Support Purchases of Increasing Imports of Edam and Gouda Cheese in 1979

	Units		Price Elasticity of Demand							
			-0.5				-0.9			
			Elasticity of Supply							
			0.3		0.7		0.3		0.7	
Import Alternative A[a]										
Milk Prices Above Support										
Wholesale Cheese Price Decline[b]	cents/lb	(%)	27.1	(17.7)	18.1	(11.8)	18.1	(11.8)	13.5	(8.8)
Cheese Production Decline	mil.lbs	"	1.3	(8.5)	2.0	13.2)	0.9	(5.7)	1.5	(9.9)
Farm Milk Price Decline[c]	cents/cwt	"	0.27	(0.02)	0.41	(0.04)	0.19	(0.02)	0.31	(0.03)
Milk Production Decline	mil.lbs	"	4.8	(0.00)	7.5	(0.01)	3.4	(0.00)	5.6	(0.00)
Milk Prices At Support										
Wholesale Cheese Price Decline[b]	cents/lb	"	27.1	(17.7)	18.1	(11.8)	18.1	(11.8)	13.5	(8.8)
Cheese Production Decline	mil.lbs	"	1.3	(8.5)	2.0	(13.2)	0.9	(5.7)	1.5	(9.9)
Farm Milk Price Decline[c]	cents/cwt	"	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[d]	mil.lbs	"	13.0	—	20.0	—	9.0	—	15.0	—
Import Alternative B[e]										
Milk Prices Above Support										
Wholesale Cheese Price Decline[b]	cents/lb	(%)	98.4	(64.3)	65.6	(42.9)	65.6	(42.9)	49.2	(32.2)
Cheese Production Decline	mil.lbs	"	4.6	(30.9)	7.2	(48.1)	3.1	(20.6)	5.4	(36.0)
Farm Milk Price Decline[c]	cents/cwt	"	0.94	(0.08)	1.49	(0.13)	0.64	(0.06)	1.12	(0.10)
Milk Production Decline	mil.lbs	"	17.1	(0.01)	27.0	(0.02)	11.7	(0.01)	20.2	(0.02)
Milk Prices At Support										
Wholesale Cheese Price Decline[b]	cents/lb	"	98.4	(64.3)	65.6	(42.9)	65.6	(42.9)	49.2	(32.2)
Cheese Production Decline	mil.lbs	"	4.6	(30.9)	7.2	(48.1)	3.1	(20.6)	5.4	(36.0)
Farm Milk Price Decline[c]	cents/cwt	"	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[d]	mil.lbs	"	46.0	—	72.0	—	31.0	—	54.0	—

[a]Imports increase by 3.4 million pounds (38 percent).

[b]Less than carlot Edam price, 4-lb. units, sellers dock or warehouse, New York.

[c]Percentage based on projected all-wholesale price of milk on the farm.

[d]Milk equivalent.

[e]Import quotas 950.09A and 950.09B (Edam and Gouda, Processed Edam and Gouda) doubled. Imports increased by 12.4 million pounds.

Italian Cheese Imports. Argentina has requested a 50 percent tariff cut and complete quota liberalization of both Italian import categories. In addition, the EC has proposed "concerted disciplines" in the Italian-IOL category.

Two alternatives are analyzed:

Alternative A. It is assumed that through "concerted disciplines" or a quota increase all of the imports permitted under the current quotas, do, in fact, enter. Table 5.4 projects that the quotas will be 85 percent filled under normal conditions so this alternative would result in an additional two million pounds (18 percent) of cheese entering the U.S.

Alternative B. In the second alternative, it is assumed that the quotas are doubled and, through subsidization, suppliers are able to ship the full amount of the increase to the U.S. Thus, an additional 13 million pounds of cheese would enter.

Italy, the only EC country to have a share of either quota, has difficulty filling its current allocation. If the quotas were expanded, however, and other EC countries were designated as eligible suppliers, considerable benefits could accrue to the EC. The USDA indicates that Belgium, in particular, would like to ship Italian cheese to the U.S. Argentina is the largest supplier currently, shipping 74 percent of the total 1977 imports, and would likely be able to take advantage of increased export opportunities.

Estimates of domestic impacts are given in Table 6.6. It is estimated that cheese prices would drop about 17 percent under alternative A and between 4.5 and 9.0 percent under alternative B. The model

Table 6.6
Short-run Impacts on the United States Italian Cheese Manufacturers, Milk Producers, and Government Support Purchases of Increasing Imports of Italian Cheese in 1979

	Units	Price Elasticity of Demand: -0.5; Elasticity of Supply: 0.3		Price Elasticity of Demand: -0.5; Elasticity of Supply: 0.7		Price Elasticity of Demand: -0.9; Elasticity of Supply: 0.3		Price Elasticity of Demand: -0.9; Elasticity of Supply: 0.7	
Import Alternative A[a]									
Milk Prices Above Support									
Wholesale Cheese Price Decline[b]	cents/lb (%)	2.4	(1.4)	1.6	(0.9)	1.6	(0.9)	1.2	(0.7)
Cheese Production Decline	mil.lbs "	0.8	(0.4)	1.2	(0.7)	0.5	(0.3)	0.9	(0.5)
Farm Milk Price Decline[c]	cents/cwt "	0.11	(0.01)	0.17	(0.02)	0.07	(0.01)	0.13	(0.01)
Milk Production Decline	mil.lbs "	2.1	(0.00)	3.1	(0.00)	1.3	(0.00)	2.3	(0.00)
Milk Prices At Support									
Wholesale Cheese Price Decline[b]	cents/lb "	2.4	(1.4)	1.6	(0.9)	1.6	(0.9)	1.2	(0.7)
Cheese Production Decline	mil.lbs "	0.8	(0.4)	1.2	(0.7)	0.5	(0.3)	0.9	(0.5)
Farm Milk Price Decline[c]	cents/cwt "	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs "	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[d]	mil.lbs "	5.6	—	8.4	—	3.5	—	6.3	—
Import Alternative B[e]									
Milk Prices Above Support									
Wholesale Cheese Price Decline[b]	cents/lb (%)	15.8	(9.0)	10.5	(6.0)	10.5	(6.0)	7.9	(4.5)
Cheese Production Decline	mil.lbs "	4.9	(2.9)	7.6	(4.5)	3.3	(1.9)	5.7	(3.4)
Farm Milk Price Decline[c]	cents/cwt "	0.70	(0.06)	1.10	(0.10)	0.48	(0.04)	0.83	(0.07)
Milk Production Decline	mil.lbs "	12.8	(0.01)	19.9	(0.02)	8.7	(0.01)	14.9	(0.01)
Milk Prices At Support									
Wholesale Cheese Price Decline[b]	cents/lb "	15.8	(9.0)	10.5	(6.0)	10.5	(6.0)	7.9	(4.5)
Cheese Production Decline	mil.lbs "	4.9	(2.9)	7.6	(4.5)	3.3	(1.9)	5.7	(3.4)
Farm Milk Price Decline[c]	cents/cwt "	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs "	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[d]	mil.lbs "	34.3	—	53.2	—	23.1	—	39.9	—

[a]Imports increase by 2 million pounds (18 percent).

[b]Less than trucklot price, Provolone-Giganti (25-lb units and up), sellers dock or warehouse, New York.

[c]Percentage based on projected all-wholesale price of milk on the farm.

[d]Milk equivalent.

[e]Import quotas 950.10, 950.10A (Italian-IOL, Italian-NIOL) doubled. Imports increase by 13 million pounds.

predicts that milk prices would fall less than one percent under each alternative. If prices were at support when the imports enter, CCC purchases would be estimated to rise between 3.5 and 8.4 million pounds and between 23.1 and 53.2 million pounds under alternatives A and B respectively.

Wisconsin is the leading manufacturer of the hard Italian cheeses included in this category but New York, Illinois, Pennsylvania and California are also important producers. Plants producing this type of cheese are, on the average, smaller than those producing the other cheeses considered here. In 1977, average plant output was between one and two million pounds, whereas the average American cheese plant, for example, produced 3.8 million pounds. Lough[1] points out that adaptation of automated technology has been slower in the Italian cheese industry because the cheesemakers are able to retain greater individuality and distinctiveness in their cheese than is possible in some other types. Though the small plant size and relatively lower capital intensity of production may make the domestic producers more susceptible to injury from imports, particularly from the cheaper Argentine cheeses, many plants also produce Mozzarella and thus have some flexibility of operation. Mozzarella is included in the Other-NSPF import category and would not enter in greater quantities if either Italian quota were increased. Severe impacts in the hard Italian industry may prompt manufacturers to shift permanently to Mozzarella, a cheese for which continued demand growth is projected. Demand for the hard cheeses is rising, too, and if manufacturers are able to weather the short run

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[1]Ibid., p. 25.

set-backs estimated in Table 6.6, longer run market conditions would likely be conducive to a continuation of the past industry growth trend.

Swiss Cheese Imports. The EC has proposed "concerted displines" in the two Swiss import categories, Emmenthaler and Gruyere-process. By allowing subsidized imports to enter the domestic market, the U.S. would be making a significant concession, not only to the EC but to the other European countries whose subsidization practices have been restrained since the 1975 CVD waiver agreement.[1] Except for West Germany in the case of Gruyere-process cheese, the EC countries have not been able to supply much Swiss cheese to the U.S. since 1975. Finland and a few other countries have actually been able to supply more than in pre-waiver years[2] because of differential relative impacts of the CVD action, but generally the European countries have been hurt by the ruling.

Again, two alternative import actions are analyzed:

Alternative A. If, through subsidization, exporting countries were able to supply all the cheese currently allowed to enter under the two quotas, imports would rise by about 9.3 million pounds. This assumes that the subsidies are not allowed for above pricebreak cheeses and that the APB imports do not change. Actually, APB imports could drop if the cheeses were subsidized to a level at which they could enter under quota. It is also possible that they could rise if,

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[1]See Chapter V.

[2]See Tables 5.15 and 5.16.

because of difficulties involved in controlling subsidized mports, exports of these cheeses were subsidized as well.

Thus, alternative A analyzes the case in which imports rise by 9.3 million pounds (13 percent) over normal levels.

Alternative B. As in the case of the other cheeses, the second alternative estimates the impacts of doubling the quota when conditions are such that the full amount of the increase enters the U.S. The additional 31.7 million pounds that enters under alternative B can be seen in this case as resulting from increasing the quota or from extending subsidization privileges to APB imports. If the Emmenthaler quota were increased, more industrial-type cheese would enter whereas if APB subsidization were allowed, additional table quality cheese would also be imported. Both BPB and APB Gruyere-process are processed Swiss cheese.

Table 6.7 shows the estimated impacts of the two alternatives. If subsidized imports were allowed to fill the quota it is estimated that cheese prices would fall between 2.0 and 4.1 percent. With prices at support, CCC support purchases of milk in some form are estimated to rise over 40 million pounds. Doubling the quota could result in cheese and milk price declines of 13.9 percent and 3 cents/cwt. respectively and increased CCC purchases of as much as 148.0 million pounds.

Since industrial Swiss can compete directly with American cheese in manufacturing processed cheese, a price decline in the Swiss industry would have important implications for the domestic American cheese producers. The model assumes cross price elasticities of zero among the cheese categories considered and the estimates do not include these

Table 6.7
Short-run Impacts on the United States Swiss Cheese Manufacturers, Milk Producers, and Government Support Purchases of Increasing Imports of Swiss Cheese in 1979

	Units	Price Elasticity of Demand: -0.5; Elasticity of Supply: 0.3	Price Elasticity of Demand: -0.5; Elasticity of Supply: 0.7	Price Elasticity of Demand: -0.9; Elasticity of Supply: 0.3	Price Elasticity of Demand: -0.9; Elasticity of Supply: 0.7
Import Alternative A[a]					
Milk Prices Above Support					
Wholesale Cheese Price Decline[b]	cents/lb (%)	5.8 (4.1)	3.9 (2.8)	3.9 (2.8)	2.9 (2.0)
Cheese Production Decline	mil.lbs "	3.5 (1.6)	5.4 (2.6)	2.3 (1.1)	4.1 (1.9)
Farm Milk Price Decline[c]	cents/cwt "	0.57 (0.05)	0.89 (0.08)	0.38 (0.03)	0.68 (0.06)
Milk Production Decline	mil.lbs "	10.4 (0.01)	16.2 (0.01)	6.9 (0.01)	12.3 (0.01)
Milk Prices At Support					
Wholesale Cheese Price Decline[b]	cents/lb "	5.8 (4.1)	3.9 (2.8)	3.9 (2.8)	2.9 (2.0)
Cheese Production Decline	mil.lbs "	3.5 (1.6)	5.4 (2.6)	2.3 (1.1)	4.1 (1.9)
Farm Milk Price Decline[c]	cents/cwt "	0 —	0 —	0 —	0 —
Milk Production Decline	mil.lbs "	0 —	0 —	0 —	0 —
CCC Support Purchases Increase[d]	mil.lbs "	28.0 —	43.2 —	18.4 —	32.8 —
Import Alternative B[e]					
Milk Prices Above Support					
Wholesale Cheese Price Decline[b]	cents/lb (%)	19.9 (13.9)	13.2 (9.3)	13.2 (9.3)	9.9 (6.9)
Cheese Production Decline	mil.lbs "	11.9 (5.6)	18.5 (8.8)	7.9 (3.8)	13.9 (6.6)
Farm Milk Price Decline[c]	cents/cwt "	1.95 (0.17)	3.06 (0.27)	1.31 (0.12)	2.30 (0.21)
Milk Production Decline	mil.lbs "	35.4 (0.03)	55.4 (0.05)	23.8 (0.02)	41.7 (0.03)
Milk Prices At Support					
Wholesale Cheese Price Decline[b]	cents/lb "	19.9 (13.9)	13.2 (9.3)	13.2 (9.3)	9.9 (6.9)
Cheese Production Decline	mil.lbs "	11.9 (5.6)	18.5 (8.8)	7.9 (3.8)	13.9 (6.6)
Farm Milk Price Decline[c]	cents/cwt "	0 —	0 —	0 —	0 —
Milk Production Decline	mil.lbs "	0 —	0 —	0 —	0 —
CCC Support Purchases Increase[d]	mil.lbs "	95.2 —	148.0 —	63.2 —	111.2 —

[a] Imports increase by 9.3 million pounds (13 percent).

[b] Less than trucklot price, Swiss grade A blocks (80-100 lbs), sellers dock or warehouse, Wisconsin.

[c] Percentage based on projected all-wholesale price of milk on the farm.

[d] Milk equivalent.

[e] Import quotas 950.10B and 950.10C (Emmenthaler and Gruyere-process) are doubled. Imports increase by 31.7 million pounds.

effects. However, in part B of Figure 4.1, the demand curve for Swiss would likely shift to the right as more Swiss was used for processed cheese, displacing some American-type. Thus, the estimated adverse price impacts on the Swiss manufacturers could be dampened to some extent. At the same time, however, the demand curve for American could shift downward causing a price decline in the American cheese industry, if prices were above the CCC purchase level. If this happens, the domestic demand curve for manufacturing milk would still fall and farmers would experience some adverse price impacts.

Illinois, Wisconsin and Ohio produced the most Swiss cheese in 1977, accounting for 60 percent of total output. Lough[1] points out that because Swiss is difficult to make, requiring special equipment and skilled cheesemakers, most Swiss plants concentrate their resources on the production of this cheese only. If another type of cheese is made, it is usually of American-type and accounts for a small part of total plant output. Thus, some plant flexibility exists to cope with the kinds of industry adjustments which the impact estimates and the above discussion indicate might be necessary.

Other-NSPF Imports. As pointed out in Chapter V, imports in the Other-NSPF BPB quota category compete with domestic American cheese while APB imports compete with other cheese types, such as Mozzarella and certain high quality table cheeses which are produced in the U.S., for example, Camembert or Brie. Over half of the U.S. production of cheeses which compete with imports entering in the APB category is Mozzarella. Therefore, increasing the quota (BPB) or allowing the

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[1]Lough, The Cheese Industry, p. 29.

current quota to be filled with subsidized imports would impact adversely on the domestic American cheese industry, though it is also conceivable that more Mozzarella would enter below pricebreak. Allowing greater subsidization[1] of APB imports would possibly affect Mozzarella manufacturers and plants producing the various varieties of specialized table cheeses.

There have been two requests for U.S. concessions on this import category. New Zealand has asked that its share of the quota be increased from 7,556,000 to 46.5 million pounds and the EC has proposed "concerted disciplines." Four import alternatives are evaluated.

Alternative A. Assuming that allowing imports under quota to be subsidized would result in the quota being completely filled, alternative A analyzes the effects of permitting 5 million more pounds (10 percent more than normal) to enter. All of this increase is assumed to be competitive with domestic American cheese.

Alternative B. If New Zealand's request were granted, an additional 24 million pounds of New Zealand Cheshire, which competes directly with domestic American cheese, could enter the U.S. Though the New Zealand quota share established by the Presidential Proclamation is 7,556,000 million pounds, country-of-origin adjustments since the CVD waiver agreement have resulted in that country's share rising to 22,603,652 pounds in 1977. The import projection in 1979 in Table 5.10 assumes implicitly that the 1977 quota allocations remain unchanged and therefore, meeting New Zealand's request could expand imports of American-type cheese by 24 million pounds (47 percent).

[1] Many of these imports are already being subsidized.

Alternative C. As indicated earlier with reference to the New Zealand request for an expanded share of the two American quotas, it might not be possible for the U.S. to grant an increase in one country's quota share without granting a similar increase to all countries. Thus, if under GATT Article XIII, the U.S. had to increase the quota six-fold as a consequence of meeting the New Zealand request, imports under quota would be permitted to rise by 204 million pounds. The impacts of increasing American-type cheese imports by this amount are analyzed under alternative C.

Alternative D. If greater subsidization were allowed, additional quantities of Mozzarella could enter, possibly at a price under the pricebreak. Alternative D assumes that the additional five million pounds of quota cheese entering under a more liberal subsidization policy are Mozzarella instead of American as assumed in alternative A. Mozzarella does not hold up well in long distance shipping so New Zealand would not be a supplier. The increased imports would likely come instead from Canada, Israel or a European exporter.

No attempt is made to estimate the impacts of import increases on domestic manufacturers of the cheese which competes with the hundreds of other cheese types entering in this import category.

The estimates of impacts under each alternative are shown in Table 6.8. The model estimates that if subsidized imports were allowed to fill the quota, American cheese and milk prices would decline less than one-half percent and with prices at support, CCC purchases would rise 50 million pounds. If New Zealand's request for a larger quota share were granted, American cheese prices could drop as much as 1.4

Table 6.8

Short-run Impacts on United States American Cheese Manufacturers,[a] Mozzarella Cheese Manufacturers,[b] Milk Producers, and Government Support Purchases of Increasing Imports of Other Cheese-NSPF in 1979

	Units		Price Elasticity of Demand -0.5, Elasticity of Supply 0.3		Price Elasticity of Demand -0.5, Elasticity of Supply 0.7		Price Elasticity of Demand -0.9, Elasticity of Supply 0.3		Price Elasticity of Demand -0.9, Elasticity of Supply 0.7	
Import Alternative A[c]										
Milk Prices Above Support										
Wholesale Cheese Price Decline[d]	cents/lb	(%)	0.4	(0.3)	0.2	(0.2)	0.2	(0.2)	0.2	(0.2)
Cheese Production Decline	mil.lbs	"	1.9	(0.1)	3.0	(0.2)	1.3	(0.1)	2.2	(0.1)
Farm Milk Price Decline[e]	cents/cwt	"	0.39	(0.03)	0.62	(0.06)	0.27	(0.02)	0.46	(0.04)
Milk Production Decline	mil.lbs	"	7.1	(0.01)	11.2	(0.01)	4.9	(0.00)	8.2	(0.01)
Milk Prices At Support										
Wholesale Cheese Price Decline[d]	cents/lb	"	0	—	0	—	0	—	0	—
Cheese Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
Farm Milk Price Decline[e]	cents/cwt	"	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[f]	mil.lbs	"	50.0	—	50.0	—	50.0	—	50.0	—
Import Alternative B[g]										
Milk Prices Above Support										
Wholesale Cheese Price Decline[d]	cents/lb	(%)	1.7	(1.4)	1.0	(1.0)	1.0	(1.0)	0.7	(0.7)
Cheese Production Decline	mil.lbs	"	9.1	(0.5)	14.2	(0.7)	6.0	(0.3)	10.6	(0.5)
Farm Milk Price Decline[e]	cents/cwt	"	1.87	(0.17)	2.94	(0.26)	1.25	(0.11)	2.19	(0.20)
Milk Production Decline	mil.lbs	"	33.8	(0.03)	53.2	(0.04)	22.6	(0.02)	39.7	(0.03)
Milk Prices At Support										
Wholesale Cheese Price Decline[d]	cents/lb	"	0	—	0	—	0	—	0	—
Cheese Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
Farm Milk Price Decline[e]	cents/cwt	"	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[f]	mil.lbs	"	240.0	—	240.0	—	240.0	—	240.0	—
Import Alternative C[h]										
Milk Prices Above Support										
Wholesale Cheese Price Decline[d]	cents/lb	(%)	14.3	(12.2)	8.2	(8.2)	8.2	(8.2)	6.1	(6.1)
Cheese Production Decline	mil.lbs	"	77.5	(4.1)	120.4	(6.1)	51.0	(2.0)	89.8	(4.1)
Farm Milk Price Decline[e]	cents/cwt	"	15.91	(1.42)	24.90	(2.22)	10.61	(0.95)	18.57	(1.66)
Milk Production Decline	mil.lbs	"	288.3	(0.23)	451.1	(0.37)	192.2	(0.16)	336.5	(0.27)

Table 6.8 (Cont.)

	Units		Price Elasticity of Demand							
			-0.5				-0.9			
			Elasticity of Supply							
			0.3		0.7		0.3		0.7	
Milk Prices At Support										
Wholesale Cheese Price Decline[d]	cents/lb	(%)	0	—	0	—	0	—	0	—
Cheese Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
Farm Milk Price Decline[e]	cents/cwt	"	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[f]	mil.lbs	"	2040.0	—	2040.0	—	2040.0	—	2040.0	—
Import Alternative D[i]										
Milk Prices Above Support										
Wholesale Cheese Price Decline[j]	cents/lb	(%)	1.2	(1.0)	0.8	(0.7)	0.8	(0.7)	0.6	(0.5)
Cheese Production Decline	mil.lbs	"	1.9	(0.3)	2.9	(0.5)	1.2	(0.2)	2.2	(0.4)
Farm Milk Price Decline[e]	cents/cwt	"	0.27	(0.03)	0.42	(0.04)	0.17	(0.02)	0.32	(0.03)
Milk Production Decline	mil.lbs	"	4.9	(0.00)	7.6	(0.01)	3.2	(0.00)	5.8	(0.00)
Milk Prices At Support										
Wholesale Cheese Price Decline[j]	cents/lb	"	1.2	(1.0)	0.8	(0.7)	0.8	(0.7)	0.6	(0.5)
Cheese Production Decline	mil.lbs	"	1.9	(0.3)	2.9	(0.5)	1.2	(0.2)	2.2	(0.4)
Farm Milk Price Decline[e]	cents/cwt	"	0	—	0	—	0	—	0	—
Milk Production Decline	mil.lbs	"	0	—	0	—	0	—	0	—
CCC Support Purchases Increase[f]	mil.lbs	"	13.3	—	20.3	—	8.4	—	15.4	—

[a]Import alternatives A-C
[b]Import alternatives D
[c]Imports of American type cheese increase by 5 million pounds (24 percent).
[d]Carlot prices of 40-lb. blocks of Cheddar cheese, Wisconsin assembly points.
[e]Percentage based on projected all wholesale price of milk on the farm.
[f]Milk equivalent.
[g]Imports of American type cheese increase by 24 million pounds.
[h]Imports of American type cheese increase by 204 million pounds.
[i]Imports of Mozzarella cheese increase by 5 million pounds.
[j]Less than trucklot price, Mozzarella, sellers dock or warehouse, Wisconsin.

percent and if prices were at support, CCC purchases would go up by 240 million pounds. In the extreme case in which the U.S. not only is assumed to increase New Zealand's share six-fold but the whole quota as well, severe impacts on the industry are estimated. Milk and American cheese prices are estimated to fall as much as 12.2 and 2.2 percent respectively in this instance. CCC would have to buy over two billion pounds of milk in some form to maintain prices at support. If a more liberal U.S. policy or export subsidization practices of suppliers were adopted and an additional five million pounds of Mozzarella entered the U.S., it is estimated that Mozzarella cheese prices could fall by one percent. If prices were at support, CCC purchases would rise between 8.4 and 20.3 million pounds.

Structural characteristics of the American cheese manufacturers relevant to industry adjustment were discussed previously. The largest producers of Mozzarella and, therefore, those likely to suffer many of the adverse effects of increased imports are Wisconsin, California and New York. Average plant production in California is by far the greatest--11.2 million pounds annually compared to 4.4 million and 3.8 million in New York and Wisconsin respectively and perhaps the larger, more efficient plants could better adapt to adverse price impacts, though as Lough[1] points out, the larger plants have to draw milk from farther away. Thus, higher assembly costs offset, to some extent, the cost advantages which larger size and newer technology give them. Many Mozzarella plants also produce other Italian-types and therefore, some flexibility exists at the plant level to adjust production in response to lower Mozzarella prices. If demand for Mozzarella continues

[1]Lough, The Cheese Industry, p. 22.

to rise as rapidly as in the past, short term adverse impacts resulting from import increases would likely be offset in the long run, providing the imports are regulated by quota. If imports of subsidized above pricebreak Mozzarella continued to expand, the industry could experience permanent setbacks. At the moment, however, domestic Mozzarella is priced below the pricebreak and is thus largely protected from import competition. If domestic production costs rise above the pricebreak, subsidized APB imports could compete.

Other-NSPF imports from EC countries have dropped sharply since the CVD waiver agreement was reached[1] and Denmark in particular has been severely affected by the ruling. New Zealand has been the principle beneficiary of import license transferring operations as it's allocation has trebled. Therefore, a concession by the U.S. on this category which would allow the EC countries to, at least, regain use of their quota allocations would be of great value to the EC.

Impacts of Import Expansion on Milk Producers

In the last section, it was pointed out that for each set of assumed demand and supply elasticities for cheese, the impacts on milk producers are estimated to be identical, irrespective of the form of the imports. However, it is unlikely that manufacturers of these different cheese types would respond in the same way to increased imports of their respective cheeses. Therefore, the form in which the increased imports enter likely has an important bearing on farm level impacts.

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[1] See Table 5.10.

To illustrate this, the cheese types are ranked ordinally in this section according to short run supply elasticities which are specified based on an analysis of relevant characteristics of the manufacturers. As noted previously, there are no estimates of supply elasticities of these cheese types reported in the literature but a qualitative evaluation of industry characteristics can provide a basis for a relative ordering.

Table 6.9 indicates this ordering and the farm level impacts which the model estimates would occur if an additional 100 million pounds of milk were allowed to enter in the form of the various cheese types. The adverse impacts are greater with more elastic supply elasticities.

American cheese is ranked the most inelastic because the government is willing to buy unlimited quantities at the designated purchase price and future prices can therefore be projected with somewhat greater certainty. American cheese is not as storeable as other cheeses and this contributes to its relative supply inelasticity. Most Blue-Mold plants are single product plants and with no production alternatives and a relatively unstoreable product, supply of this cheese type can be expected to be inelastic. The Swiss cheese manufacturers have some flexibility to shift to American production and they can store their cheese for over two years. The hard Italian cheeses can be stored even longer than Swiss and these plants are able, in many cases, to shift to American or Mozzarella. Edam and Gouda is produced by only one firm which produces other types of cheese as well. Given the stagnant domestic demand for this cheese and the other intra-firm production possibilities, it is estimated that the firm would react quickly to an

Table 6.9

Short-run Impacts on United States Milk Producers of Increasing Imports in 1979 by 100 Million Pounds of Milk Equivalent in the Form of Various Cheese Types[a]

Cheese Type	Units	Supply Elasticity for Cheese	Price Elasticity of Demand for Cheese -0.5		-0.9	
American		.3				
Milk Price Decline[b]	cents/cwt (%)		0.78	(0.07)	0.52	(0.05)
Milk Production Decline[c]	mil.lbs "		14.1	(0.01)	9.4	(0.01)
Blue		.4				
Milk Price Decline[b]	cents/cwt "		0.92	(0.08)	0.63	(0.06)
Milk Production Decline[c]	mil.lbs "		16.6	(0.01)	11.5	(0.01)
Swiss		.5				
Milk Price Decline[b]	cents/cwt "		1.03	(0.09)	0.74	(0.07)
Milk Production Decline[c]	mil.lbs "		18.7	(0.02)	13.3	(0.01)
Italian		.6				
Milk Price Decline[b]	cents/cwt "		1.12	(0.10)	0.82	(0.07)
Milk Production Decline[c]	mil.lbs		20.4	(0.02)	14.9	(0.01)
Edam and Gouda		.7				
Milk Price Decline[b]	cents/cwt "		1.22	(0.11)	0.91	(0.05)
Milk Production Decline[c]	mil.lbs "		22.1	(0.02)	16.5	(0.01)

[a]See footnote a, Table 6.1. Prices are assumed to be above support.

[b]See footnote b, Table 6.1.

[c]See footnote c, Table 6.1.

adverse price impact. Therefore, it is estimated that this cheese has the most elastic short term supply.

Over the range of elasticities shown in Table 6.9, the farm level impacts do not vary much in absolute or percentage terms. Nevertheless, an analysis like that of Buxton and Fallert[1] which does not consider the form in which the increased dairy imports enter, is ignoring an important determinant of the impacts. Whereas Buxton and Fallert conclude that milk prices would drop about 1 percent if imports were increased by 500 million pounds of milk equivalent, estimates derived from Table 6.9 indicate that if this increase came in the form of cheese, milk prices would be expected to drop only between 0.35 and 0.55 percent.[2] Furthermore, if the imports of American cheese were increased by an amount corresponding to this much milk, the farm milk price would drop 3.9¢/cwt., whereas if the increase entered as Edam and Gouda cheese, the farm price would drop 6.1¢/cwt.[2] Thus, the impacts depend not only on the form in which the increased milk equivalent enters but this analysis indicates that because of differing characteristics of domestic cheese manufacturers, the cheese variety is also relevant.

An aggregate analysis of this sort cannot indicate how farmers in particular localities would be affected by increased imports of cheese. A relatively insignificant estimated reduction in national cheese output in Tables 6.1, and 6.3-6.8, and the small milk price impact estimates of Tables 6.1 and 6.9, mask the disasterous situation which a particular diary farmer could face if the local cheese plant

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[1]Buxton and Fallert, Impact of Dairy Product Imports.

[2]Demand elasticity = -0.5.

getting his milk were to go out of business. Some inferences can be made from this analysis of likely regional impacts. Lough[1] reported that, in his survey of cheese plants in 1973, 76.3 percent of the milk used to manufacture American cheese and 65.7 percent of the milk used in total cheese production came directly from individual producers, with the rest coming from producer cooperatives or other plants or receiving stations. Since, as a rule, the milk used in cheese manufacture moves a much shorter distance to the plant than that used for fluid purposes,[2] it can be inferred that producers in the immediate vicinity of the cheese plants would be the most directly affected by increased cheese imports. The states which lead in the production of the individual cheese types have been indicated earlier, but it can generally be expected that farmers in the big cheese producing states like Wisconsin (38 percent of 1977 cheese production), Minnesota (12 percent), New York (8 percent), Iowa (5 percent), and California (4 percent) would be apt to suffer the most.

Lough[3] points out that milk producers are generally "price takers" and cheese manufacturers set the milk price based on their returns. Lower national cheese prices could mean lower returns to the milk producer, particularly if there existed no alternative outlet for his milk. The price received by an individual grade B milk producer for his manufacturing milk could even fall below the designated support price because of the imperfect nature of the price support system. The blend

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[1]Lough, The Cheese Industry, p. 20.

[2]Ibid., p. 19.

[3]Ibid.

price received by the grade A producer in the impacted area would also be affected by a lower manufacturing price.

As Tables 2.2 and 2.3 show, milk prices received by farmers, production costs and net incomes vary considerably among regions of the U.S. In areas like the north central states where a large share of the milk is used for manufacturing generally and cheese-making specifically, and where much grade B milk is produced, prices received by farmers are already below the national average. Increased cheese imports would likely have a greater adverse price impact in these regions than in areas like the southern Atlantic states where a larger part of the milk production goes to Class I uses. Lower incomes could prompt farmers to more seriously consider alternatives to dairy farming.

Effects of Changing the Model Parameters and Projections

Arguments could be made for altering certain of the exogenously determined parameters and projections used in the model. If modifications were made, the magnitudes of the endogenously determined impact estimates would change.

In Tables 6.1, and 6.3-6.9 sensitivity of the estimates to alternative demand and supply elasticities for cheese is indicated. Table 6.10 shows the extent to which elasticity assumptions affect the estimates of milk price impacts, if imports increase by 100 million pounds of milk equivalent. Table 6.10 can be compared with Table 6.1 since the former indicates the sensitivity to elasticity assumptions of the milk price impact estimates for each set of cheese elasticities used in the latter. It can be seen from Table 6.10 that, as expected, increasing the aggregate supply, manufacturing milk demand or fluid milk demand elasticities reduces the impact estimates.

Table 6.10

Sensitivity of Model Estimates of Milk Price Impacts to Alternative Elasticity Assumptions - Imports of Cheese Increase by 100 Million Pounds of Milk Equivalent in 1979[a]

Elasticity of Aggregate Milk Supply (ε_S)	Price Elasticity of Demand for Fluid Milk (η_F)	Price Elasticity of Demand for Manufacturing Milk (η_m)			
		-0.184	-0.46	-0.184	-0.46
		(cents/cwt)			
		(ε_c= .3, η_c= .5)		(ε_c= .3, η_c= .9)	
0.15	-0.35	0.78	0.56	0.52	0.37
	-0.5	0.68	0.50	0.45	0.33
0.25	-0.35	0.63	0.48	0.41	0.31
	-0.5	0.56	0.43	0.37	0.29
		(ε_c= .7, η_c= .5)		(ε_c= .7, η_c= .9)	
0.15	-0.35	1.22	0.87	0.91	0.65
	-0.5	1.05	0.78	0.78	0.58
0.25	-0.35	0.97	0.74	0.73	0.55
	-0.5	0.87	0.67	0.65	0.50

[a]Milk prices above support.

Table 6.11 summarizes, qualitatively, the types of changes in the endogenously determined model estimates that would result from changing the projections and the conversion factors as well as the elasticity parameters. In some cases, because a factor enters the model calculations more than once, possibly with different weights, its influence on one estimate may be negated or reversed in the computation of another estimate.

Table 6.11 suggests that changes in milk price or production caused by altering parameters in the milk industry have no effect on estimates of impacts on the cheese industry. In Chapter IV, it was pointed out in connection with Figure 4.1 that changes in milk price would feed back to the cheese industry through impacts on the cost curves of the cheese plants. For example, if milk prices dropped, these cost curves would drop and the supply curve for domestically produced cheese--and by implication the total supply curve--would shift outward. This would cause an even greater impact on the cheese price and further repercussions on the milk and cheese industries would result. The magnitude of these feedback effects is not estimated in the model, however.

Summary

Alternative policies with respect to cheese imports have been analyzed in this chapter with the help of the comparative static model described in Chapter IV. The policy alternatives evaluated were specified based on requests which the U.S. has received in the MTNs for more liberal import policies. Estimates of impacts on the price and production of milk and cheese, as well as those on the support purchases of the CCC, have been derived for each policy option. It has been shown

Table 6.11
Effects on the Endogenously Determined Impact Estimates of Increasing[a] the Parameters and Projections Used in the Comparative Static Model

Increasing the Following Parameter or Projection:	Affects the Absolute (Percentage) Impact Estimates as Follows:									
	Milk Price		Milk Production		Cheese Price		Cheese Production		CCC Purchases	
Milk										
Supply Elasticity	D	(D)	NE	(NE)	NE		NE		NE	
Demand Elasticity-Fluid[c]	D	(D)	D	(D)	NE		NE		NE	
Demand Elasticity-Manufacturing[c]	D	(D)	D	(D)	NE		NE		NE	
1979 All-wholesale Milk Price	NE	(D)	D	(D)	NE		NE		NE	
1979 Manufacturing Milk Price	I	(I)	I	(I)	NE		NE		NE	
1979 Aggregate Milk Production	D	(D)	NE	(D)	NE		NE		NE	
1979 Milk Production-Fluid Use	D	(D)	D	(D)	NE		NE		NE	
1979 Milk Production-Mfg. Use	D	(D)	D	(D)	NE		NE		NE	
Cheese										
Supply Elasticity	I	(I)	I	(I)	D	(D)	I	(I)	I[b]	
Demand Elasticity[c]	D	(D)	D	(D)	D	(D)	D	(D)	D[b]	
1979 Domestic Production[d]	NE	(NE)	NE	(NE)	D	(D)	NE	(D)	NE	
1979 Normal Imports[d]	NE	(NE)	NE	(NE)	D	(D)	NE	(NE)	NE	
1979 Consumption[d]	NE	(NE)	NE	(NE)	D	(D)	NE	(e)	NE	
1979 Wholesale Price	NE	(NE)	NE	(NE)	I	(NE)	NE	(NE)	NE	
Conversion Factor[f]	I	(I)	I	(I)	NE	(NE)	NE	(NE)	I	

Note: D: Decrease; I: Increase; NE: No effect

[a]Decreasing the parameter or projection would move the estimate in the opposite direction.

[b]In the case of American cheese, supply and demand elasticities for cheese do not influence the estimates of CCC purchases.

[c]Absolute value of the demand elasticity increases.

[d]Consumption = Domestic Production + Normal Imports.

[e]If increased domestic production is implied, the percentage impact estimate would decline. If increased imports is implied, the percentage impact estimate would not be affected.

[f]When import increases are in milk equivalent terms as in Table 5.1, increasing the conversion factor would decrease the cheese price impact estimate since the cheese equivalent of those imports would be less.

that the form taken by the import increase is an important determinant of the farm level impacts. This study estimates that, if form is considered, import increases would cause smaller impacts on milk prices and production than were estimated by Buxton and Fallert.[1] Whereas Buxton and Fallert predicted that a 500 million pound milk equivalent increase in imports would cause about a 1 percent decline in the farm milk price, it has been estimated here that milk prices would drop between 0.35 and 0.55 percent depending on the type of cheese imported in greater quantity and the adjustments in the cheese industry. Impacts on the cheese manufacturers are estimated to be quite severe in some cases.

In the discussion of dynamic effects and industry characteristics not accounted for in the model, it was pointed out that though the estimates derived from the model are useful indicators of aggregate impacts, it is necessary to look beyond these figures to determine the area and production units most directly influenced. It was indicated that dairy farmers in areas where income is most heavily dependent on the price of manufacturing milk, i.e, the grade B production and low Class I utilization areas, would likely be the most damaged by expansion of cheese imports, though prices received by all U.S. dairy farmers could conceivably be affected as long as milk prices are based on the manufacturing price.

In the final chapter, further implications which these results have for resolving the policy dilemma faced by decision-makers are discussed.

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[1] Buxton and Fallert, Impact of Dairy Product Imports.

CHAPTER VII

POLICY IMPLICATIONS AND CONCLUSIONS

Many of the implications of these results for policymakers have already been discussed. However, in this chapter, the impact estimates and their interpretation, presented in Chapter VI, are put in perspective with a discussion of other aspects of the dairy import question. The first section suggests additional factors for policymakers to consider with respect to the adjustment which affected segments of the economy could be expected to undergo in response to a dairy import policy change. Then, some possible benefits of policy change are indicated to provide a counterpoint to the cost estimates which this study has developed. In the third section, some characteristics of the policymaking process itself are highlighted and the value-laden nature of the decision is discussed. The chapter concludes with an overview of the study.

Further Aspects of Domestic Adjustment

The Cheese Industry. It has been indicated earlier that cheese demand has been growing rapidly and is projected to continue to grow. This factor would tend, in the long run, to ameliorate the situation which the analysis predicts would be faced by the cheese and milk industries in the wake of import expansion, as reference to Figure 4.1 makes clear. In the figure, if the demand curve for cheese, D, shifts

out in the longer run, the cheese price would rise, thus offsetting some of the price depressing effect caused by the import increase. If imports are not allowed to increase further, domestic cheese production would have incentive to expand, and the demand curve for manufacturing milk, DD, would move outward resulting in a higher farm price of milk. The depressed prices initially may cause the demand curve to shift outward more quickly than otherwise and allow domestic producers to recoup their short run losses sooner. This demand growth rate and the resulting effects discussed above would vary according to cheese type.

These effects would be different if, for example, subsidies were allowed on above pricebreak cheese and the import increase was not limited. In this case, the imports, AE in Figure 4.1, could increase further to limit the price rise discussed above, to negate it or, if enough imports entered, even to further accentuate the price drop. The corresponding effects on the milk producers can be traced through on the figure.

If continuing growth in cheese demand appears likely to offset the adverse impacts estimated by the model in the longer run, the temporary setbacks faced domestically could be alleviated through the provision of short term import relief as provided for under Title II of the Trade Act of 1974. Lough[1] indicated that his sample cheese plants employed between five and 102 people. These jobs could be in jeopardy if industry production and income dropped as estimated in Chapter VI. A crude way of putting an upper bound on the monetary cost of this assistance would be to assume that the government would make up the

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[1]Lough, The Cheese Industry, p. 16.

difference between industry income expected and income realized after import expansion. For example, from Table 4.1 it can be estimated that if 14.3 million more pounds of hard Italian cheese[1] were permitted to enter, the industry income would be between $420 and $960 thousand less in 1979 than that expected under the current import regime. If demand grew, the government would need to provide less in 1980 and the ensuing years until it was determined that the relief was no longer required.

The Milk Production Industry. As noted in Chapter VI, increased cheese imports would likely affect most severely dairy farmers within close proximity to the impacted cheese plants, those producing grade B milk and those whose milk is used largely for manufacturing purposes and hence receive a price weighted heavily by the manufacturing milk price. Adverse price impacts could give impetus to several trends in the milk industry. The trend toward fewer dairy farms, particularly fewer small dairy farms, could be accentuated. Cummins[2] indicates that grade B farms are, on the average, smaller than grade A farms and since about half of the U.S. grade B production is in Wisconsin and Minnesota, states producing 50 percent of the domestic cheese, these farms could be among the most affected by increased cheese imports.

Related to these effects is the impact that import expansion could have on the need to devise another way of pricing milk in the U.S.

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[1] 100 million pounds of milk equivalent.

[2] David E. Cummins, Comparison of Production Costs for Grade A and Grade B Milk, USDA/ESCS, January, 1978, p. 3.

Manchester[1] notes that currently only 20 percent of the milk produced in the U.S. is grade B and that conversion from grade B to grade A is occurring at a rapid rate. He indicates that in 1976, 54 percent of Minnesota milk and 35 percent of Wisconsin milk was grade B, down from 85 percent and 58 percent respectively in 1965. A number of reasons are cited for this trend including stricter health standards for grade B milk, higher grade A prices and the move to bulk tank assembly by dairy plants. Since the manufacturing milk price of Minnesota-Wisconsin is used as a reference in pricing all milk nationally,[2] if grade B production ceases, one class of milk, grade A, would be used for all products, fluid and manufactured. Some contend[3] that because of the decline in the number of manufacturing milk producers, the M-W price series is becoming less representative of dairy industry conditions, and, therefore, less appropriate as a basis for establishing minimum Class I prices. If increased cheese imports further stimulate the decline of manufacturing milk production and/or the shift to grade A production, a different system of pricing milk in the U.S. may have to be found even sooner.

The "Flanigan" and Atlantic Council reports reviewed in Chapter IV[4] suggest that the economic adjustments that would be required of the

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[1]Manchester, Dairy Price Policy, p. 9.

[2]See Chapter II.

[3]Glynn McBride and Robert D. Boynton, Class I Milk Pricing in Federal Order Markets: The Minnesota-Wisconsin Series and Alternative Pricing Formulae, Agricultural Experiment Station Report No. 334, Michigan State University, November, 1977, p. 4.

[4]Council on International Economic Policy, Agricultural Trade. Johnson and Schnittker, U.S. Agriculture.

U.S. dairy industry to accommodate dairy product imports equal to 10 percent of U.S. consumption would be small, particularly when analyzed over a ten-year period. In 1977, 1.7 percent of U.S. consumption of dairy products was imported in the form of cheese and other products. If the model developed in this study is used to analyze the impacts of importing 10 percent of U.S. consumption in 1979,[1] it is estimated that in the short run, milk prices would drop between 6 and 14 cents per cwt. (0.5 to 1.3 percent). It is not possible, using this model, to estimate the impacts or adjustments over a ten-year period as the above studies attempt to do, but the immediate impacts would appear to be significant. If milk producer income in 1979 were about the same as the USDA estimates for 1978 shown in Table 2.2, a positive net income per cwt. in at least two production regions could turn negative.

Currently, the price support is at 80 percent of parity and legislation requires that it remain at that level until October 1, 1979 at which time it may be dropped to 75 percent. The level of support has an important bearing on the domestic impacts of an import increase. A lower support would increase the likelihood that the industry would have to bear a greater burden of adjustment than a support set at a higher level. In the latter case, the CCC would absorb more of the impact through greater support purchases. These effects are illustrated in Figures 4.1-4.3. Strong milk prices currently, relatively low feed costs and the fact that 1979 is not an election year make the roll-back to 75 percent of parity conceivable, though market conditions could change before October 1. Almost certainly, if prices are depressed

[1] It is assumed, by using the model, that the imports are all in the form of cheese.

substantially by import expansion, pressure to maintain the 80 percent level will be strong.

Importers. Importer behavior has been assumed implicitly in the model. It is predicted that importers would be anxious for the opportunity to import more cheese, that they have the capacity to handle the increase and that they allow prices to drop as the static model suggests. Because many of the importers are also cheese manufacturers, they may not be willing to import the full quantities which are permitted by the policy alternatives analyzed and hence would not actively seek the additional import licenses that would be available. Further, they may be unwilling to allow prices to drop as predicted since with inelastic cheese demand, higher prices would yield greater revenues.

Schmid says, "Many of the current policy models are incomplete because they begin with an assumed conduct and inquire of performance."[1] The caution here is that by formulating more liberal import policies and then analyzing the effects of import expansion, the conduct of importers, as well as that of their suppliers, is assumed.

Benefits of Policy Change

Though this research is directed at a particular policy issue, the problem is not analyzed in its entirety. The costs of a policy change have been estimated but possible benefits, some of which are indicated below, have not been evaluated. Consequently, policy prescriptions cannot be made based solely on the results of this study,

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[1]A. Allan Schmid, "Analytical Institutional Economics: Challenging Problems in the Economics of Resources for a New Environment," American Journal of Agricultural Economics, Vol. 54 (December, 1972), p. 894.

but these cost estimates should be of use to decisionmakers who have careful analyses of the likely benefits at their disposal as well.

Though it is difficult to tie a U.S. concession on dairy policy to a particular reciprocal action of a trading partner, this concession could be of such importance to the EC and others that chances for a beneficial quid pro quo would be substantially enhanced. The U.S. is particularly interested in EC trade concessions on beef, tobacco, nuts, rice, canned fruits and joices, citrus, grapes, raisins and prunes--items worth over $700 million to the U.S. in export trade with the EC in 1977. The U.S. is also anxious to resist any weakening of the free access to EC markets now enjoyed by soybeans and cotton. In discussions aimed at establishing a new international wheat agreement, the U.S. would like to convince the EC to abandon its proposal for a rigid maximum and minimum price structure within which trade would flow and agree instead to a more flexible system with greater reliance on the market. The U.S. would also like the EC to agree to greater restraint on the subsidization of wheat, dairy products and other items. Differences also exist on safeguards--the EC favors immediate action against imports causing damage to a domestic industry while the U.S. suggests that negotiations should precede protective action.

In addition to the advantages, political or economic, which the U.S. might derive from possible concessions on the above, and other, matters being discussed in the MTNs, an easing of dairy import restrictions could be of considerable benefit to cheese consumers. If the wholesale price impacts predicted by this analysis show up at the retail level, these benefits could be substantial depending on the degree of policy liberalization. Since cheese purchases constitute such

a small part of total consumption expenditures, the contribution to the easing of inflationary pressures would likely be small. Nevertheless, more and cheaper cheeses entering the U.S. should result in consumers having a greater choice in the market and additional possibilities for adding variety to their diets.

Policymaking Process

Within the constraints imposed on them by the international and domestic realities, U.S. negotiators must decide whether to liberalize dairy import policy. If they decide to liberalize, they must decide which import categories to change and by how much to change them. The decision finally taken on dairy import policy will reflect the views not only of the USDA and its advisory committees but also those of the other departments of the executive branch which take part in the policy formulation and review process, the President and the Congress. Many parts of government have a vested interest in dairy import policy because of its effect on their clientele or the manner in which it impinges on their areas of jurisdiction. But, as noted by Stucker et al., "Such widespread involvement in food policymaking has created difficulties both in developing consistent policies and in identifying who is responsible for them."[1] Hillman, discussing the policymaking process with particular reference to decisions regarding non-tariff barriers in the Tokyo Round, further notes that, ". . . there is a real danger in (administrators') progressive withdrawals from direct and

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[1]T. A. Stucker, J. B. Penn and R. D. Knutson, "Agricultural-Food Policymaking: Process and Participants," Agricultural-Food Policy Review. ERS AFPR-1, USDA/ERS, January, 1977, p. 10.

detailed public criticism and responsibility."[1] He also suggests that, "Concentration of policymaking power among administrators puts a premium upon organized pressures from directly interested groups and lessens the consideration likely to be given to the general public interest, particularly unorganized consumer interest."[2]

Even though the domestic decision process is a complicated one and it is difficult to assign responsibility for the outcome, ". . . the strategic position of certain administrators . . ."[3] is well known by those representing the interests of the dairy industry in Washington. Since the adverse impacts of policy change on the dairy industry are easier to predict and would be more direct while the benefits to the U.S. are more difficult to estimate and would likely be dispersed among many sectors of the economy, pressure from the dairy groups to maintain the status quo is strong and not likely to be offset by other interest groups.

Machlup writes, ". . . To pretend knowledge of the acceptable trade-offs between social goals is the heroic assumption of welfare economics . . ."[4] Those deciding on dairy import policy are ". . . definitely in normative territory. . ."[5] and their final decision will

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[1]Jimmye S. Hillman, "Non-tariff Barriers: Major Problem in Agricultural Trade," American Journal of Agricultural Economics, Vol. 60 (August, 1978), p. 493.

[2]Ibid.

[3]Ibid., p. 492.

[4]Fritz Machlup, "Positive and Normative Economics," in Economic Means and Social Ends, Robert Heilbroner, ed. (Englewood Cliffs, N.J.: Prentice-Hall, 1969), p. 120.

[5]Ibid., p. 128.

imply that they feel they have adequate knowledge of the trade-offs involved. Using the terminology in Johnson,[1] they must pass judgement on the "goodness" and "badness" of the expected impacts of policy change, some of which are estimated in this study. They must prescribe a policy action which they feel is "right" and reject alternatives which they feel are "wrong." If no course of action is deemed good, they must try to minimize losses and choose the policy which they view as being the least bad. They must decide if estimates such as those derived by this study should be used in their decision process to indicate "goods," "bads" and their magnitudes, and they must weigh the possible "goods" against the possible "bads" and present sacrifices (benefits) against future benefits (sacrifices). All participants in the policymaking process must deal in these normative terms but the burden is heaviest on those in ". . . strategic position(s) . . ."[2]

Overview of the Study

The aim of this study is to contribute to the knowledge required by policymakers who must decide, in the face of international pressure, whether to offer a more liberal U.S. dairy import policy in exchange for certain concessions from trading partners. It borders on being "problem-solving"[3] research yet because not all aspects of the problem have been analyzed and no prescriptions are made, it should more

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[1]Glenn L. Johnson, "Philosophic Foundations of Agricultural Economics Thought," in A Survey of Agricultural Economics Literature, Lee R. Martin, ed. (Minneapolis: University of Minnesota Press, forthcoming).

[2]Hillman, "Non-tariff Barriers," p. 492.

[3]Johnson, "Philosophic Foundations."

correctly be called "relevant disciplinary"[1] research. The study has focused on estimating the adverse impacts likely to be felt in the dairy industry if the U.S. were to open its markets to greater cheese imports, as requested by the EC and others.

The impact estimates are derived from a comparative static model linking the cheese industry, which would bear the adjustment burden of import expansion directly, with the milk producers, who would be subject to secondary impacts. Chapters II and III of this thesis have described the status quo domestically and internationally. The next two chapters have developed the model appropriate for estimating short run domestic effects of a policy change and the final two chapters have presented an evaluation of the results.

This study differs from previous work in at least two important respects. First, the actual policy alternatives being debated by policymakers are analyzed with the help of the model. Consequently, it is hoped that the results will be of greater use than those of studies which have analyzed broad and/or more extreme shifts in import policy. Second, because this research recognizes that the manner of adjustment in the cheese industry would determine the types and extent of farm level impacts, the estimates derived here differ from previous work. In the model formulation, the cheese industry and the government support program absorb some of the adverse impacts of the import expansion and, therefore, the magnitudes of the impacts on milk producers are generally estimated to be somewhat less than suggested elsewhere.

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[1] Ibid.

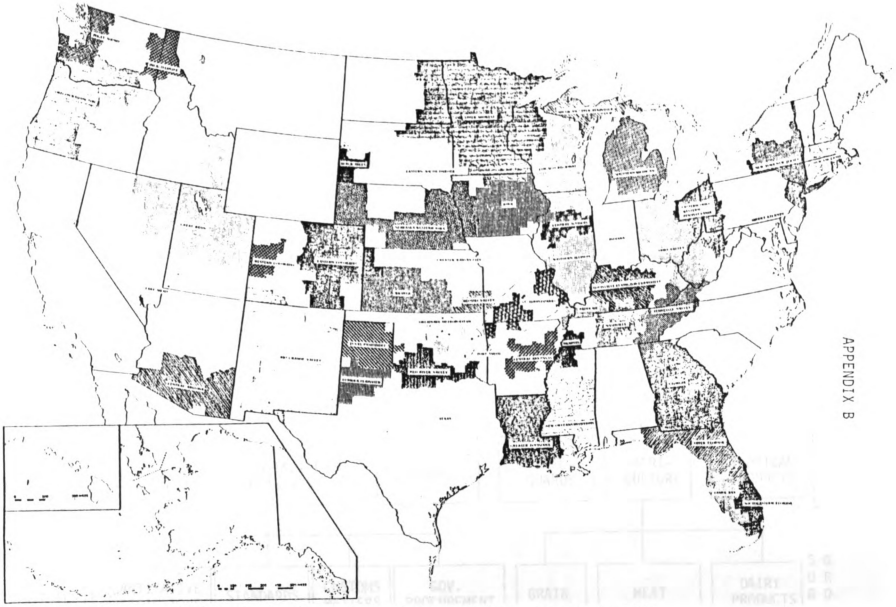
It is important that the macro-level estimates derived from the model do not give a false impression of the mildness or severity of possible impacts and therefore this study has indicated some of the likely micro-level effects, which the model is incapable of predicting. It has been shown that the impacts could vary substantially among regions, cheese plants and farms according to the location and characteristics of the particular types of production units and the policy alternatives considered.

Finally, it should be re-emphasized that this study analyzes only part of the problem. Policy recommendations cannot, therefore, be based on the results of this research alone and more information is required. However, it can be said that for a decision to be taken to change dairy import policy, recognizing that the dairy industry could be affected as this study estimates, important value judgements must be made and responsibility for the decision must be accepted. It is the job of the public policymaker to bear these burdens and it is hoped that the deliberations leading to a final decision will proceed with due consideration being given to the issues raised by this study.

APPENDICES

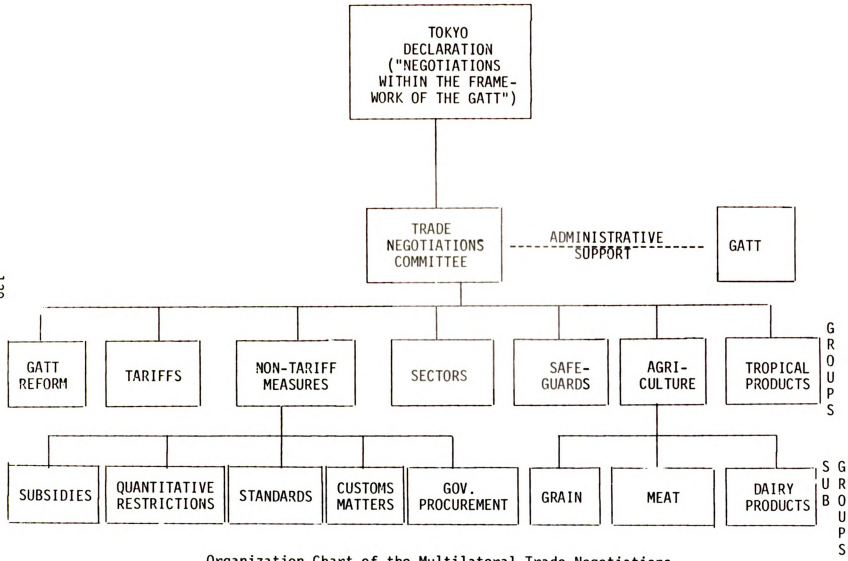
Milk Production Regions Defined in the USDA Production Cost Study

SOURCE: "Hoard's Dairyman," September 25, 1978, p. 1093; taken from "Costs of Producing Milk in the United States--Final 1976, Estimated 1977, and Projections for 1978," prepared by USDA/ESCS for the Committee on Agriculture, Nutrition, and Forestry, United States Senate as mandated by The Agriculture and Consumer Protection Act of 1976; released April 21, 1978.



Milk Marketing Areas Under Federal Orders; January 1, 1978.

SOURCE: U.S. Department of Agriculture, Federal Milk Order Market Statistics, Annual Summary for 1977, Statistical Bulletin No. 611, AMS, July 1978, p. 9.



Organization Chart of the Multilateral Trade Negotiations

APPENDIX D

Short-run Price Effects in the United States Cheese Industry of Changing Cheese Imports

(1) $P_c = a + bQ_D$

(2) $P_c = c + dQ_s + eQ_I$

(3) $Q_D = Q_s + Q_I$

(4) From (1): $Q_D = \frac{P_c - a}{b}$

P_c = Price of cheese

Q_D = Quantity demanded

Q_s = Quantity supplied domestically (includes normal imports)

Q_I = Quantity imported (new imports)[1]

Substitute this into (3), solve for Q_s: $\frac{P_c - a}{b} = Q_s + Q_I$

(5) $Q_s = \frac{P_c - a}{b} - Q_I$

Substitute (5) into (2), solve for P_c in terms of Q_I:

$$P_c = c + d(\frac{P_c - a}{b} - Q_I) + eQ_I$$

$$P_c = c + \frac{dP_c}{b} - \frac{da}{b} - dQ_I + eQ_I$$

$$P_c - \frac{dP_c}{b} = c - \frac{da}{b} - dQ_I + eQ_I$$

$$bP_c - dP_c = bc - da - bdQ_I + beQ_I$$

(6) $P_c = \frac{bc}{b - d} - \frac{da}{b - d} - \frac{bdQ_I}{b - d} + \frac{beQ_I}{b - d}$

Differentiate (6) with respect to Q_I:

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[1] $Q_I = 0$ initially.

$$\frac{\partial P_c}{\partial Q_I} = 0 - 0 - \frac{bd}{b - d} + \frac{be}{b - d} = \frac{be - bd}{b - d} = \frac{b(e - d)}{b(1 - \frac{d}{b})}$$

(7) $$\frac{\partial P_c}{\partial Q_I} = \frac{e - d}{1 - \frac{d}{b}}$$

In equations (1) - (3);

$$b = \frac{dP_c}{dQ_D}; \quad \text{Demand elasticity} = \eta_c = \frac{dQ_D}{dP_c} \cdot \frac{P_c}{Q_D}$$

$$d = \frac{dP_c}{dQ_s}; \quad \text{Domestic supply elasticity} = \varepsilon_c = \frac{dQ_s}{dP_c} \cdot \frac{P_c}{Q_s}$$

$$e = \frac{dP_c}{dQ_I}; \quad \text{Import supply elasticity} = \varepsilon_I = \frac{dQ_I}{dP_c} \cdot \frac{P_c}{Q_I}$$

Therefore (7) may be expressed as:

$$\frac{\partial P_c}{\partial Q_I} = \frac{\frac{1}{\varepsilon_I} \cdot \frac{P_c}{Q_I} - \frac{1}{\varepsilon_c} \cdot \frac{P_c}{Q_s}}{1 - \frac{\frac{1}{\varepsilon_c} \cdot \frac{P_c}{Q_s}}{\frac{1}{\eta_c} \cdot \frac{P_c}{Q_D}}} = \frac{\frac{P_c}{\varepsilon_I \cdot Q_I} - \frac{P_c}{\varepsilon_c \cdot Q_s}}{1 - \frac{\eta_c \cdot Q_D}{\varepsilon_c \cdot Q_s}}$$

Then, assuming ε_I is ∞[1] and $Q_D = Q_s$ initially:

$$\frac{\partial P_c}{\partial Q_I} = \frac{-1}{\frac{\varepsilon_c \cdot Q_s}{P_c} - \frac{\eta_c \cdot Q_D}{P_c}} = \frac{-1}{\frac{Q_s}{P_c}(\varepsilon_c + |\eta_c|)}$$

[1]Because of export subsidization.

APPENDIX E

Short-run Price Effects in the United States Milk Production Industry of Changing Manufacturing Milk Demand as a Result of Expanded Cheese Imports

(1) $Q_m = a + bP_m + cC$

(2) $Q_F = d + eP_m$

(3) $Q_S = f + gP_m$

(4) $Q_m = Q_S - Q_F$

Q_m = Quantity of manufacturing milk demanded

P_m = Price of manufacturing milk

C = Domestic cheese production

Q_F = Quantity of fluid milk demanded

Q_S = Aggregate milk supplied

Substitute (2) and (3) into (4):

(5) $Q_m = f + gP_m - d - eP_m$

Substitute (5) into (1) and solve for P_m:

$$f + gP_m - d - eP_m = a + bP_m + cC$$

$$gP_m - eP_m - bP_m = a + cC + d - f$$

$$P_m(g - e - b) = a + cC + d - f$$

(6) $$P_m = \frac{a + cC + d - f}{(g - e - b)}$$

Differentiate (6) with respect to C:

(7) $$\frac{\partial P_m}{\partial C} = \frac{c}{g - e - b}$$

In equations (1) - (3):

$$b = \frac{dQ_m}{dP_m}$$

$$c = \frac{dQ_m}{dC}$$

$$e = \frac{dQ_F}{dP_m}$$

$$g = \frac{dQ_S}{dP_m}$$

and:

$$\eta_m = \frac{dQ_m}{dP_m} \cdot \frac{P_m}{Q_m} = \text{Elasticity of demand for manufacturing milk}$$

$$\eta_F = \frac{dQ_F}{dP_m} \cdot \frac{P_m}{Q_F} = \text{Elasticity of the standardized demand for fluid milk}$$

$$\varepsilon_S = \frac{dQ_S}{dP_m} \cdot \frac{P_m}{Q_S} = \text{Elasticity of the standardized aggregate domestic supply}$$

Therefore (7) may be expressed as:

$$\frac{\partial P_m}{\partial C} = \frac{c}{\varepsilon_S \cdot \frac{Q_S}{P_m} + |\eta_F| \cdot \frac{Q_F}{P_m} + |\eta_m| \cdot \frac{Q_m}{P_m}}$$

Or:

$$\frac{\partial P_m}{\partial Q_m} = \frac{1}{\varepsilon_S \cdot \frac{Q_S}{P_m} + |\eta_F| \cdot \frac{Q_F}{P_m} + |\eta_m| \cdot \frac{Q_m}{P_m}}$$

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