

## Implications of Global Tariff Reductions

---

Agricultural trade policy influences global patterns in high-value food trade. Market access affects not only trade flows, but also underlying economic activities, such as food processing, wholesaling, transportation, and agricultural production in individual countries. An often overlooked benefit of improved global market access in agricultural trade is the potential for boosting overall economic activity and employment related to high-value food trade.

Trade in high-value foods is not independent of trade in raw commodities. The production and trade of processed products rely on commodity inputs that are both imported and produced domestically. Thus, market access for primary agricultural commodities can affect high-value food trade. For example, South Korea improved market access for wheat imports and became a more competitive exporter of wheat-based food products through use of cheaper foreign supplies of raw inputs. Improved market access of raw inputs enables some countries to export processed products despite not having a comparative advantage in agricultural commodities. Improved market access of processed products can benefit not only processed food trade but also production and trade of raw commodities elsewhere.

Given the interaction between trade in primary agricultural commodities and processed foods, the prospects for individual countries exporting high-value foods are not always clear. Each exporter faces a diverse array of import markets, widely ranging in tariffs and overall market access. Exporters also differ in product specialization and competitiveness. For example, the United States exports both raw commodities and high-value foods. As mentioned earlier, the United States has a revealed comparative advantage in natural resource-based products, which suggests that the U.S. farm sector may benefit from improved global market access. The effect of more open markets on U.S. exports of high-value products, however, is uncertain.

Future tariff reductions in agriculture will require cuts in both raw and processed product tariffs. As previously indicated, trade in food and agricultural products is subject to tariff escalation, whereby countries maintain higher tariffs on value-added products, compared with tariffs on raw commodities. Tariff escalation enables food processing sectors in many countries to benefit from relatively free access to international sources of inputs while sheltering domestic processed products from foreign competition. Although tariff reductions are not the only measure needed to improve market access, the economic effects of other types of trade barriers are difficult to measure. Furthermore, tariff reductions are more significant for trade in high-value foods than for trade in raw commodities.

### Methodology

An assessment of the economic consequences of global tariff reductions requires a trade model that captures the interaction between high-value foods and raw commodities.<sup>10</sup> The model employed here includes demand

for consumer and intermediate goods, such as finished and semi-processed food, and supplies of primary factors (land, labor, and capital), which are allocated across competing industries. The Global Trade Analysis Project (GTAP) modeling framework links factors of production—land, labor, and capital—to all production activities, such as farm production, food processing, and other industrial manufacturing, as well as production of services, such as transportation. Thus, the model estimates the effects of tariff reductions on employment and wages.

In this framework, each country can simultaneously be an exporter and an importer of processed foods. For example, the United States is both an exporter and importer of meat. As an exporter, it faces tariffs on meat in other countries, and as an importer, it imposes tariffs on meat from other countries. The livestock sector in each country uses raw commodities that can be purchased domestically or imported. Thus, improved market access for all commodities can stimulate global trade in meat and livestock products. However, if tariffs on livestock products remain unchanged, it would lessen global meat trade while bringing about greater trade in feed grains.

To represent tariffs at a sector level for modeling purposes, tariffs must be aggregated. As previously discussed, the choice of weighting scheme can alter average tariff rates (see box on average weighted tariffs, pg. 6). Also, while many countries maintain high maximum levels to which they can legally raise the tariffs on imports (WTO bound rates), actual applied tariffs can be substantially below these bound rates. This is especially true for developing countries. The ongoing WTO negotiations generally consider reducing tariffs based on the bound rates. As these rates are often higher than the applied rates, tariff reductions based on bound rates can result in tariffs that in certain cases may be similar or higher than the current applied rates and can potentially have little impact on actual market access for some products. Tariff reductions here are considered based on the applied rates.

Proper evaluation of different tariff-cutting formulas and the impacts of reductions in tariff escalation require detailed analysis, beginning at the tariff line where differential rates are observed. However, most trade models, including the GTAP, are ill-suited for this type of analysis given their highly aggregate sector classifications. For example, in the GTAP model, intermediate products, such as wheat flour and starch, are included in a sector containing other finished processed products such as pasta and breakfast cereals. This limits the ability to perform a more refined analysis and examine the benefits from reductions in tariff escalation.

The potential benefits from broad reductions in tariff escalation may be deduced by considering a global reduction in tariffs, since such a reduction would imply larger absolute cuts in the largest tariffs. For example, the calculated results of a 36-percent tariff cut made uniformly across all commodities for selected products globally, and for Taiwan, show features common to many food-importing countries (table 4). The uniform cut reduces the disparity between the highest and lowest tariffs at both the national and the global level. High-value and processed products undergo larger cuts, with tariff reductions in processed products averaging 8 percentage points worldwide, while bulk commodities record only a 4-percentage point cut. The difference between the global averages of

<sup>10</sup> This model, the Global Trade Analysis Project, is a multiregion model that includes explicit treatment of bilateral trade in all goods and services between regions (Hertel, 1997).

unprocessed bulk agricultural products and processed products is 10 percentage points before implementing the global tariff cut; it is reduced to 6.4 percentage points after the cut. The reduction varies across countries depending on the existing rates of escalation. For example, a 36-percent global tariff cut in Taiwan reduces escalation from an average 17-percentage point difference to an 11-percentage-point difference. Therefore, uniform global tariff cuts effectively reduce tariff escalation, by narrowing the tariff wedge between bulk agriculture commodities and processed food products.

In general, the tariffs faced by U.S. exporters tend to escalate with the degree of processing. For example, U.S. bulk raw commodity exports face an average tariff rate of 11 percent, much lower than the 24-percent average faced by U.S. exports of processed products (table 5). U.S. oilseeds face an average 5-percent tariff while processed oilseed products face a tariff of 19

**Table 4—Effect of uniform global tariff cuts on tariff escalation**

Product	Initial tariff rate	Tariff rate with 36-percent cut	Percentage pt. tariff reduction
	<i>Percent</i>		
<b>Taiwan</b>			
<i>Bulk agricultural commodities</i>	3.5	2.2	1.3
Wheat	6.0	3.8	2.2
Oilseeds	1.0	0.6	0.4
<i>Horticultural products</i>	25.5	16.3	9.2
Fresh fruit and vegetables	38.0	24.3	13.7
Other horticultural crops	13.0	8.3	4.7
<i>Processed products</i>	20.5	13.1	7.4
Other food products	18.0	11.5	6.5
Beverages and tobacco	47.0	30.1	16.9
<b>World</b>			
Bulk	12.1	7.7	4.4
Horticultural	15.2	9.7	5.5
Processed products	22.1	14.1	8.0
<b>Bulk and processed average tariff difference</b>			
Taiwan	17.0	10.9	
World	10.0	6.4	

Source: GTAP, 2001.

**Table 5—Aggregate tariffs facing U.S. agricultural exports**

	Ad valorem rates	Share of U.S. agriculture exports
	<i>Percent</i>	
Grains	12	25
Oilseeds	5	15
Other crops	16	15
Livestock	12	4
Total bulk commodities	11	58
Meat	26	11
Oilseed products	19	5
Dairy products	80	1
Other processed products	21	25
All processed products	24	42
All agricultural products	17	100

Source: GTAP, 2001.

percent. U.S. meat exports face particularly high tariffs. However, major U.S. agricultural exports do not face the highest levels of tariffs in global trade. Dairy products, which account for only 1 percent of total U.S. exports, face the highest aggregate tariffs.

### **Impacts From Global Tariff Cuts**

A uniform reduction in tariffs has differing impacts on the returns to factors of production across individual countries and regions. Much of these differences can be traced to the structure of the countries' economies and trade policies. As would be expected, some countries experience a decline in returns to land, while others experience an increase (table 6). Countries whose agricultural sectors are more export-oriented and provide less tariff protection realize higher returns when tariffs are globally reduced. Countries/regions most likely to benefit are Canada, Oceania, the United States, Argentina, and Brazil.

There are positive benefits to labor for all countries as a result of improved market access. When tariffs are uniformly cut by 36 percent, increases in returns to labor are generally greater for developing countries. The effects on returns to labor across countries will depend on how much of an economy's labor force is employed in tradable or trade-dependent sectors. The United States, for example, has a highly diversified economy with a relatively large amount of labor employed in less trade-dependent or nontraded service sectors. Consequently, wages are marginally (0.1 percent) increased by trade liberalization. In developing countries, household income increases resulting from trade reforms occur mainly through changes in

**Table 6—Impact of a 36-percent global tariff cut**

	Primary factors of production			
	Land	Unskilled labor	Skilled labor	Capital
	<i>Percent change</i>			
United States	5.7	0.1	0.1	0.1
Canada	14.9	0.1	0.2	0.1
Mexico	0.8	0.2	0.2	0.1
Oceania	6.9	0.4	0.3	0.2
Brazil	3.6	0.4	0.5	0.4
Argentina	4.8	0.4	0.3	0.3
Other Latin America	6.1	1.4	1.3	1.2
EU	-6.0	0.2	0.3	0.3
Central and Eastern Europe	-1.7	2.9	3.2	3.1
Turkey	1.5	1.0	0.9	1.0
Former Soviet Union	1.5	0.9	0.9	0.7
Japan	-12.5	0.5	0.6	0.5
Korea	-3.9	2.3	2.3	2.3
Taiwan	-3.4	1.1	1.0	1.1
ASEAN	1.3	1.5	1.5	1.5
India	1.7	0.7	0.7	0.6
Other S. Asia	0.4	2.3	2.6	2.4
China	0.2	1.4	1.5	1.4
Sub-Saharan Africa	4.0	1.3	1.3	1.0
Middle East and North Africa	-12.9	2.1	2.9	2.4

Note: ASEAN=Association of South East Asia Nations.

Source: Estimated using the GTAP model.

wages from agriculture, food processing, and nonagricultural activities. While returns to agricultural land (rents) represent only 1 percent of income paid to all factors of production globally, nearly 60 percent of income is accrued by skilled and unskilled labor. Therefore, while only a small increase in wage rates, a primary benefit of improved global trade is enhanced wage earnings for workers.

A 36-percent cut in global tariffs is estimated to generate a 12-percent increase in U.S. exports of processed products, compared with a 4-percent increase in U.S. exports of raw agricultural commodities (table 7). The larger growth in exports of processed products reflects the fact that processed products currently face higher tariffs than raw agricultural commodities. In addition, expansion of processed product exports increases domestic demand for U.S. agricultural raw commodities used in the production of these exports, thereby boosting domestic prices and production.

While exports of bulk commodities increase 4-percent, exports of some commodities do not increase. For example, U.S. oilseed production expands even though oilseed exports fall slightly and imports increase. Given the current high tariffs on oilseed products compared with oilseeds, improved global market access tends to result in larger trade changes for oilseed products. Accordingly, exports of U.S. vegetable oil and oilseed meal grow by 6 percent, supported by the expansion in U.S. oilseed production.

## Impact on Market Access

A uniform cut in global tariffs results in increased trade in high-value foods over raw agricultural commodities. Expanded global processing activity enhances returns to labor. Thus, improved market access has broad benefits beyond improving returns to agriculture for agricultural export-oriented countries. For developing countries, improvements in real wages for labor demonstrate the importance of more open markets in the global economy.

**Table 7—Impacts of a 36-percent global tariff cut on U.S. processed food and agricultural commodities**

	Production	Exports
	<i>Percent change</i>	
Grains	1.0	2.7
Oilseeds	0.4	-0.1
Fruit, vegetables, nuts	1.5	12.1
Other crops	-1.6	4.8
Livestock	0.7	6.6
Total agriculture	0.5	3.8
Meat	0.8	10.4
Vegetable oils	1.5	6.2
Other livestock products	-0.6	5.0
Other processed products	0.5	13.5
Total processed products	0.4	11.7

Source: Estimated using the GTAP model.