

Dairy Market Impacts of US Milk Protein Imports and Policy Alternatives

Phillip M. Bishop and Charles F. Nicholson¹
Cornell Program on Dairy Markets and Policy
Cornell University, Ithaca, NY 14853-7801 USA

Introduction

US imports of milk protein products, particularly certain Milk Protein Concentrates (MPC) have increased dramatically since 1995. Whereas in 1995 MPC imports were just 15.9 million pounds, by the year 2000 they had reached 116.1 million pounds—an increase of well over 600% in just five years. In 2000, the farm price of milk in the US had reached very low levels by historical standards. The all-milk price in 2000 was \$12.40/cwt, down from \$14.38/cwt the year before and \$15.46/cwt the year before that. These two events, record high levels of MPC imports and low milk prices, led to a suspicion that MPC imports were responsible for the low prices. Although milk prices rebounded in 2001 and MPC imports declined, the issue of milk protein imports has continued to receive a good deal of attention during 2002 and 2003 when farmers faced low milk prices. Thus, the concern that MPC imports are generally having a large negative impact on milk prices persists. This information sheet provides answers to two main questions:

- What has been the impact on the US dairy markets of recent increases in MPC imports, and
- What are the implications of likely policy options in the event that policy makers seek to limit MPC imports or mitigate their impact?

Assessment of Milk Protein Imports with a US Dairy Policy Model

Our assessment of milk protein imports uses a model of the US dairy sector that includes all major US dairy pricing policies and specifies two regions: California and the rest of the US (largely areas regulated by Federal Milk Marketing Orders). The model is used to examine results for six scenarios:

- 1) A Base Case scenario for the year 2001 with current trade policy;
- 2) A Chapter 4 MPC Import Ban scenario that would prohibit the importation of any of the MPC products classified under Chapter 4 of the Harmonized Tariff Schedule. These are products containing more than 40% and less than 90% protein, for which imports grew most rapidly between 1995 and 2000;
- 3) A Milk Protein TRQ without Compensation scenario that imposes Tariff Rate Quotas (TRQ) on imports of Chapter 4 MPC, MPC in Chapter 35 of the HTS (which contain more than 90% protein) and casein products. The TRQ are specified consistent with legislation currently before Congress (H.R. 1786 and S. 847). This scenario assumes that the US does not provide compensation to exporters of MPC and casein products, which would likely be required under the US' WTO commitments;
- 4) A Milk Protein TRQ with Compensation scenario which imposes the same TRQ as the previous scenario but provides compensation to exporters of MPC and casein products by

¹ Phillip Bishop is a PhD Candidate, and Charles Nicholson is Senior Research Associate, Department of Applied Economics and Management, Cornell University.

increasing the amount of allowable imports under the TRQ for cheese by the dollar value equivalent of the reduction in MPC and casein product imports;

- 5) A Domestic Milk Protein Product Subsidy scenario that provides US manufacturers of MPC and casein with subsidies equal to the difference between landed import cost of these products and the return that processors could obtain selling NDM to the CCC;
- 6) A Tilt scenario that lowers the tilt from its average value of 93.3 cents/lb NDM in 2001 to 80 cents/lb. This scenario lowers the cost of NDM in US dairy markets, thus increasing incentives for its use, and reduces incentives to import MPC.

The results of each of the scenarios 2) through 6) are compared to the results of the base case 1) to evaluate the impacts of Chapter 4 MPC imports (scenario 2) and proposed policy alternatives (scenarios 3 through 6). It is important to note that the “milk protein” problem is viewed by some as an “import problem,” by others as a “tilt problem” and by others (especially dairy farmers), as a “milk price problem.” Thus, which policies are preferred by different groups will depend on their initial perceptions of the problem.

Results

Results of the six scenarios are summarized in Table 1. Key results are:

- Imports of Chapter 4 MPC products have a modest impact on the US all-milk prices, about \$0.08/cwt. Price impacts are larger in the rest of the US than in California.
- Restricting imports of milk protein products increases the value of protein in US markets, but reduces the value of butterfat. This occurs because there is not a one-to-one substitution of skim milk for use in domestic MPC manufacture and NDM production. Because there are still incentives to sell NDM to the government, there is an increased overall demand for domestically produced milk protein, which implies increased milk production, increased butterfat production, and reductions in the butter price, Class IV and Class II prices (Class 4a and Class 2 in California). Thus, restrictions on milk protein imports have *offsetting effects* on milk prices.
- The Domestic Milk Protein Production Subsidy scenario results in the highest all-milk price, but also the highest government expenditures.
- Although the Milk Protein TRQ without Compensation results in a larger milk price increase than prohibiting Chapter 4 MPC imports, if compensation is required by the WTO US all-milk prices will be *lower* than in the Base scenario. That is, US dairy farmers would likely be worse off under the TRQ with compensation scenario than under current policy.
- The Tilt scenario, not surprisingly, results in the largest reduction in the all-milk price and dairy producer revenue. The lower purchase price for NDM results in the largest reduction in government expenditures (there are no NDM purchases by the CCC) and a decrease in imports of Chapter 4 MPC comparable to those achieved by a TRQ policy.

Conclusions and Implications

Imports of Chapter 4 MPC products have modest negative impacts on US milk prices. Two of the policy alternatives available to address these impacts, the reduction in the NDM purchase price and the imposition of TRQ (with compensation required by the WTO), will reduce milk prices more than the MPC imports themselves. Production subsidies for US manufacturers of

MPC and casein can increase milk prices but may increase government costs depending on the amount of the subsidies. It is important to recognize that policies designed to influence protein values are likely to have effects on butterfat values as well, because any policy to increase prices will result in additional production of both of these milk components. Thus, restrictions on milk protein imports will increase protein values (and cheese prices) and reduce butterfat values (butter prices). This means that even policies designed to be highly restrictive of milk protein imports or highly supportive of domestic milk protein product manufacture will have smaller impacts on milk prices than would be supposed based only on consideration of supply and demand for protein.

Table 1. Impacts of Milk Protein Imports and Policy Alternatives

Outcome Variable	Base Scenario	No Ch. 4 MPC Imports	Policy Alternative			
			TRQ w/o compensation	TRQ with compensation	Casein & MPC Subsidy	Tilt
(Difference from Base Scenario Results)						
<i>All-milk price, \$/cwt</i>						
Other US	15.26	0.09	0.18	-0.13	0.34	-0.23
California	13.79	0.04	0.16	-0.16	0.68	-0.37
Average	14.96	0.08	0.17	-0.13	0.40	-0.26
<i>Producer revenues, \$ million</i>	24,762	182	382	-297	913	-582
<i>FMMO class prices, \$/cwt</i>						
Class I	16.28	0.26	0.83	0.20	1.69	-0.35
Class II	13.93	-0.31	-1.29	-0.85	-2.49	-0.49
Class III	13.59	0.26	0.83	0.20	1.69	-0.35
Class IV	13.23	-0.31	-1.29	-0.85	-2.49	-0.49
<i>Wholesale product prices, \$/lb</i>						
Cheddar cheese	1.47	0.02	0.08	0.02	0.15	-0.03
Butter	1.63	-0.07	-0.30	-0.20	-0.58	0.06
NDM	0.93	0.00	0.00	0.00	0.00	-0.08
<i>CCC purchases of NDM, mil. lbs</i>	259.9	-30.8	-144.5	-196.6	-6.9	-259.9
<i>Protein imports, million lbs</i>						
Chapter 4 MPC	76.4	-76.4	-41.5	-41.5	-16.2	-37.5
Casein	135.8	0.0	-103.2	-103.3	-114.6	0.0
<i>Net government program costs¹, \$ million</i>	309.3	-14.3	-118	-197.6	205.4	-259.5

¹ Import tariff revenue less the cost of CCC purchases, export subsidies, and production subsidies (i.e. casein and MPC).

Appendix: Brief Model Description

The model used in the analysis is a modified spatial price equilibrium model of the US dairy sector with trade linkages. It includes fairly detailed final and intermediate (dairy industry use) product disaggregation and explicit representations of US dairy policy (price supports, minimum classified pricing regulation, and import restrictions). Other key model characteristics include:

- 16 final products
- 9 intermediate (inter-plant) products (NDM, cream, skim, ice cream mix, fluid whey, buttermilk, MPC 40%, MPC 56% and MPC 70%)
- Imports of 13 products (including separate casein, caseinates, and four milk protein concentrate products). MPC in Chapter 4 of the HTS are disaggregated into three products of varying protein contents, and one product is specified for Chapter 35 MPC
- 2 US regions (California and rest of US; the latter is assumed to be under FMMO regulation)
- Model base year is 2001
- FMMO and California product-based pricing formulae are explicitly included, as are the purchase prices under the Dairy Price Support Program
- Imports and import supply prices are endogenous, but are based on 2001 mean import value from Census Bureau import data
- Trade policies include unit and ad valorem tariffs, TRQ and US export subsidies
- The model is formulated and solved as a Mixed Complementarity Problem (MCP)

A research bulletin providing detailed information about the model structure, scenarios and additional results will be available by May 2004.