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Implications of CETA for Canadian, EU, and U.S. Processed Food Markets

Stephen Devadoss and Jeff Luckstead

Selected Paper prepared for presentation at the EAAE XV Congress, "Toward Sustainable Agri-Food Systems: Balancing between Markets and Society", August 29 – September 1, 2017 in Parma, Italy.

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Implications of the Comprehensive Economic and Trade Agreement for Processed Food Markets

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Outline

1. Introduction
2. Model
3. Simulation and Results
4. Conclusions

Introduction

Industrial organization of food processing firms

- Economy of scale & differ in size
- Highly differentiated food products & monopolistic competition
- Operate only domestically or also export

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Sustained growth (domestic sales & exports) on both sides of the Atlantic

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In Canada, the processed food and beverage industry

- employs more workers than any other manufacturing industry
- exports support more than 180,000 jobs
- over 200,000 producers
- thousands of small- to medium-sized agri-food entrepreneurs

Canada's Agri-Food Industry

Success of agriculture in Canada depends on trade

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  - 33% of the value-added in agriculture
  - 22% of food and beverage manufacturing

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Canada is a top-five agri-food exporter and exports result in new records every year

EU Processed Food

The EU processed food industry is

- the largest manufacturing segment of the economy based on labor employment and also value added

The EU is the leading processed food exporter, with $173 billion worth of exports in 2014

EU processed food exports to Canada were worth $3.13 billion in 2014

- The important export commodities encompass
  - beverages, spirits, vinegar, cereals, flour, and starch.

The EU protects the processed food sector more than any other manufacturing sector.

Canada, EU, and US

Only 25 percent of EU tariff lines on Canadian goods are duty-free.

	Processed Food Trade ($ Mil.)			Tariffs		
	Ca	EU	US	Ca	EU	US
Ca	0	4,490	17,762	-	19.16%	2.01%
EU	1,349	0	7,914	18.05%	-	3.21%
US	17,372	21,282	0	14.17%	10.74%	-

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Canada, EU, and US key players in the world processed food market

- About a third of global trade in this market

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  - almost all tariff reduction occurs immediately, no longer than seven years.
- CETA does not cover NTBs
  - all imports from Canada have to satisfy EU rules and regulations
- Preferential quotas access remains for
  - sensitive products (beef, pork, sweetcorn for EU and dairy for Canada).
- poultry and eggs are not covered under CETA

Objectives and Contribution

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- Develop a multi-regional trade model with
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  - heterogeneous firms
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Contribution

- Analyze impacts of CETA by accounting for
  - imperfect competition
  - productivity differences among firms
  - cross hauling

Model

Four-region model - Luckstead and Devadoss (2016) AJAE

- Canada, European Union, United States, and ROW
  - Monopolistic competition
  - Firm heterogeneity
  - Accounts for differences in
    - preferences across countries
    - firm-level production technologies
    - regional sizes
    - trade policies: tariffs and NTBs

Model

Dixit-Stiglitz Preferences

- Exogenous income

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Operating Decision: domestic and export markets

Market clearing conditions

- Output markets
- Composite input

Data and Sources

Main data source: sectors 19-26 from GTAP 9 Data Base for 2011

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Measure of firms: n_i normalized to one

Calibration

Given the above data and parameters, following Luckstead and Devadoss (2016), we calibrate

- fixed operating cost: f_{ij}
- scale parameter, Pareto dist: μ_{ij}
- scale parameter, supply function: γ_i

Simulation

Baseline simulation - Replicates GTAP 9 data

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Alternate scenarios:

1. Canadian-EU tariff elimination
2. Canadian-EU tariff elimination and 40% reduction in NTBs

Trade Liberalization Results

Bilateral Trade Flows

Elimination of Canadian tariff of 18.05% and EU Tariff of 19.16%

	Ca	EU	US	ROW
Ca	-14.419	55.975	-6.394	-6.295
EU	49.859	-1.685	0.571	0.677
US	-8.226	-1.871	0.380	0.486
ROW	-8.562	-2.231	0.013	0.118

Trade Liberalization Results

Cutoff Productivity and Operating Firms

	Cutoff Productivity $\overline{\omega}_{ij}$				Measure of Op. Firms $\overline{n}_{ij}$			
	Ca	EU	US	ROW	Ca	EU	US	ROW
Ca	4.76	-14.24	1.67	1.64	-16.96	84.86	-6.42	-6.29
EU	-12.57	0.62	-0.14	-0.17	71.12	-2.46	0.54	0.68
US	2.94	0.67	-0.09	-0.12	-10.95	-2.64	0.35	0.49
ROW	3.04	0.76	0.01	-0.03	-11.28	-2.99	-0.02	0.12

Trade Liberalization Results

Aggregates and Welfare

Aggregate Price Index and Output (% Change)				
	Ca	EU	US	ROW
Y_j	-0.67	0.59	-0.08	0.01
P_j	-2.97	-0.78	-0.03	0.01
Welfare ($ Millions)				
Changes in	Ca	EU	US	ROW
Prod. Surplus	1,581.84	-1,013.87	-378.28	-339.03
Cons. Surplus	3,123.34	6,063.18	170.12	-143.13
Gov't Revenue	-3,735.93	-4,832.38	-14.88	-303.11
Net Welfare	969.25	216.93	-223.04	-785.27

Conclusions

Lowering of trade barriers through CETA brings more competition:

- Highly efficient foreign firms force inefficient domestic firms out
- Domestic market: low productivity firms exit and average productivity increases
- Export market: firms enter and average productivity declines

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In all three regions, aggregate price index decreases

Canada and EU:

- Domestic sales decline
- Bilateral trade flows expand
- Consumption increases
- Welfare gain