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

Stephen Devadoss and Jeff Luckstead


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

Stephen Devadoss, Texas Tech University

Jeff Luckstead, University of Arkansas

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

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

- Canada exports about half the value of agri-food production
Canada’s Agri-Food Industry

Success of agriculture in Canada depends on trade

- Canada exports about half the value of agri-food production
- Value-added directly attributable to exports
  - 33% of the value-added in agriculture
  - 22% of food and beverage manufacturing
Canada’s Agri-Food Industry

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  - 22% of food and beverage manufacturing

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.

<table>
<thead>
<tr>
<th>Processed Food Trade ($ Mil.)</th>
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<tbody>
<tr>
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<th>Tariffs</th>
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US and EU is an important market for Canadian exports

US and EU are two of the world’s largest markets for food exports

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- CETA could have negative implication for US
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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
Comprehensive Economic & Trade Agreement

CETA was signed on 30 October 2016:
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- eliminate tariffs on virtually all of our agri-food exports
  - almost all tariff reduction occurs immediately, no longer than seven years.
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  - all imports from Canada have to satisfy EU rules and regulations
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- CETA does not cover NTBs
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- 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

Objectives

- Develop a multi-regional trade model with
  - monopolistic competition
  - heterogeneous firms
  - endogenous operating decisions

Contribution

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

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Production
- Maximize profits subject to consumer’s demand
- Productivity differences are Pareto distributed
- Transport costs, tariffs, and NTBs
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Operating Decision: domestic and export markets
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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
- Aggregate processed food
  - domestic production, inputs, imports, exports, transport costs, and tariffs
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  Measure of firms: $n_i$ normalized to one
Given the above data and parameters, following Luckstead and Devadoss (2016), we calibrate

- fixed operating cost: $f_{ij}$
- scale parameter, Pareto dist: $\mu_{ij}$
- scale parameter, supply function: $\gamma_i$
Simulation

Baseline simulation - Replicates GTAP 9 data
Simulation

Baseline simulation - Replicates GTAP 9 data

Alternate scenarios:
1. Canadian-EU tariff elimination
2. Canadian-EU tariff elimination and 40% reduction in NTBs
## Trade Liberalization Results

### Bilateral Trade Flows

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<th>US</th>
<th>ROW</th>
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<tbody>
<tr>
<td>Ca</td>
<td>-14.419</td>
<td>55.975</td>
<td>-6.394</td>
<td>-6.295</td>
</tr>
<tr>
<td>EU</td>
<td>49.859</td>
<td>-1.685</td>
<td>0.571</td>
<td>0.677</td>
</tr>
<tr>
<td>US</td>
<td>-8.226</td>
<td>-1.871</td>
<td>0.380</td>
<td>0.486</td>
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<tr>
<td>ROW</td>
<td>-8.562</td>
<td>-2.231</td>
<td>0.013</td>
<td>0.118</td>
</tr>
</tbody>
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Elimination of Canadian tariff of 18.05% and EU Tariff of 19.16%
## Trade Liberalization Results

### Cutoff Productivity and Operating Firms

<table>
<thead>
<tr>
<th>Cutoff Productivity $\bar{\omega}_{ij}$</th>
<th>Measure of Op. Firms $\bar{n}_{ij}$</th>
</tr>
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<tbody>
<tr>
<td>Ca</td>
<td>EU</td>
</tr>
<tr>
<td>Ca</td>
<td>4.76</td>
</tr>
<tr>
<td>EU</td>
<td>-12.57</td>
</tr>
<tr>
<td>US</td>
<td>2.94</td>
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<tr>
<td>ROW</td>
<td>3.04</td>
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</table>
## Trade Liberalization Results

### Aggregates and Welfare

<table>
<thead>
<tr>
<th>Aggregate Price Index and Output (% Change)</th>
<th>Ca</th>
<th>EU</th>
<th>US</th>
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<tbody>
<tr>
<td>$Y_j$</td>
<td>-0.67</td>
<td>0.59</td>
<td>-0.08</td>
<td>0.01</td>
</tr>
<tr>
<td>$P_j$</td>
<td>-2.97</td>
<td>-0.78</td>
<td>-0.03</td>
<td>0.01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Welfare ($ Millions)</th>
<th>Ca</th>
<th>EU</th>
<th>US</th>
<th>ROW</th>
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<tbody>
<tr>
<td>Changes in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prod. Surplus</td>
<td>1,581.84</td>
<td>-1,013.87</td>
<td>-378.28</td>
<td>-339.03</td>
</tr>
<tr>
<td>Cons. Surplus</td>
<td>3,123.34</td>
<td>6,063.18</td>
<td>170.12</td>
<td>-143.13</td>
</tr>
<tr>
<td>Gov’t Revenue</td>
<td>-3,735.93</td>
<td>-4,832.38</td>
<td>-14.88</td>
<td>-303.11</td>
</tr>
<tr>
<td>Net Welfare</td>
<td>969.25</td>
<td>216.93</td>
<td>-223.04</td>
<td>-785.27</td>
</tr>
</tbody>
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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