

# The Impacts of the FTAA and China's WTO Accession on the International Trade of Soybeans and Soybean Products

Several trade-related events are expected to have significant impacts on the international trade of soybeans and soybean products.

First is the acceptance of China as member of WTO. Being one of the major importers of soybeans and soybean products, China's recent membership into the WTO would likely result in significant changes in soybeans and soybean product import from the Western Hemisphere.

By 2005, (the year FTAA is expected to be implemented) China's bound rates on soybean oil, soybean meal, and soybeans are expected to be 9%, 5%, and 3%, respectively.

It is expected that these reductions in tariffs would increase import demands for soybeans and soybean products from the Western Hemisphere.

Second is the implementation of the Free Trade Area of the Americas in 2005.

The implementation of this regional trade agreement has the potential of creating trade diversion and trade creation, causing changes in trade pattern, volumes and composition.

Finally, it is anticipated that Brazil will expand its soybean and soybean product sectors.

This is anticipated because the Brazilian government has singled-out the soybean industry for accelerated expansion to alleviate pressure for foreign exchange and to encourage development of the processing sector in its economy (USDA Agriculture and Trade Reports, WRS-01-3, 2001).

The objective of this paper is to analyze the effects of changes mentioned above on international trade of soybeans and soybean products.

Realizing the objective would allow us to evaluate how the interest of the U.S. soybean and soybean product sectors are affected by these changes, especially compared to its biggest competitor, Brazil.

To analyze these changes, a spatial equilibrium model was formulated. All countries and regions in the Western Hemisphere were included in the model along with several countries and regions outside the Western Hemisphere, namely the EU, China, Japan, and Middle-east and North Africa.

The specification of the model was based on the approach prescribed by Takayama and Judge (1971) with the objective function specified in net social monetary gain. In the model, soybean oil and soybean meal are treated as intermediate products and soybeans as the primary product.

The base model simulate the average level data of 1996, 1997, and 1998. The base model is then modified to simulate two trade scenarios.

In the first scenario, we assumed (i) FTAA fully liberalized soybean and soybean products trade, and (ii) China's tariffs on soybean oil, soybean meal, and soybeans were reduced to 9%, 5%, and 3%, respectively.



In the second scenario, the base model was altered to incorporate assumptions in scenario one and the additional assumption that Brazil expand soybean area by 10%.

The simulations produced the the following results:

Table 1A: Impacts on prices  
(% change)

	<b>Prices (World)</b>	<b>Av. Dom. Prices in Exporting countries</b>	<b>Av. Dom. Prices in Importing countries</b>
<b>Soybean oil</b>	<b>-8.4</b>	<b>5.8</b>	<b>-18.4</b>
<b>Soybean meal</b>	<b>-21.2</b>	<b>3.1</b>	<b>-31.4</b>
<b>Soybeans</b>	<b>12.5</b>	<b>28.0</b>	<b>-18.7</b>

Table 1B: Impacts on Consumption (% change)

Regions	Soybean Oil Consumption	Soybean Meal Consumption	Soybean Crushed
<b>U.S.</b>	<b>-4.0</b>	<b>-13.6</b>	<b>-1.5</b>
<b>Argentina</b>	<b>-9.4</b>	<b>-33.4</b>	<b>0.2</b>
<b>Brazil</b>	<b>-16.3</b>	<b>-25.3</b>	<b>2.8</b>
<b>EU</b>	<b>-7.2</b>	<b>-19.6</b>	<b>7.4</b>
<b>China</b>	<b>24.2</b>	<b>13.0</b>	<b>-3.8</b>
<b>Japan</b>	<b>-0.6</b>	<b>12.7</b>	<b>-0.6</b>
<b>WH*</b>	<b>18.2</b>	<b>-0.5</b>	<b>-2.4</b>
<b>ROW</b>	<b>-3.8</b>	<b>46.8</b>	<b>-3.2</b>

\* Importing countries

**Table 1C: Impacts on Trade  
(% change)**

	<b>Trade volumes (World)</b>	<b>Trade volumes (WH: Importing countries)</b>
<b>Soybean oil</b>	<b>22.5</b>	<b>40.1</b>
<b>Soybean meal</b>	<b>18.0</b>	<b>1.0</b>
<b>Soybeans</b>	<b>0.5</b>	<b>-2.4</b>

Table 1D: Exports: U.S. and Brazil (% change)

	<b>Change in Export (US)</b>	<b>Change in Market share (US)</b>	<b>Change in Export (Brazil)</b>	<b>Change in Market share (Brazil)</b>
<b>Soybean oil</b>	<b>29.7</b>	<b>11.6 – 12.3 (0.7)</b>	<b>51.9</b>	<b>24.2 - 30.0 (5.8)</b>
<b>Soybean meal</b>	<b>55.6</b>	<b>19.3 – 25.5 (6.2)</b>	<b>17.9</b>	<b>38.4 – 38.5 (0.1)</b>
<b>Soybeans</b>	<b>2.4</b>	<b>74.2 – 75.6 (1.4)</b>	<b>-10.4</b>	<b>17.4 - 15.6 (-1.9)</b>

Relative to the baseline, these changes result in:

(a) \$1,340 million increase in aggregate export revenue for the U.S.

(b) \$114 million increase in aggregate export revenue for Brazil.

Table 2A: Impacts on prices  
(% change)

	<b>Prices (World)</b>	<b>Av. Dom. Prices in Exporting countries</b>	<b>Av. Dom. Prices in Importing countries</b>
<b>Soybean oil</b>	<b>-9.3</b>	<b>3.9</b>	<b>-18.5</b>
<b>Soybean meal</b>	<b>-4.8</b>	<b>-2.3</b>	<b>-5.8</b>
<b>Soybeans</b>	<b>-4.0</b>	<b>-5.6</b>	<b>-0.8</b>

Table 2B: Impacts on Consumption (% change)

Regions	Soybean Oil Consumption	Soybean Meal Consumption	Soybean Crushed
<b>U.S.</b>	<b>-2.2</b>	<b>0.0</b>	<b>6.8</b>
<b>Argentina</b>	<b>3.1</b>	<b>-2.7</b>	<b>-3.8</b>
<b>Brazil</b>	<b>-9.7</b>	<b>4.2</b>	<b>-1.9</b>
<b>EU</b>	<b>-5.8</b>	<b>-9.4</b>	<b>6.9</b>
<b>China</b>	<b>25.3</b>	<b>28.7</b>	<b>-5.0</b>
<b>Japan</b>	<b>-0.3</b>	<b>2.3</b>	<b>-4.9</b>
<b>WH*</b>	<b>15.7</b>	<b>9.2</b>	<b>-0.2</b>
<b>ROW</b>	<b>-3.0</b>	<b>3.1</b>	<b>0.6</b>

\* Importing countries



Table 2C: Impacts on Trade (% change)

	<b>Trade volumes (World)</b>	<b>Trade volumes (WH: Importing countries)</b>
<b>Soybean oil</b>	<b>21.3</b>	<b>31.9</b>
<b>Soybean meal</b>	<b>3.3</b>	<b>20.1</b>
<b>Soybeans</b>	<b>1.1</b>	<b>-0.1</b>

Table 2D: Exports: U.S. and Brazil

	<b>Change in Export (US)</b>	<b>Change in Market share (US)</b>	<b>Change in Export (Brazil)</b>	<b>Change in Market share (Brazil)</b>
<b>Soybean oil</b>	<b>119.3</b>	<b>11.6 – 21.0 (9.4)</b>	<b>18.3</b>	<b>24.2 – 23.6 (-0.6)</b>
<b>Soybean meal</b>	<b>38.6</b>	<b>19.3 – 25.9 (6.6)</b>	<b>-5.2</b>	<b>38.4 – 35.3 (-3.1)</b>
<b>Soybeans</b>	<b>-11.0</b>	<b>74.2 – 65.4 (-8.8)</b>	<b>40.4</b>	<b>17.4 – 24.2 (6.8)</b>

Relative to the baseline, these changes result in:

(a) \$20 million decrease in export revenue for the U.S.

(b) \$260 million increase in export revenue for Brazil.

# Conclusions

From these results, we can conclude that in spite of higher U.S. exports and market share in soybean oil and soybean meal, output expansion by Brazil would harm the overall U.S. soybean and soybean product export sector.

However, the reduction in aggregate export revenue is not large and could be compensated by the increase in value added from higher soybean processing activities.