

Broiler Production in North America Under Alternative Free Trade Scenarios

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The North American broiler market is dominated by the United States, which accounted for 78 percent of Canadian broiler meat imports and all of Mexican broiler meat imports in 1990. The U.S. broiler industry is a vertically integrated industry concentrated in the southern United States. Arkansas, Georgia, Alabama, North Carolina, and Mississippi, in that order, accounted for 61 percent of U.S. broiler production in 1990. The United States imposes tariffs on both Canadian and Mexican broiler meat.

The Canadian Chicken Marketing Agency (CCMA) was formed in 1978 and operates under a federal-provincial agreement to develop and maintain a viable chicken industry in the interest of both producers and consumers. Each year the CCMA establishes a national production quota based on projected consumption, at a price that covers estimated costs of production. The eastern provinces of Quebec and Ontario account for 65 percent of Canadian broiler production. Canada protects its domestic industry from U.S. competition with an import quota and tariff.

The Mexican broiler industry is concentrated into a few large vertically integrated firms; 11 broiler houses in Mexico account for 56 percent of broiler production. Under Mexico's anti-inflationary program the government, producers, and distributors agree on ceiling prices. Several small- and medium-sized egg producers shifted to more profitable broiler production due to high ceiling prices. The result was a flood of broiler meat which has lowered prices below the ceiling price. The states of Jalisco, Mexico, Veracruz, Guanajuato, and Nuevo Leon accounted for nearly 50 percent of broiler production in 1990. The National Association of Poultry Producers indicates utilization of broiler production facilities is at 75 percent in Mexico. Mexico protects its domestic industry with an import license and tariff.

The U.S.-Canadian Free Trade Agreement (FTA), which took effect in 1989, includes provisions which eliminate bilateral tariffs on broiler meat over a 10-year period. The Canadian tariff is currently 8.75 percent while the U.S. tariff rate is 4.1 percent. Canada also increased its import quota from 6.3 percent to 7.5 percent of the previous year's production.

A North American Free Trade Agreement (NAFTA) could change the trade relationship in broiler meat between the United States and Mexico. Currently, Mexico imposes a 10 percent tariff on U.S. broiler meat and protects its domestic producers through import licensing while the United States imposes a tariff of 5.9 percent on Mexican broiler meat.

The Mexican government and broiler producers have preliminarily agreed that after signature of a free trade agreement import licenses would continue for five years. A gradual reduction of tariffs would occur over 10 years after the elimination of import licenses. Mexican producers claim tariffs and import licenses offset U.S. producers' "indirect subsidies" in the form of abundant feed supplies and price supports for feed grains and oilseeds.

The objective of this study is to evaluate the impact on broiler meat production and trade among the United States, Canada, and Mexico under free trade scenarios. Special attention is given to evaluate economic competitiveness of Fargo as a broiler meat processing location under each of the free trade scenarios.

BROILER TRADE MODEL

The computer model used for this study minimizes production costs of broilers at producing regions, labor costs for processing broilers, and distribution costs of broiler meat from producing regions to consuming regions and from producing regions to ports. Other processing costs of broiler meat are assumed to be equal for all producing regions and are not included in this study.

Transportation costs of live broilers from producing regions to processing plants are not included in the study since processing plants are located near broiler producers to avoid injury and/or death loss in transit. The computer model includes constraints representing broiler production capacity in producing regions, demand for broiler meat in consuming regions, and import quotas in Canada and Mexico.

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Figure 1. Broiler production regions for the United States, Canada, and Mexico

The United States is divided into 11 producing regions (Figure 1) and 24 consuming regions (Figure 2). Canada is divided into seven producing and consuming regions while Mexico has three producing regions and four consuming regions (Figures 1 and 2). The mode of transporting broiler meat from producing regions to consuming regions was refrigerated truck. Although North Dakota is not a major broiler producing state, a broiler producing region is included at Fargo to evaluate the economic feasibility of broiler production in the state.

RESULTS

A total of nine computer models were developed to evaluate optimal production and trilateral trade of broiler meat among the United States, Canada, and Mexico. The base model included current trade policies and production, labor processing, and transportation costs for broiler meat in each country. The trade policies included tariffs between the United States and Canada, the United States and Mexico, Canada's import quota, and Mexico's import license. The eight additional variations of this model were run to determine the impact of the NAFTA on optimal production and trilateral trade of broiler meat.

Comparing results of the base model with 1990 actual broiler production by region in each country indicates Atlanta, Dallas, San Francisco, and Baltimore produce less than 1990 actual production (Table 1), and the remaining producing regions in the United States produce more than actual production in 1990. Mexico City and Hermosillo produce about the same as actual



Figure 2. Broiler consumption regions for the United States, Canada, and Mexico

production in 1990, while less than actual is produced in Monterrey. All the producing regions in Canada, except for those located at Montreal and Fredericton, produce more than actual production in 1990. Both Montreal and Fredericton produce less than actual 1990 production (Table 1).

U.S. exports of broiler meat to Canada and Mexico in the base model is limited by quotas used by Canada and Mexico. These quotas are fulfilled in both countries, resulting in the United States exporting 90.99 million pounds (mpd) to Mexico and 97.35 mpd to Canada. The majority of broiler meat shipped to Canada originates from Baltimore, however 2.2 mpd is shipped from Fargo to Regina. The United States does not import any broiler meat from Mexico and Canada (Table 2).

Eliminating tariffs between the United States and Canada under the FTA does not change production or trade patterns between the two countries. Removing Canada's import quota increases U.S. production at Birmingham and Minneapolis (Table 1). U.S. exports to Canada increase from 97.35 mpd to 862.14 mpd and originate from Baltimore, Birmingham, Little Rock, and Fargo. A total of 161.94 mpd is shipped from Fargo to Calgary, Regina, and Winnipeg (Table 2). Production declines to the lower limit for all producing regions in Canada, except Alberta. There were no Canadian exports to the United States. Eliminating these trade barriers has little impact on competitiveness. This implies broiler producers in Baltimore, Birmingham, Little Rock, and Fargo would benefit from freer trade with Canada.

Table 1. Optimal broiler production by producing region for alternative models.

Region	1990	Model No.							
	Actual	1	3	4	5	6	7	8	9
----- million lbs -----									
United States									
1. Birmingham	2,600.00	3,040.00	3,365.70	3,137.80	3,137.80	3,638.00	3,040.00	2,849.00	3,040.00
2. Atlanta	3,600.00	1,440.00	1,440.00	1,440.00	1,440.00	1,440.00	1,440.00	1,440.00	1,440.00
3. Jackson	1,200.00	1,920.00	1,920.00	1,920.00	1,920.00	1,920.00	1,920.00	1,920.00	1,920.00
4. Charlotte	1,900.00	2,853.30	3,031.30	2,853.30	2,853.30	3,031.30	2,853.30	2,499.40	2,853.30
5. Little Rock	3,200.00	4,992.00	4,992.00	4,992.00	4,992.00	4,992.00	4,992.00	4,992.00	4,992.00
6. Dallas	1,400.00	1,662.50	1,837.10	2,304.00	2,304.00	2,304.00	1,350.70	1,180.40	1,462.80
7. San Francisco	800.00	320.00	320.00	320.00	320.00	320.00	320.00	320.00	320.00
8. Portland	190.00	307.20	307.20	307.20	307.20	307.20	307.20	307.20	307.20
9. Baltimore	2,700.00	1,080.00	1,080.00	1,080.00	1,080.00	1,080.00	1,080.00	1,080.00	1,080.00
10. Minneapolis	190.00	307.20	307.20	307.20	307.20	307.20	307.20	307.20	307.20
11. Fargo	-- ^a	199.68	199.68	199.68	199.68	199.68	199.68	199.68	399.36
Mexico									
12. Monterrey	190.00	105.44	105.44	76.00	76.00	76.00	196.43	307.20	105.44
13. Mexico City	1,100.00	1,043.50	1,043.50	440.00	440.00	440.00	1,043.50	1,103.00	1,043.50
14. Hermosillo	160.00	170.33	170.33	64.00	64.00	64.00	256.00	256.00	170.33
Canada									
15. Vancouver	155.00	161.24	62.00	161.24	161.24	62.00	248.32	248.32	161.24
16. Calgary	100.00	128.80	126.61	128.80	128.80	126.61	160.00	160.00	128.80
17. Regina	30.00	48.00	12.00	48.00	48.00	12.00	48.00	48.00	48.00
18. Winnipeg	45.00	55.14	18.00	55.14	55.14	18.00	72.00	72.00	55.14
19. Toronto	430.00	497.62	172.00	497.62	497.62	172.00	497.62	688.64	497.62
20. Montreal	370.00	326.00	148.00	326.00	326.00	148.00	326.00	592.64	326.00
21. Fredericton	95.00	38.00	38.00	38.00	38.00	38.00	38.00	125.26	38.00

^aNot reported to avoid disclosing individual operations.

The elimination of the Mexican import license significantly increases U.S. production at Dallas, which is exported to Mexico (Table 1). U.S. exports to Mexico increase from 90.99 mpd to 830.23 mpd, all of which originates from Dallas (Table 2). The further elimination of Mexican import tariffs increase U.S. exports to 894.23 mpd which is offset by Mexican exports of

64.0 mpd from Hermosillo to Phoenix. The majority of exports still originate from Dallas; however, 36.23 mpd originate from Jackson (Table 2). Broiler production in the United States became more competitive through the elimination of Mexican trade barriers. Broiler producers in Texas and surrounding states could benefit greatly from freer trade with Mexico.

Table 2. Trilateral trade in broiler meat among the United States, Mexico, and Canada for alternative models

	U.S. to:		Mexico to:	Canada to:
	Mexico	Canada	U.S.	U.S.
----- million lbs -----				
Base Model	90.99	97.35	0.00	0.00
No Tariffs between the U.S. and Canada	90.99	97.35	0.00	0.00
No Canadian Quota	90.99	775.53	0.00	0.00
No Mexican Quota	830.23	97.35	0.00	0.00
No Tariffs between the U.S. and Mexico	894.23	97.35	64.00	0.00
Complete Free Trade	894.23	775.53	64.00	0.00
Reduction of production cost in Canada and Mexico (10%)	170.33	277.53	256.00	137.34
Reduction of production in Canada and Mexico (20%)	0.00	2.19	366.77	584.91
Double capacity at Fargo, N.D. (base model)	90.99	97.35	0.00	0.00

Eliminating trade barriers among the United States, Canada, and Mexico under NAFTA results in production and trade similar to Models 3, 4, and 5.

A 10 percent reduction in production costs for both Canada and Mexico under free trade results in decreased production at Birmingham, Charlotte, and Dallas and increased production in both Canada and Mexico (Table 1). U.S. exports to Canada and Mexico also decline while both Canada and Mexico increase exports to the United States (Table 2). In fact, Mexico is a net exporter to the United States. A 20 percent decline in production costs for Canada and Mexico further reduces U.S. production and increases production in both Canada and Mexico (Table 1). The United States exports no broiler meat to Mexico and virtually none to Canada (Table 2). Both Canada and Mexico are net exporters to the United States. A 20 percent decline in production costs would allow several producing regions in Canada and Mexico to be competitive with U.S. broiler producers.

When production capacity is doubled at Fargo all of this capacity is used implying that Fargo could support a 400 mpd processing facility (Table 1). There are no changes in trade flows or competitiveness relative to the base model.

CONCLUDING REMARKS

This study indicates freer trade with Canada and Mexico would increase U.S. exports of broiler to both countries. Broiler producers would increase production in the United States while producers in Canada and Mexico would reduce broiler production. Specifically, free trade with Mexico would increase production in Texas and free trade with Canada would increase production in the midwestern and southeastern United States.

A 10 percent reduction in production costs in Canada and Mexico would reduce the amount of broiler meat both countries import from the United States. A 20 percent reduction would allow Canada and Mexico to be net exporters to the United States.

Fargo, Portland, Little Rock, Jackson and Charlotte in that order, are the most competitive producing regions in the United States. These regions all increase competitiveness under free trade with Canada and Mexico. Producing regions in Canada and Mexico could only be competitive under free trade by lowering production costs 10 to 20 percent.

The study also indicates Fargo could support a processing facility with an annual capacity of 400 million pounds based on bilateral trade policies between the United States and Canada.

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