

Impact of Free Trade Agreements on the Colombian Beef Sector

Miguel I. Gómez*, Julieta Frank**, and Tatiana Parra***

*Cornell University, **University of Manitoba, ***Universidad Javeriana - Bogotá

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Contact Information:

Miguel I. Gómez
Cornell University
Department of Applied Economics
& Management
246 Warren Hall, Ithaca, NY 14850
Email: mig7@cornell.edu

Julieta Frank
University of Manitoba
Department of Agribusiness & Agricultural
Economics
376 Agriculture, Winnipeg, MB, Canada R3T 2N2
Email: Julieta_Frank@umanitoba.ca

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Introduction

- Colombia has negotiated bilateral Trade Agreements (TAs) with the United States and MERCOSUR (Argentina, Brazil, Uruguay, Paraguay).
- Negotiations are generating conflict between the government and agricultural interest groups. In particular, cattle and beef interest groups argue that TAs hurt the Colombian beef supply chain.
- Little has been done to measure the impact of TAs with MERCOSUR and the US on the beef supply chain.

TAs signed by the Colombian government:

- MERCOSUR: Currently, beef import tariff is 69% and import quota is 3,700 tons. Colombia agreed to an annual tariff reduction of 5.8% and a gradual elimination of import quota. Free trade will occur in 13 years.
- U.S.: Free trade of chicken parts, with prices that are significantly lower than domestic chicken prices

Objective

- To assess the impact of the TAs with the U.S. and MERCOSUR on the welfare of cattle producers, beef distribution channel, and meat consumers in Colombia. In particular,
 - What is the impact of allowing poultry imports from the U.S. on the domestic beef sector?
 - What is the impact of the trade liberalization schedule of beef imports from MERCOSUR?
 - Identify the required productivity improvements that Colombian cattle producers need to achieve to compete with imported meats.

Methods

Partial Equilibrium Model

Beef Market

Demand: $QD_{b,t} = QD_{b,t}(P_{b,t}, P_{c,t}, Y_t, DL, T)$

Supply: $QS_{b,t} = QS_{b,t}(QS_{b,t-4}, P_{b,t-4}, P_{g,t}, CB_t)$

Market Equilibrium: $QD_{b,t} = QS_{b,t}$

Auxiliary Equations

Marketing Margin: $M_t = M_t(P_{b,t}, C_t)$

Cattle Inventory:

$$I_t = I_t(I_{t-4}, R_{b,t-\text{mean}(1,4)}, C_{h,t-\text{mean}(1,4)}, V_t, P_{m,t-\text{mean}(1,4)})$$

Chicken Market

Demand: $QD_{c,t} = QD_{c,t}(P_{c,t}, P_{b,t}, Y_t, DL, T)$

Supply: $QS_{c,t} = QS_{c,t}(P_{c,t-4}, CC_t)$

Market Equilibrium: $QD_{c,t} = QS_{c,t}$

Fed Cattle Market

Demand: $QD_{g,t} = QD_{g,t}(Q_{g,t-4}, \Delta M_t)$

Supply: $QS_{g,t} = QS_{g,t}(P_{g,t-\text{mean}(1,4)}, \Delta I_t, S_t)$

Market Equilibrium: $QD_{g,t} = QS_{g,t}$

where QD and QS are quantity demanded and supplied, respectively; P is price; t is quarter; b is beef; c is chicken; g is fed cattle; m is milk; Y is personal income; DL is a dummy for the quarter corresponding to lent; T is a trend variable; CB and CC are production costs for beef and chicken, respectively; C is cost of marketing activities; I is inventory; Δ is predicted cattle inventory from the second auxiliary equation; M is marketing margin; ΔM is predicted marketing margin from first auxiliary equation; S is rain; R is return to capital investment; V is a violence index; C_n is the price of fertilizer.

Results & Discussion

Beef imports from MERCOSUR

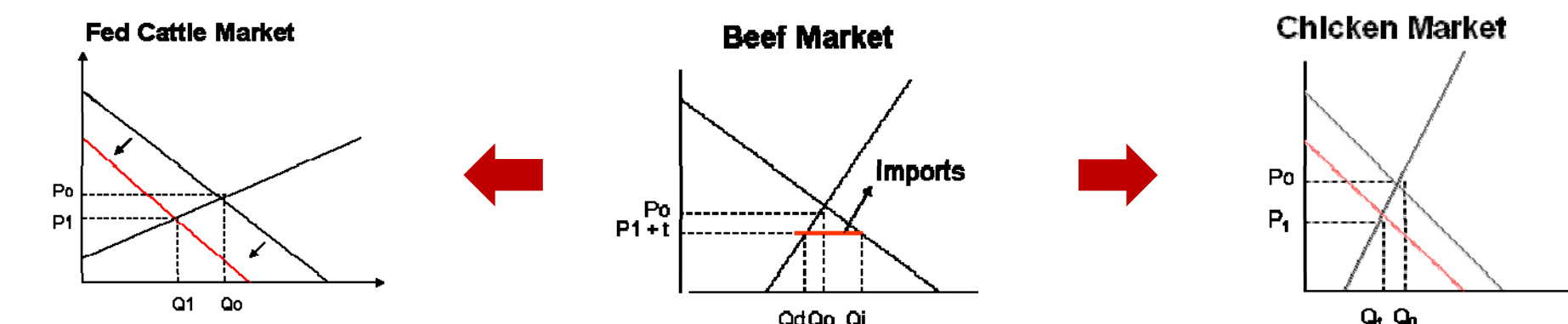
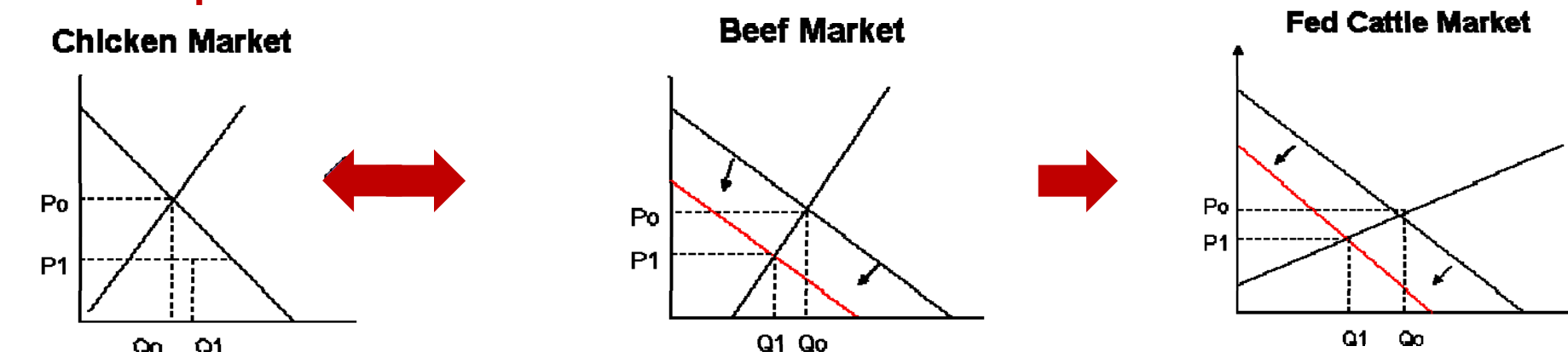


Table 1. Changes in Surplus (billions of dollars)

	2012	2013	2014	2015	2016	2017	2018
Consumers	128	133	137	143	147	152	157
Distributors	-29	-26	-24	-21	-19	-17	-14
Beef Producers	-31	-30	-29	-28	-27	-26	-25
Chicken Producers	-17	-17	-17	-17	-17	-17	-17
Total	53	61	69	77	86	94	102

- Beef price falls
- Domestic beef supply falls
- Domestic beef consumption rises
- Chicken consumption falls
- Derived demand for fed cattle decrease; price of fed cattle falls
- Consumers are better off and there are net gains to society

Chicken imports from the U.S.



	Decrease in chicken prices	
	5%	10%
Consumers	85	175
Distributors	-17	-33
Beef Producers	-18	-35
Chicken Producers	-99	-198
Total	16	34

Table 2. Changes in Surplus (billions of dollars)

- With free imports of chicken parts, prices may fall between 5% and 10%
- Consumption and retail prices of beef decrease
- Derived demand and prices of fed cattle decrease
- Consumers and society are better off while beef producers and distributors are hurt.

Productivity response from domestic beef producers

- The required reduction in marginal costs required to compete with imported beef, primarily from MERCOSUR is possible because the elimination of trade barriers is gradual.
- The Colombian beef supply chain can compete with imported meats if they increase productivity (cost per kilo produced) by 2% to 4% annually.

Data

- Quarterly data for period 1995-2005 (40 observations)
- Consumption, production, production costs, return to capital and CIF import price data are from the *Federación Nacional de Ganaderos*, Bogota, Colombia
- Domestic and input prices are from the *Departamento Administrativo Nacional de Estadísticas*, Bogota, Colombia

Conclusions

- Free trade of beef with MERCOSUR will increase Colombian consumers' welfare by 157 billion dollars when the import quota is eliminated in 2018.
- Holding Colombian beef producers' productivity constant, free trade of beef with MERCOSUR decreases their welfare by 25 billion dollars in 2018.
- The Colombian beef supply chain may be able to overcome the negative impact of free trade by increasing its efficiency through technological change. The required annual reduction of marginal costs is between 2 and 4%
- Implementation of FEDEGAN's strategic plan for the Colombian beef producing industry may play a significant role in producers' welfare.

Selected Reference

Jeong, K, P. Garcia & D. Bullock (2003). "A Statistical Method of Multi-market Welfare Analysis Applied to Japanese Beef Policy Liberalization." *Journal of Policy Modeling*, 25: 237-256

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Contact information

Miguel I. Gómez
Cornell University
Department of Applied Economics & Management
246 Warren Hall, Ithaca, NY 14850
Email: mig7@cornell.edu

Julieta Frank
University of Manitoba
Department of Agribusiness & Agricultural Economics
376 Agriculture Bldg., Winnipeg, MB, Canada R3T 2N2
Email: Julieta_Frank@umanitoba.ca