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# More or Less Ambition?

## Modeling the Development Impact of U.S.–EU Agricultural Proposals in the Doha Round

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What is at stake in the standoff between the United States and Europe over agriculture in the Doha Round of trade talks at the World Trade Organization (WTO)? What impact would an agreement based on greater or lesser levels of ambition have on developing countries, whose economies depend heavily on agriculture? Two years after the WTO talks broke down in Cancún, reform of the heavily protected and subsidized agricultural sectors of the United States and Europe remains a major impediment to progress. Using the MIRAGE computable general equilibrium model of the global economy,<sup>1</sup> in this policy brief we compare different scenarios for the Doha agriculture negotiations, taking real numbers from the proposals currently on the table from the European Union (EU), the United States, and the G20 group of developing countries.

The first scenario models the global trade and welfare impacts of a cooperative reform outcome, combining the most ambitious components of the U.S. and EU negotiating proposals to reach a new set of disciplines under each of the agricultural pillars—market access, export competition, and domestic support—and in manufacturing. This scenario includes trade reform in least developed countries (LDCs) and development commitments, such as the extension to LDCs of full Organisation for Economic Co-operation and Development (OECD) free-market access. The second scenario models a less ambitious outcome, adopting the lower-end elements of the two proposals. The results for both scenarios demonstrate the high stakes of this negotiation given the positions articulated by the countries involved. A cooperative reform outcome by the United States and the EU—based on the most ambitious components of their negotiating proposals—delivers noticeably more benefits than an unambitious outcome.

### Heterogeneity among Developing Countries

Both developed and developing countries are heterogeneous in terms of their own trade policies, the trade barriers they face, and their net agricultural trade positions. The first two points are illus-

trated through a comparison of the duties applied by each country, relative to the world average, versus the duties levied on their exports. Among the developing countries, some face high export tariffs (for example, Argentina, Brazil, Malawi, Uruguay, and Zimbabwe) and many others impose relatively high tariffs on their

<sup>1</sup>The MIRAGE model was developed at the *Centre d'Etudes Prospectives et d'Informations Internationales* (CEPII) in Paris. Full description of the model is available at the CEPII web site ([www.cepii.fr](http://www.cepii.fr)).

imports (the developing countries generally impose higher than average tariffs by global standards). In terms of agricultural trade, both large net food importers and substantial food exporters exist among middle-income countries (MICs) and LDCs. Given these differences in policies and agricultural trade patterns, it is not surprising that models such as MIRAGE forecast diverse trade liberalization effects among countries; this is particularly so because such models suggest that reform of agricultural policies contributes a large portion of the total prospective gains.

## U.S. and EU Agricultural Subsidies and Protection

Criticism has been directed at developed countries for protecting and subsidizing agriculture, which stifles trade opportunities. The United States and EU follow somewhat different regimes. The United States has relatively low tariffs, but its agricultural subsidies were increased in the most recent (2002) farm bill. The United States provides relatively less preferential access than does the EU for selected developing-country trade partners. The EU, in contrast, has higher agricultural (but low industrial) tariffs and has recently modified its policy of relatively high levels of agricultural subsidies in favor of instruments that are less trade distorting than in the past. The EU is also more active in granting preferential market access. In these U.S.–EU policy differences lie the seeds of different approaches to the Doha trade negotiations.

## Similarities and Differences in the U.S. and EU Proposals

The Doha negotiations may reach agreement on agriculture and other provisions of a trade deal, but the outcome is far from certain, and no proposal is complete on the eve of the Hong Kong ministerial.<sup>2</sup> The U.S. and EU proposals have some broad commonalities, such as progressive tariff and domestic-support cuts or the eventual elimination of export subsidies. But the specifics of the proposals deviate on matters such as rates of reduction of tariffs and domestic support or the number of sensitive or special products (for developed and developing countries, respectively) that will be subject to lesser disciplines. In terms of an ambitious agenda for agricultural trade liberalization, strong points of the U.S. proposal include sharper reductions in bound tariff rates and a lower cap on maximum allowable tariffs; few sensitive or special products; and moderately tough bindings on domestic support that encourage decoupling of subsidies from production. Strong points of the EU proposal in terms of trade liberalization lie in the call for free access of LDCs to OECD markets, a specific initiative for cotton to help West Africa, and a push for lower industrial tariffs worldwide.

## Box 1 Overview of Two Scenarios

### AMBITIOUS SCENARIO

#### Tariffs

- U.S. tariff formula for agriculture
- Tariff caps in agriculture (developed countries, 75 percent; developing countries, 112.5 percent)
- U.S. sensitive/special products clause (1 percent)
- Tariff caps applied to sensitive/special products
- Swiss formula cuts for manufacturing tariffs (developed-country coefficient, 8 percent; MIC coefficient, 15 percent; LDC coefficient, 25 percent)
- EU proposal of free OECD access for LDCs

Domestic support levels cut by 20 percent

Export subsidies eliminated

### UNAMBITIOUS SCENARIO

#### Tariffs

- EU tariff formula for agriculture
- Higher agricultural tariff caps (developed countries, 150 percent; developing countries, 225 percent)
- EU sensitive/special products clause (8 percent)
- Caps not applied to sensitive/special products
- Swiss formula cuts for manufacturing tariffs (developed-country coefficient, 10 percent; MIC coefficient, 20 percent)
- LDCs do not reduce their import duties
- No additional free OECD access for LDCs

Domestic support levels remain unchanged

Export subsidies are eliminated

## What Difference Will the Doha Outcome Make?

What difference will the Doha Round's outcome make to global trade and welfare and to developing countries in particular? To examine this question using numbers on the negotiating table, we define a relatively ambitious cooperative reform scenario with strong trade liberalization components from the U.S. and EU proposals and contrast this with a less ambitious outcome drawn from the lower-end elements (see Box 1).

<sup>2</sup>Aspects of the evolving offers are widely reported in public and industry press. One publicly available source is the web site of the International Centre for Trade and Sustainable Development.

On market access, our ambitious proposal includes most elements of the U.S. formula. Furthermore, it adds the EU proposal of giving free access in OECD markets to LDCs, and it imposes tariff caps on sensitive/special products. Finally, export subsidies are eliminated and applied trade-distorting domestic support is cut by 20 percent.<sup>3</sup>

In contrast to the ambitious scenario, our unambitious scenario adopts the EU formula for less deep tiered tariff cuts for agriculture and adds less liberalizing elements about caps, sensitive/special products, Swiss formula in industry, and LDC trade reform and market access. Export subsidies are eliminated, but no cuts are assumed in applied domestic support.

## Model Structure

The MIRAGE model is a multi-sector, multi-region computable general equilibrium model devoted to trade policy analysis. The model has a sequential dynamic setup with fixed technology. We report results for 2019: a 14-year horizon after initiation in 2006 of reforms assumed to take place over 5 years among developed countries and 10 years among developing countries. The geographical decomposition allows focus on the assessment of trade liberalization effects on developing countries (33 of 41 regions modeled), including the heterogeneity that could contribute to potential gainers and possible losers from a Doha liberalization agreement.

The sector decomposition emphasizes key sectors where distortions are high and numerous. Agriculture is the main focus: of the 18 sectors considered, 10 are agricultural. In the version of MIRAGE used herein, unskilled labor is imperfectly mobile between agricultural and nonagricultural activities. We utilize the latest GTAP 6 database, which enables tariffs to be built up for the model sectors from the detailed MacMap-HS6 data set.<sup>4</sup> Tariff formulae are applied on bound duties at the HS6 level. This allows “binding overhang” phenomena (bound tariffs higher than applied tariffs), which are quite large in developing countries, to be taken into account. Finally, as the MacMap-HS6 database includes all the regional agreements and preferential schemes prevailing in 2001, our modeling exercise fully reflects the loss of preferential access.

<sup>3</sup>These cuts apply to the domestic supports that can be clearly related to output or input incentive prices, but some controversial subsidies such as price-linked U.S. countercyclical payments or direct fixed payments based on historical production are not restricted in our model.

<sup>4</sup>Full descriptions of MacMaps and the Global Trade Analysis Project (GTAP) are also available at the CEPII and GTAP web sites ([www.cepii.fr](http://www.cepii.fr) and [www.gtap.agecon.purdue.edu](http://www.gtap.agecon.purdue.edu)).

## Results for the Ambitious versus Unambitious Doha Outcomes

Summary results for our ambitious and unambitious scenarios are shown in Tables 1 and 2 and Figures 1 through 3. As a benchmark, we also report the outcomes of a MIRAGE simulation of full global trade liberalization in agriculture and manufacturing.

**Table 1 Global Results of Alternative Liberalization Scenarios**

Scenario	World Protection (percent decrease)	World Trade (percent increase)	Real Income (gain in billion dollars)
Full Liberalization	-5.4	12.1	157
Ambitious Doha Outcome Compared to full liberalization	-2.2 (41 percent)	4.1 (34 percent)	104 (66 percent)
Unambitious Doha Outcome Compared to full liberalization	-1.4 (26 percent)	2.0 (16 percent)	41 (26 percent)

Source: Authors' calculations

**Table 2 Effects of Liberalization on Real Income of Selected Developing Countries**

Country	Gain or loss as percent of base level		
	Full Liberalization	Ambitious Scenario	Unambitious Scenario
Middle Income (MICs)			
Argentina	1.2	0.3	0.2
Brazil	0.8	0.3	0.1
Caribbean economies	0.7	0.4	0.2
Chile	0.7	0.3	0.2
China	-0.1	0.0	0.4
India	0.3	0.3	0.3
Thailand	5.2	2.7	0.6
Venezuela	-0.5	-0.3	-0.3
Vietnam	3.3	0.9	0.5
Zimbabwe	3.1	1.0	0.3
Least Developed (LDCs)			
Bangladesh	-0.5	0.9	0.2
Madagascar	-0.3	0.0	-0.2
Malawi	11.9	6.0	0.2
Mozambique	-0.2	0.0	-0.2
Rest of Sub-Saharan Africa	0.0	0.1	0.0
Tanzania	0.7	0.3	0.1
Uganda	0.5	0.2	0.1
Zambia	-0.6	-0.2	-0.1

Source: Authors' calculations

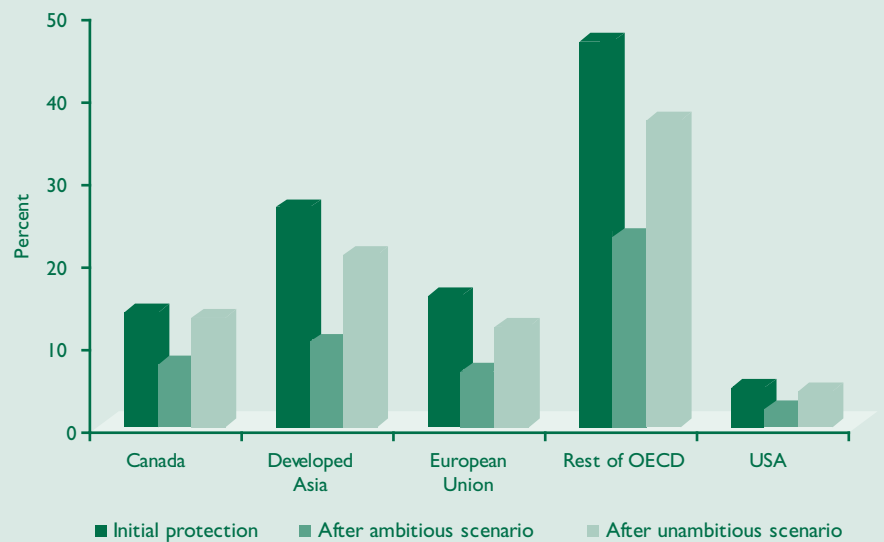
With full liberalization, world protection—averaging 5.4 percent in agriculture and manufacturing as measured by a weighted aggregate statistic—is eliminated, world trade expands by 12.1 percent in 2019 compared with the level estimated by the model without liberalization, and the total annual real income (welfare) gain worldwide is \$157 billion.<sup>5</sup> Most of this gain accrues to OECD countries, which account for nearly 80 percent of world real income and obtain a similar share of the gains from trade liberalization. Thus, developed countries have good reason to take the lead in adopting an ambitious trade-liberalization agenda. Full liberalization is also slightly progressive. For developing countries as a group, the share of welfare gains is greater than their share of world income. But results differ widely among individual countries, and even the aggregate gain is small for the LDCs. These results do not include any dynamic gains from enhanced technology that may be associated with increased trade openness.

The unambitious scenario leads to global real-income gains of only US\$41.5 billion, just 26 percent of the gain from full liberalization. World protection measured by the weighted aggregate statistic declines by 1.4 percent, also 26 percent of the decline (to zero protection) with full liberalization. World trade expands 2.0 percent under the unambitious scenario, 16 percent of the gain from full liberalization. Thus the unambitious scenario moves the global economy about 25 percent or less of the way toward the full liberalization outcome.

A substantially greater movement is observed under the ambitious scenario. Global welfare increases by US\$103.7 billion, 66 percent of the gain from full liberalization. World protection falls by 2.2 percent (41 percent of the effect of full liberalization), and trade expands by 4.1 percent (34 percent of the full liberalization effect). Much of these gains come from lower agricultural protection in wealthy countries, whereas little reduction in applied agricultural protection results among developing countries. Under the ambitious scenario, the gain in world real income is proportionately much larger than the reduction of average protection because this scenario greatly reduces the dispersion of tariffs among products in rich countries, due to constraining caps and the limited number of sensitive products.

The heterogeneity among developing countries is illustrated by divergence in the real-income effects of the alternative liberalization scenarios (see Table 2). In terms of individual developing MICs that might benefit from trade liberalization, the unambi-

**Figure 1 Agricultural protection before and after a potential Doha agreement, rich countries—applied duties**



Source: Authors' calculations

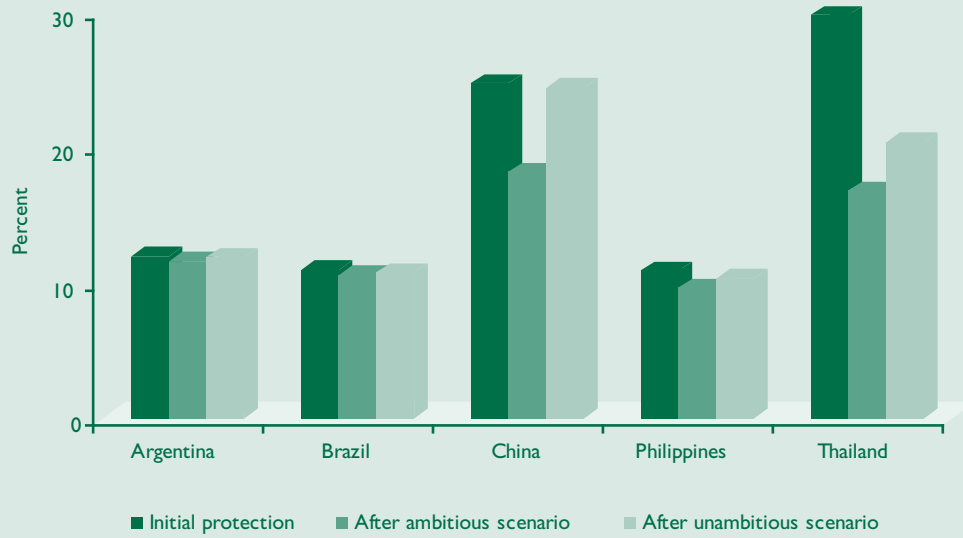
ous scenario delivers very little real-income gain for two reasons. First, these countries gain little from improved “terms of trade” (prices of their exports compared with imports) in world markets despite the reduced protection among wealthy countries. Second, they gain little from “allocation efficiency” (realignment of resource use within their economies) largely because they make so few changes to their own policies. The same results occur for the LDCs that might gain from trade liberalization—terms-of-trade gains and allocation efficiency gains are very small under the unambitious scenario. For those developing countries (both MICs and LDCs) that potentially would not benefit from trade liberalization, under full liberalization terms-of-trade losses (of food importers and exporters facing preference erosion) offset their gains from improved allocation efficiency. Both impacts are dampened under the unambitious scenario compared with full liberalization, with terms-of-trade losses small enough to more than offset loss of allocation efficiency gains, so welfare losses are smaller for these countries.

Under the ambitious scenario, developing countries gain more from trade reform. Among the MICs, gains in real income tend to be about one-third of those under full liberalization. Both terms-of-trade gains (or losses) and allocation efficiency gains are larger under the ambitious scenario than under the unambitious scenario, but they remain less than in the case of full liberalization.

The impact of the two scenarios on market access are illustrated in Figures 1 through 3. As described above, the ambitious

<sup>5</sup>A widely cited recent World Bank model by Kym Anderson, Will Martin, and Dominique van der Mensbrugge puts the annual worldwide welfare gains at US\$287 billion. The difference arises mostly from their use of larger “trade elasticities” (responses to shifting prices), whereas we use more conservative values.

**Figure 2 Agricultural protection before and after a potential Doha agreement, middle-income countries—applied duties**



Source: Authors' calculations

**Figure 3 Agricultural protection before and after a potential Doha agreement, least-developed countries—applied duties**



Source: Authors' calculations

scenario implies a much larger liberalization in rich countries where protection is initially high and unevenly distributed (the rest of OECD, developed Asia, and the EU). The binding overhang phenomenon is so large in developing countries that even the ambitious scenario has a mitigated impact in agricultural protection except in China and Thailand.

## Concluding Remarks

In this brief we have presented initial results from an analysis of an ambitious versus an unambitious Doha negotiation outcome. We base our simulations on numbers from proposals recently put on the table, but not agreed on going into the Hong Kong WTO ministerial meeting, and compared those outcomes with our estimated effects of full global trade liberalization.

The results for the two Doha scenarios demonstrate the high stakes of this negotiation given the positions articulated by the countries involved. A successful round could deliver real gains both globally and for developing countries. However the magnitude of those gains depends on the shape of the agreement. A cooperative reform outcome by the United States and the EU—based on the most ambitious components of their negotiating proposals—delivers noticeably more benefits than an unambitious outcome based on the lower-end elements of the two proposals. The details matter in the differing proposals, such as the tariff and domestic support reduction formulae, tariff caps, and number of sensitive and special products. Both negotiating commitment and diligence will be needed to avoid a hollow Doha outcome given the technical character of these details.

Developing countries are heterogeneous in terms of their own policies, the trade barriers they face, and their net agricultural

trade. Overall, developing countries gain most—and might achieve the best deal in the negotiations—from a global trade agreement when they join in the reform process. Attention is needed in the case of some of the LDCs and other poor countries that may face declining terms of trade due to higher world agricultural prices or eroding preferences. In addition, many developing countries can achieve the full benefits of trade only with substantial attention to broad development needs that will enhance their competitiveness. This too needs to be part of a successful Doha outcome.

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