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DAIRY AND MEAT INDUSTRIES IN UTAH

By

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TRADE LIBERALIZATION: THE IMPACT ON UTAH'S DAIRY

AND MEAT INDUSTRIES

Introduction

The United States is an efficient and low-cost agricultural producer demonstrated by huge domestic agricultural surpluses and exports. This is a partial reason however for the crisis now facing American agriculture: we can produce more agricultural products than can be sold at prices which provide a reasonable profit (Johnson). While the problem is quite clear, the solution is not.

It is generally agreed upon however that a partial solution to the woes of American agriculture would be global trade liberalization in agricultural products thereby expanding foreign export markets (Johnson). But trade liberalization is not a one-way street; agricultural trade liberalization by the United States and its trading partners would also open up U.S. markets now protected by import restrictions. Two U.S. agricultural industries that are heavily protected from imports and therefore would be subject to greater import competition after trade liberalization are the dairy and meat industries. However, even in this case trade liberalization is an attractive policy because of the huge costs import restrictions now impose on consumers. It is estimated that U.S. import restraints on dairy and meat products cost U.S. consumers $5.5 and $1.8 billion respectively in 1984 (Hufbauer et al.).

A policy of global trade liberalization in agricultural products is of significant interest to Utah since 75 percent of Utah farm cash receipts are derived from dairy and meat products (Utah Agricultural Statistics). It appears that while trade liberalization would benefit American agriculture overall it would hurt Utah agriculture. But the effect of

increased import competition on Utah's dairy and meat industries would be mitigated by an increase in foreign demand for these products. This is because U.S. trading partners also have import restrictions on dairy and meat products and the United States presently exports as well as imports commodities in both product groups (see Biswas and Tribedy).

(The purpose of this article is to quantify the effects of complete trade liberalization in dairy and meat products by the United States, Japan, and the European Economic Community (EEC) on Utah's dairy and meat industries and overall economy.) The information presented will enable Utah's congressional delegation to (better) make decisions on trade policy issues now facing the nation and inform the producers of dairy and meat products what the effects of trade liberalization would be on their industries.

Methodology

(A mathematical model is used that calculates the increase in U.S. imports and exports from the United States, Japan and the EEC completely eliminating trade barriers for the following commodities: (1) nonfat dry milk; (2) cheese; (3) butter; and (4) bovine meat.) The calculations are based on the following method: The percentage of increase in import value equals the percentage change in the import price to the consumer caused by complete trade barrier elimination, multiplied by the price elasticity of demand for imports. The percentage decline in the price of the import to the consumer equals the tariff equivalent of the trade barriers divided by unity plus the tariff equivalent. The price elasticity of import demand represents the percentage change in demand for imports for each percentage change in the consumer price of the imports. The percentage increase in

import value is then multiplied by the base year of imports to give the increase in imports of that particular commodity.

To calculate the increase in U.S. exports, the model merely adopts the mirror image of the import calculations: one country's increase in imports is another country's increase in exports. The overall increase in U.S. exports of a given commodity is determined by adding up the importing countries' increases in imports. To translate the trade effects into changes in domestic production we assume that for a given trade change there will be a corresponding change that takes place fully on the side of production; increased imports are treated as representing a decrease in domestic production by an amount equal to the increase in imports; increased exports are treated as causing an increase in production equivalent to the increase in exports

The production loss or gain is estimated at the national level. Utah's share of the gain or loss is then calculated based on Utah's share in national production of the particular commodity in question. The gains and losses are then summed up to arrive at a net production gain or loss for Utah's dairy and meat industries. After the production changes within the dairy and meat industries are estimated, multipliers derived from an input-output model are used to translate the production changes into effects on output, employment, and income in Utah's economy.

RESULTS

Structural Adjustments

Tables 1 and 2 show the data used to estimate and the resulting estimates of the impact of complete trade liberalization in dairy and meat products by the United States, Japan, and the EEC on United States and

Table 1. Effect on U.S. Imports, U.S. Production, and Utah Production of Meat and Dairy Products from Trade Liberalization in these Products, ($1,000,000).

Product	SITC	1983 U.S. Imports	Tariff Equivalent of Trade Barriers (per centage)	Percentage Decline in Import Price (per centage)	Absolute Value of Import Price	Increase in U.S. Imports	Utah's Share of US Production	Utah's Production Loss
Meat[1]	011.1	1,302.0	20	17	0.44	95.5	.008	0.764
Milk[2]	022	16.5	90	47	0.50	3.9	.008	0.031
Butter	023	5.4	90	47	0.50	1.3	.006	0.008
Cheese	024	403.7	90	47	0.50	95.6	.025	2.390
Total Dairy						100.8		2.430
Total						196.3		3.190

[1]Bovine meat.

[2]Nonfat dry milk.

Sources: Import data were adapted from United Nations Commodity Trade Statistics, 1983; Trade barrier and price elasticity data are from William R. Cline, "Trade Negotiations in the Tokyo Round", The Brookings Institution: Washington, D.C., 1978; Utah's share of U.S. production was derived from Utah Agricultural Statistics, 1985, and USDA, Agricultural Statistics, 1984.

Table 2. Effect on U.S. Exports, U.S. Production, and Utah Production of Meat and Dairy Products from Trade Liberalization in these Products, ($1,000,000).

Product	Importing Country	1983 Imports from the US	Tariff Equiva-lent Barriers (%)	Percentage Decline in Import Price (%)	Absolute Value of Import Price Elasticity	Increase in Imports from the US	Total Increase in US Exports	Utah's share of US Prod.	Utah's Prod. Gain
Meat	Japan	253.4	130	57	0.98	140.4			
	EEC	5.3	50	33	0.55	1.0	141.4	.008	1.13
Milk	Japan	5.0	120	55	1.94	5.4			
	EEC	.3	200	67	0.55	.1	5.5	.008	.044
Butter	EEC	14.2	330	77	0.55	6.0	6.0	.006	.036
Cheese	Japan	5.6	167	63	1.94	6.8			
	EEC	.16	121	55	0.55	.05	6.9	.025	.171
Total Dairy							18.4		.251
Total							159.8	1.38	

Source: see Table 1

Utah's production of these two commodities; Table 1 shows the increase in imports and Table 2 the increase in exports.

Utah's meat production loss would be around $0.76 million while its production gain would be at least $1.13 million. It appears, therefore, that trade liberalization in meat products would not significantly affect Utah's meat industry. It needs to be noted however, that we are using only one rather broad category of meat (SITC 011.1) in our model, hence within this category some particular products may suffer stiffer import competition while others benefit from greater foreign demand.

For Utah's dairy industry, it is estimated that the production loss and gain would approximately offset each other in milk and butter with the only significant effect occurring in cheese. The significant impact on cheese is due both to Utah being a large producer of cheese and cheese being a large U.S. import. The production loss in cheese would be around $2.4 million while the production gain would be only around a quarter of a million dollars. It appears that trade liberalization would cause Utah's dairy product processors to shift more towards the production of butter and nonfat dry milk and away from cheese as a consequence of trade liberalization in these products.

Net Production Effect

Utah's meat industry would realize a net production gain of around $0.366 million. Utah's dairy industry on the other hand would lose around $2.179 million of production to imports. Therefore, Utah's combined two industries would suffer a net production loss of around $2 million from complete trade liberalization in these products by the United States, Japan, and the EEC.

Direct and Miltiplier Effects

Using job-output ratios and income per job data the above production changes in the two industries were translated into direct effects on employment and income in the dairy and meat industries. Multipliers were then used to translate those direct effects into total effects on output, employment and income in Utah's economy. Table 3 contains the above specified data.

As an examination of Table 3 will reveal, the dairy industry would lose around 30 jobs and the meat industry would gain a couple of jobs from trade liberalization. There would be a combined net effect of around 28 jobs lost in the combined industries with a corresponding loss of $245,532 of income.

Of course the above direct effects on the two industries translate into larger effects on Utah's economy through the multiplier effect. Table 3 shows that the total output effect in Utah's economy from trade liberalization in dairy and meat products would be around a $3.73 million loss. In addition around 68 jobs would be lost and $0.56 million of income would be lost in the state. For comparison, the average number of employed persons in Utah in 1984 was 646,000, and the total labor and propietors income in 1983 was $10,915,247,000 (University of Utah, 1985). Hence, the job loss from trade liberalization would amount to around 0.01 percent of total employment and about that same percentage of total income would be lost due to trade liberalization in meat dairy products.

Conclusions

The above analysis points out that trade liberalization in meat and dairy products would cause structural adjustments to occur in Utah's dairy and meat industries as production shifted away from cheese to butter and

Table 3. Direct and Multiplier Effects on Output, Employment, and Income in Utah's Economy from Total Trade Liberalization in Dairy and Meat Products.

	Direct Effects on Particular Industry			Total Effect via the Respective Multiplier on Utah's Economy		
Industry	Output	Employment	Income	Output	Employment	Income
	($1,000,000)	Jobs	($)	($1,000,000)	Jobs	($)
Meat	0.366	2.56	10,752	0.97	12.73	53,330
Dairy	-2.179	-30.51	-256,284	-4.7	-80.23	-609,956
Total	-1.81	-27.95	-245,532	-3.73	-67.5	-556,626

Source: Data in Tables 1 and 2 and data by Keith et al.

dry milk. But the net effect on the two industries and Utah's (broder)
economy would be slight. The impact on the dairy industry workers who lose
their jobs to increased imput competition is however very significant.
Furthermore, the income these workers lose while looking for new employment
is a real cost to society. The overall increase in dairy product imports
will also put downward pressure on their prices which may in the short run
lower the return to the factor used intensively in producing dairy products
(labor).

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