

More or Less Ambition in the Doha Round?

Winners and losers from trade liberalization with a development perspective

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Abstract

What is at stake in the standoff between the United States and Europe over agriculture in the Doha Round of trade talks? What impact would an agreement based on greater or lesser levels of ambition have on developing countries, whose economies depend heavily on agriculture? Using the MIRAGE computable general equilibrium model of the global economy, in this study we compare different scenarios for the Doha agriculture negotiations, taking real numbers from the proposals currently on the table from the United States (US) and the European Union (EU). 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 US and the EU—based on the most ambitious components of their negotiating proposals—delivers noticeably more benefits than an unambitious outcome. We measure the degree of ambition in each scenario by the construction of a Mercantilist Trade Restrictiveness Index and focus the analysis on the impacts on developing countries.

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1 Introduction

What is at stake in the standoff between the United States and Europe over agriculture in the Doha Round of trade talks? 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 World Trade Organization (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. The December 2005 Hong Kong Ministerial showed little finality in the negotiations, even though members agreed to eliminate agricultural export subsidies in 2013 and that LDCs will gain free access to OECD markets for at least 97% of agricultural and manufacturing tariff lines.

Trade liberalization is a potential stimulus for development and the Doha Round was launched with the objective of drawing developing countries more fully into the global trade system. Yet, whether a final Doha Round trade agreement will eventually produce something substantially positive for developing countries is open to question. Trade liberalization will act especially positively on development and poverty when developing countries have a comparative advantage in agriculture and are penalized by restricted market access. But 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 illustrated in Graphic 1 through a comparison of the duties applied by each country, relative to the world average, versus the duties levied on their exports ².

[Graphic 1 about here]

Among the developing countries, some face high tariffs on their exports (for example, Argentina, Brazil, Malawi, Uruguay, and Zimbabwe) while others have an above-average access to world markets (Madagascar, Philippines, Venezuela, Malaysia). Many developing countries impose

² Graphics 1 and 2 provide statistical information only for countries or regions included in the study.

relatively high tariffs on their imports, while only a few impose tariffs below the world average (Madagascar, Philippines) .

[Graphic 2 about here]

The third point is illustrated in Graphic 2. In terms of agricultural trade, both large net food importers and substantial food exporters exist among middle-income countries (MICs) and LDCs. The net trade positions are crucial because trade liberalization is expected to increase world agricultural prices. This will be beneficial for developing countries like Brazil, Argentina, or Thailand, but it will imply a deterioration of terms of trade for developing countries like Venezuela, Bangladesh or the Philippines.

The potential consequences of a Doha agreement have been assessed in a number of recent studies, among them Anderson, Martin and Van der Mensbrugghe (2005a, 2005b); Fontagne, Guerin and Jean (2005); Francois, Von Meijl and Tongeren (2005); Bhir, Fontagne and Jean (2005); and Bouët, Mevel and Orden (2005). Conclusions diverge, not only on the world real income effect (from 0.04% in Anderson, Martin and Van der Mensbrugghe to 0.51% in Fontagne, Guerin and Jean), but also on its distribution. This reflects different methodological choices and different designs of trade reform. The purposes of these studies are various so they put an emphasis on different elements of the trade negotiation. For example, while Anderson, Martin and Van der Mensbrugghe (2005a) highlight the sensitivity of the potential impact to specific clauses of a trade agreement, Bouët, Bureau, Decreux, and Jean (2005) point out the contrasting benefits and losses for developing countries.

A new feature of the Doha negotiation is that developing countries are actively taking part: the G20 is a largely offensive coalition in terms of liberalization; the G90 is more defensive. Their proposals matter but a key issue remains the stance of the United States (US) and the European Union (EU).

By November 2005 these two major trading partners had put on the table proposals which have been scrutinized and criticized. In this paper, we take the position that the US and EU

proposals are points of reference for the final outcome to be expected in 2006. Using the MIRAGE computable general equilibrium model of the global economy,³ we compare different scenarios for the Doha agriculture negotiations, taking real numbers from the two proposals. We compare these scenarios to full trade liberalization.

The results for both scenarios demonstrate the high stakes of this negotiation given the positions articulated by the countries involved. A cooperative reform outcome, designed with the most liberalizing elements contained in the US and EU proposals, delivers noticeably more benefits than an unambitious outcome, based on the least ambitious components of their negotiating proposals. We scrutinize the development impact of these scenarios and highlight the reasons why trade liberalization may benefit some developing countries, while having ambiguous effects on others. Eroded preferences and higher world agricultural prices for net food importing countries are critical elements for developing countries. For this reason, the precise design of trade reform is a key issue if the purpose of this Round is development and poverty alleviation.

Section 2 presents the MIRAGE model and analyzes the main features of international trade today. The impact of full trade liberalization on real income, world prices and remuneration of productive factors is assessed. Section 3 describes our two Doha scenarios: one “ambitious” and one “unambitious”. The relative degree of ambition of these two scenarios is assessed, first with respect to their impact on real income, world trade and world protection, and second by the construction of a world “Mercantilist Trade Restrictiveness Index”. Section 4 focuses on the impact of these two scenarios on developing countries. Section 5 concludes.

³ 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) and in Bchir, Decreux, Guerin and Jean (2002).

2 From today to full trade liberalization

This section provides an evaluation of the economic distance between the current situation and free trade. After a brief presentation of the MIRAGE model the main features of the current trading regime are pointed out. Finally the consequences of full trade liberalization are assessed.

2.1 *The MIRAGE model*

2.1.1 The main technical features of the model

The MIRAGE (Modeling International Relationships in Applied General Equilibrium) model is a multi-sector, multi-region CGEM devoted to trade policy analysis. The model has a sequential dynamic recursive set-up. Macroeconomic data, in particular social accounting matrixes, come from the GTAP6 database ⁴ (see Dimaranan and McDougall, 2006). Tariff averages have been re-calculated using the MacMap methodology (see Bouët, Decreux, Fontagne, Jean and Laborde, 2005a and 2005b).

On the supply side the production function in each sector is a Leontieff function of added value and intermediate consumption. The intermediate consumption is an aggregate CES function of all goods. In the same way added value is a CES function of unskilled labor, land, natural resources and of a CES bundle of skilled labor and capital. This nesting allows modeling less substitutability between capital and skilled labor than between these two factors and other factors.

Factor endowments are fully employed. The only factor for which the supply is constant over time is natural resources. Capital supply is modified each year due to depreciation and investment. Growth rates of labor supply are fixed exogenously. Land supply is endogenous; it depends on the real remuneration of land. In some countries land is a scarce factor (Japan, European

⁴ The GTAP6 database provides statistical information for 2001. A pre-experiment has been carried out to account for the liberalizing shocks from 2001 to 2005.

Union, and others) such that the elasticity of supply is low. In others (Australia, Brazil, Argentina) land is abundant and this elasticity is high.

Skilled labor is the only factor perfectly mobile. Installed capital and natural resources are sector-specific. New capital is allocated amongst sectors according to an investment function which depends on the rate of return and the sectoral stock of capital. Unskilled labor is imperfectly mobile between agricultural sectors and non agricultural sectors according to a CET function. Land is also imperfectly mobile among the agricultural sectors.

Capital in a given region whatever its origin, domestic or foreign, is assumed to be obtained by assembling intermediate inputs according to a specific combination. The capital good is the same whatever the sector.

The MIRAGE model accounts for imperfect competition as well as perfect competition. But the introduction of imperfect competition is costly in terms of computational complexity. As described below, this study disaggregates the world into 41 countries and 18 sectors in order to capture the heterogeneity of developing countries. For this reason, perfect competition is assumed in all sectors.

The demand side is modeled in each region through a representative agent whose propensity to save is constant. The rest of the national income is used to purchase final consumption. Preferences across sectors are represented by a LES-CES function. Products coming from the “North” (developed/rich countries) and from the “South” (developing/poor countries) are assumed to belong to different quality ranges (higher in the North). Their substitutability is therefore assumed to be lower than the substitutability between products coming from the same quality range. Furthermore domestic products benefit from a specific status for consumers; they are less substitutable with foreign products than foreign products are between each other, within a given quality range.

The macroeconomic closure is obtained by assuming that sum of the balance of goods and services and of FDIs is constant and equal to its initial value.

2.1.2 Geographic decomposition

Table 1 indicates the geographical decomposition incorporated in this study. We focus on development: 33 zones of the 41 chosen are developing countries. Data come from the GTAP database⁵. We have gathered in a single group a few developing zones (or sometimes countries) from the GTAP decomposition: Rest of East Asia, Rest of Southeast Asia, Sri Lanka and Rest of South Asia in a single zone called Developing Asia; Central America, Rest of the FTAA and Rest of Caribbean in a single zone called Caribbean; Rest of Middle East and Rest of North Africa in a single zone called Rest of Middle East and North Africa (MENA); Botswana, South Africa and Rest of SACU in a single zone called SACU; Rest of SADC and Rest of SSA in a single zone called RSSA.

[Table 1 about here]

As a vertical differentiation is introduced with products coming from the North and South being of different quality ranges, the last column of Table 1 indicates this categorization of countries and regions.

Amongst rich countries, the EU and the US represent the richest markets in the world and they have granted large trade preferences. Australia and New Zealand are powerful agricultural exporting countries which could be amongst the main beneficiaries of free trade. They also benefit from a very low density of rural population per arable land, like Canada. The zone ‘Developed Asia’ gathers countries with extremely high protection in agriculture (Japan, South Korea, and Taiwan). The zone entitled Rest of OECD is composed by rich countries (Mexico is not included) with land as a scarce factor and with a very high protectionism in agriculture: Switzerland, Norway, and Iceland.

⁵ The geographic and sector correspondence tables between these decompositions and the GTAP classifications can be requested to the authors.

2.1.3 Sector decomposition

The sector decomposition emphasizes the existence of key sectors where distortions are high and numerous. Out of the 18 sectors considered, 10 are agricultural, as shown in Table 2.

Amongst these agricultural activities, some are of key concern as distortions are especially high: tariffs for wheat, sugar, meat, rice, and milk; and domestic support for cotton (plant-based fibers). Vegetables and Fruit is a key activity for numerous developing countries. Textile and clothing sectors are still highly protected as compared to the rest of the industrial activity throughout developed countries and are modeled separately from other manufacturing. The last column in Table 2 indicates the agricultural/non agricultural categorization which is at the basis of the imperfect mobility of unskilled labor.

[Table 2 about here]

2.2 *The initial state of the world*

We characterize the initial state of the world trade regime with a few summary statistics: level of tariffs, export structure by destination, export structure by product, and net trade balance in agricultural and food products ⁶.

[Graphic 3 about here]

Information on applied protection and market access is summarized in Graphic 3 for a few selected countries. India is by far the most protectionist country but trade barriers are also high in

⁶ Detailed data on bilateral levels of protection, on levels of protection by importing zone and product, on the geographical structure of exports, on the sectoral structure of exports, and on the products composition of imports, in 2005, can be requested to the authors.

Morocco and Bangladesh, less in Brazil, Argentina, China, Malawi and Zambia. Global protection by rich countries is generally lower than by developing countries.

Due to preferential schemes (EBA, AGOA, Cotonou, Caricom) or specialization in products little taxed across the world (coffee, coca, cotton, mining) numerous developing countries face low average tariff on their exports: Morocco, Tunisia, Rest of Sub-Saharan Africa, Bangladesh, Zambia, and especially Mexico and Rest of Middle East and North Africa. For the “Rest of MENA” zone, it is explained by a combination of two elements: Euromed partnership and exportation of raw commodities. For Mexico the North American Free Trade Agreement (NAFTA) provides free access to a major market. In the case of Australia-New Zealand, Brazil, and Argentina, specialization in agriculture implies that exports are on average relatively penalized. Conversely specialization in industry or services gives a relatively good access to foreign markets for Canada, Developed Asia, EU, US, China, Bangladesh, and Zambia.

[Graphic 4 about here]

Graphic 4 provides a snapshot of the world average protection by product. Protection is very high in the case of paddy and processed rice (with a record duty of 538% in Developed Asia), raw milk and dairy products; it is substantial for meat, wheat, sugar and the “Other food products” sector. In industry only textile and clothing/apparel are significantly taxed.

As far as trade is concerned, in 2005, Europe, US and Developed Asia are the main destinations of world exports: the EU, for example, represents more than 30% of exports destination for 19 on 41 zones, up to 70% for Tunisia. The impact of regional agreements and preferential schemes is substantial as trade is for example highly concentrated in North America (from Canada and Mexico to US) and in Europe (inside the European Union and from the EFTA-Rest of OECD to the EU). There is also a larger heterogeneity in destinations of exports from certain developing countries. For example, while Bangladesh, Tunisia, Mexico and China concentrate their exports towards rich countries, more than half of Argentinean exports are to middle-income countries.

Some countries are specialized in industry (70% of Zambian exports are metal, mineral, petroleum, and chemical products, 75% of exports from Bangladesh are textile and apparel, and China, and Developed Asia are concentrated in industrial exports). Other countries' exports include a higher percentage of agricultural products (Australia-New Zealand, Brazil and especially Argentina).

2.3 The potential impact of full trade liberalization

To evaluate the effects of full trade liberalization, reform is implemented over 5 years from 2006 for developed countries and over 10 years for developing countries. Results are assessed by comparing in 2019 the simulation to a baseline without any trade reform. With full liberalization, world protection—averaging 5.4 percent across agriculture and manufacturing as measured by a weighted aggregate statistic—is eliminated. Full trade liberalization implies an increase of world trade by 12.0% and world real income by \$158 billion⁷ (in constant 2001 dollar value; +0.5% of expected world real income in the baseline). Table 3 indicates the distribution of this income gain across the OECD, Middle Income Countries (MICs) and Least Developed Countries (LDCs) ⁸.

Full liberalization is slightly progressive based on a comparison of initial income levels and income gains among OECD vs. Developing countries. For developing countries as a whole, the share of welfare gains ($21.3\%=21.2\%+0.1\%$) is greater than their share of world income ($19.4\%=18.5\%+0.9\%$). But the aggregate gain is small (and regressive) for the LDCs—only 0.1% of the global income gains accrue to the LDCs compared to their initial share of world income of 0.9%.

[Table 3 about here]

⁷ This version of MIRAGE does not account for change in factor productivity. A new version, incorporating this feature, will be available soon.

⁸ A sensitivity analysis has been carried out and can be requested to the authors. Under doubled Armington elasticities, full trade liberalization implies loss for only two countries (Venezuela and Madagascar) and world real income gain is more than doubled.

As expected, full trade liberalization implies a significant increase in agricultural world prices, particularly for meat, wheat and dairy products, as shown in Graphic 5. This graphic has to be somewhat carefully interpreted. In the MIRAGE model, there is not a single world price for a commodity, but separate export prices for each product, for each exporting country. The figures indicated on Graphic 5 are weighted average of numerous price evolutions. When the dispersion of a distribution is high, an average does not synthesize consistently the separate impacts. This is especially the case for paddy and processed rice. From Graphic 5, the average world price decreases due to the implementation of full trade liberalization. Country-specific results are not shown on Graphic 5, but the average price of rice exports from Thailand, for example, are nonetheless raised by 30%. Export prices of rice exhibit large individual increases and decreases with liberalization because of the high dispersion of protectionism of this commodity in the world (0.0% in Australia/New Zealand, Canada, Malaysia, SACU, Singapore and Madagascar, 117% in the EU, 133% in Morocco, and 538% in Developed Asia).⁹ Similar dispersed results underlie the small increase of the world average sugar price shown in Graphic 5.

[Graphic 5 about here]

Table 4 highlights the diverse country impacts of full trade liberalization, presenting the allocation efficiency gains and the terms of trade gains. As these are not the only sources of welfare variations (real income variations also come from variation in land supply, from variation in the stock of capital, tariff-quota rents and other sources), the two last columns do not add up to the real income gain. But in most cases these are the two main sources of real income variations.

⁹ This point is confirmed by calculating the average price changes under alternative methods (Laspeyres or Fisher index instead of Paasche index) or with different weights (consumption of the importing country). The alternative measures give contrasting pictures of the evolution of world prices, sometimes with increases in the average world price of rice. Calculation of dispersion indicators of the evolution of world prices by products and exporting countries shows that dispersion is especially high in this sector.

Allocation efficiency gains are always positive, while terms of trade effects can be positive or negative. This explains why some countries/zones may lose from full trade liberalization (Bangladesh, China, Madagascar, Mexico, Morocco, Mozambique, Peru, Philippines, Venezuela, Zambia, the zone “Rest of the World”). Others benefit from large increases in real income (Malawi, Malaysia, Turkey, Thailand, Rest of America). Taken overall, the size of the benefits is greater than the losses.

[Table 4 about here]

Allocation efficiency gains are large because initial protection is very high (India, Morocco), initial protection has a high dispersion across sectors (Rest of OECD, Developed Asia), or in the case of initially very open economies because the allocation efficiency effect is higher when initial imports are relatively large for a given decrease in tariff (e.g. according to WTO trade profiles the trade to GDP ratio is 210.5% in Malaysia).

Terms of trade effects are positive for countries gaining access to previously protected zones (for example, Australia/New Zealand for animal products, milk and dairy products sectors, and other food products sectors toward Rest of OECD, Developed Asia, the European Union, Canada, Turkey; Malawi in the other agricultural products sector - 65% of its initial exports - , Malaysia in rice toward Developed Asia and wheat toward India). On the contrary full trade liberalization can imply a deterioration of terms of trade either in the case of net food importing countries hurt by raising world agricultural prices, or in the case of erosion of preferences which implies more competition on export markets and reduced export prices. Bangladesh and Tunisia are affected by a substantial deterioration of terms of trade both due to erosion of preferences (Europe is by far their primary export destination) and higher world agricultural prices. Erosion of preferences also hurts Madagascar, Mexico, Morocco, Mozambique, Tanzania, Zambia, and the zones “Rest of OECD”, “Rest of MENA” and “Rest of Sub Saharan Africa”. As net food importing countries, China, Philippines and Venezuela are hurt by raising world agricultural prices.

The deterioration in terms of trade due to full liberalization in the cases of India, Peru, and Vietnam (initially net food exporters, see Graphic 2) and improvement in case of Singapore (net food importer) are less intuitive. These cases demonstrate that aggregated indicators can be misleading. The initial net food balance of a country is not an unambiguous indicator of how national terms of trade will be affected by trade liberalization. Distortions are unevenly distributed across products, and import and export structure of trading partners are very different. While Peru for example is globally in 2005 a net food exporter (see Graphic 2), its exports are highly concentrated in chemical, mineral and metal products (37% of total exports in 2005) and other food products (16%). The latter is the commodity which experiences the smallest increase in world prices amongst the agro-food products. Furthermore the price of the former is negatively affected by full trade liberalization. As a result Peru is affected by a deterioration of its terms of trade after full liberalization while it initially is a net food exporter.

A few countries are also gaining from dynamic gains. For example, trade liberalization increases agricultural activity in Argentina, Malawi, Australia/New Zealand, rising up real remuneration of land, especially as it is a not very mobile primary factor: it accordingly increases land supply and amplifies national real income gains from trade reform.

[Table 5 about here]

Trade liberalization is expected to have a substantial impact on world poverty. This may occur particularly if unskilled labor is positively affected in developing countries, because this productive factor is the main source of income for poor people. Table 5 highlights how remunerations of productive factors are modified due to full trade liberalization. As unskilled labor is shared between agricultural and industrial activities, the first column indicates an aggregate evolution of this factor's remuneration.

In most developing zones the impact of full trade liberalization on unskilled labor is positive. It is very large in Argentina, the "Rest of America" zone, the "Rest of South America", Singapore, Thailand, Uruguay, Vietnam, Zimbabwe and Malawi. It is negative in Malaysia, mainly from a

decrease in non agricultural unskilled labor's remuneration while agricultural unskilled labor is positively affected. The impact on Chinese unskilled labor is slightly negative while it is zero across agriculture and industry in the case of India.

The potential impact of full trade liberalization on remuneration of land in a few OECD countries is very large: -45% in the "Rest of OECD zone", -42% in the European Union, -33% in the "Developed Asia zone. As implied by neo-classical theory, less mobile factors are more affected by global trade reforms. This helps explain why forces of resistance to liberalization are so strong in these OECD countries: the two zones "rest of OECD zone" and "Developed Asia" zones contain most members of the G10 coalition.

3 Ambitious versus unambitious Doha reform scenarios

The Doha Round negotiations may reach a final agreement on agriculture and other provisions of a trade deal in 2006, but the outcome is still far from certain. No proposal was complete even after the Hong Kong ministerial. Criticism has been directed at developed countries for protecting and subsidizing agriculture, which stifles trade opportunities. Yet, the US and EU follow somewhat different regimes. The US has relatively low tariffs, but its domestic agricultural support was increased in the most recent (2002) farm bill. The US provides relatively less preferential access than does the EU for selected developing-country trade partners. The EU, in contrast, has higher agricultural (but similarly low industrial) tariffs and has recently realigned its relatively high levels of agricultural support toward policy instruments that are less trade distorting than in the past. In these US–EU policy differences lie the seeds of different approaches to the trade negotiations.

3.1.1 Similarities and Differences in the US and EU Proposals

The US and EU proposals have some broad commonalities, such as progressive tariff and domestic-support cuts and the elimination of export subsidies. But the specifics of the proposals deviate on matters such as rates of reduction of tariffs and domestic support and 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 US 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.

3.1.2 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 US and EU proposals and contrast this with a less ambitious outcome drawn from the lower-end elements (see Box 1).

[Box 1 about here]

On market access, our ambitious proposal includes most elements of the US formula.¹⁰ It adds the EU proposal for free access by LDCs to OECD markets, imposes tariff caps in agriculture, and defines an exception regime for sensitive/special products of only 1% of agricultural tariff lines per country. Applied trade-distorting domestic agricultural support is cut by 20 percent and relatively strong manufacturing tariff reductions are imposed on developed and developing countries (including LDCs) under a three-tier Swiss formula.

¹⁰ The US proposal prior to December 2005 Hong Kong meeting called for cuts of 85-90% in agricultural tariffs above 60% for developed countries and lesser cuts in three bands of lower initial tariffs. The EU called for less ambitious cuts of 60% in agricultural tariffs above 90% for developed countries and similarly less ambitious cuts for lower initial tariff bands.

In contrast to the ambitious scenario, our unambitious scenario adopts the EU formula for less deep tiered tariff cuts for agriculture, does not impose any cap on agricultural tariffs, and adds less liberalizing elements on sensitive/special products (exceptions for 8% of tariff lines), the tariff-reduction Swiss formula for industry (higher tariff targets for developed countries and MICs and no cuts by LDCs), and free OECD access for LDCs (some exceptions **are retained**). **No cuts are assumed in applied domestic agricultural support of developed countries.**

3.2 Global results for the Ambitious versus Unambitious Doha Outcomes

As shown in Table 6, the unambitious scenario leads to global real income gains of only \$38.3 billion, just 24% of the gain from full liberalization. World protection measured by the weighted aggregate statistic declines by 1.2%. This is 22% of the decline (to zero protection) with full liberalization. World trade expands 1.6%, which is only 13% of the expansion induced by full trade liberalization.

[Table 6 about here]

A substantially greater movement is observed under the ambitious scenario. Global welfare increases by \$76.7 billion, 49 percent of the gain from full liberalization. World protection falls by 1.9% (35% of the effect of full liberalization). World trade is increased by 2.8%, which is 23% of the expansion with free trade.

For both the trade expansion and gains of real income, the unambitious scenario yields outcomes about half as large as the ambitious scenario (13%/23% for trade expansion and 24%/49% for real income compared to the free trade outcomes, respectively). These ratios provide an estimate of what is still at stake in the Doha negotiations. A key factor differentiating the unambitious from ambitious scenario is the degree of increased market access in agriculture. Under

the unambitious scenario, agricultural protection only decreases 3% from an initial global average of 17.8%. Under the ambitious scenario, agricultural protection falls by 8.7%.

3.3 An evaluation by a MTRI

Another way of assessing the degree of ambition of these two scenarios is the construction of a *Mercantilist Trade Restrictiveness Index* (MTRI). The aggregation of tariffs has been a hotly discussed topic in international economics since Balassa (1965), Corden (1966), Leamer (1988) and Laird (1996). But it received a decisive methodological treatment with the works of Anderson and Bannister (1992), Anderson, Bannister and Neary (1995), Anderson and Neary (1996 and 1998).

A Trade Restrictiveness Index (TRI) is a uniform tariff applied to all imports of a country, which provides the same level of welfare as the existing distortive structure. A MTRI follows the same logic, but the criterion is the same level of imports (in volume). The advantages of a trade restrictiveness index calculation are, firstly, that once the objective is defined, the method of aggregation is theoretically consistent. Secondly, it allows an aggregation of effects of tariffs and subsidies.

We calculate an MTRI as the focus on import volumes is consistent with the logic of trade negotiations under the WTO. Using a static version of the MIRAGE model, we substitute a uniform tariff on all imports of all countries from all partners in the world for existing tariffs, domestic support and export subsidies. We then search for the level of this uniform tariff that generates the same world imported volume as i) the existing distortions, in 2005, ii) the unambitious scenario, and iii) the ambitious scenario.

[Table 7 about here]

Table 7 gives the results of this calculation. The 2005 situation is equivalent in terms of world imports to a uniform 4.0% tariff. This is smaller than the average tariff, but it also includes the

impact of export subsidies on trade. It might also mean that the MacMap method of aggregation overestimates the distortive impact of high tariffs in agriculture.

Under the unambitious scenario the MTRI is 3.2%, which is a 20% decline in world protection. Under the ambitious scenario the MTRI is 2.6%; this represents a 35% drop in world protection. The consistent distortion aggregation measure revises downwards the degree of ambition attached to the two designed scenarios. Moreover it somewhat reduces the relative stakes in the outcome of the negotiation, because the new range is only 20%/35% instead, for example, of the 24%/49% previously calculated in terms of world real income. The numerical MTRI results are very similar to the earlier estimates in reductions in average world protection (22% reduction under the unambitious scenario and 35% under the ambitions scenario, see Table 7).

4 Potential impact of a Doha agreement on developing countries

The unambitious and ambitious scenarios are quite different in terms of liberalization effects at the world level. It remains to describe whether they imply contrasting fortunes for developing countries.

4.1 Impact on market access

The impact of the two scenarios on agricultural market access as measured by applied tariff levels of selected countries is illustrated in Graphic 6. The ambitious scenario implies a much larger liberalization in rich countries where protection is initially high and unevenly distributed. The average agricultural protection is reduced more by the ambitious compared to the unambitious scenario in the rest of OECD, developed Asia, and the EU. This confirms that the imposition of a cap on agricultural tariffs and limited exemptions from tariff liberalization under sensitive/special product clauses have large consequences on market access (see also Anderson, Martin and Van der Mensbrugghe, 2005a and 2005b).

The binding overhang phenomenon is so large in developing countries that even the ambitious scenario has a mitigated impact in agricultural protection except in India and Morocco (see Jean, Laborde and Martin, 2005, on this issue). Under the unambitious scenario protection in LDCs is unchanged; and likewise even the ambitious scenario implies little tariff reduction by LDCs.

[Graphic 6 about here]

4.2 Impact on real incomes

The heterogeneity among developing countries is illustrated by divergence in the real-income effects of the two Doha scenarios (see Table 8). The degree of ambition unambiguously makes a difference for developing countries. Under the unambitious scenario Zambia, Madagascar, Venezuela, Mexico, the Rest of Sub-Saharan Africa and the Rest of the World are losers, while under the ambitious one only Venezuela and Zambia lose from global trade reform. Furthermore, under this scenario benefits are larger for all developing countries, except Zambia.

In terms of individual MICs that might benefit from trade liberalization, the unambitious scenario delivers very little real income gain for two reasons. First, these countries gain little from improved terms of trade despite the reduced protection among wealthy countries. Second, they gain little from allocation efficiency 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. Only Malawi and Malaysia obtain large benefits under both scenarios, the former due to large terms of trade gains the latter due to a very high trade GDP ratio which amplifies the economic benefits from liberalization.

[Table 8 about here]

Under the ambitious scenario, developing countries gain more from trade reform. Among the MICs, 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. In case of positive terms of trade effects gains are larger under the ambitious scenario due to increased market access.

In the case of LDCs a few cases are remarkable. Bangladesh is a full beneficiary of the ambitious scenario. Its preferences from the EU are eroded but the ambitious scenario gives it free access to the US in the textile and apparel markets. Due to this full coverage of free access by LDCs to OECD markets, Bangladesh's exports of textile to the US increase by 58% in the ambitious scenario instead of 32% in the unambitious scenario, and apparel by 46% instead of 13%. Under the ambitious scenario prices of textile and apparel exports from Bangladesh to the EU and US markets are from 9% to 12% higher than under full trade liberalization, as it benefits from preferential LDC access. Under this trade reform it also gains from allocative efficiency, so this scenario is unambiguously more beneficial than the unambitious outcome. The same mechanisms, with different size, play out for Madagascar and Rest of Sub-Saharan Africa.

On the contrary full trade liberalization implies larger increases in agricultural world prices and complete erosion of preferences compared to the ambitious Doha scenario. As a result, terms of trade losses implied by full liberalization are substantial for Bangladesh (-1.7%) and the Rest of Sub-Saharan Africa (-1.3%) and decline also for Mozambique (-0.7%) and Madagascar (-0.4%).

4.3 Impact on productive factors

On poverty also the degree of ambition of the Doha trade reform might make a difference. Table 9 compares how remuneration of productive factors are affected by the two scenarios.

[Table 9 about here]

A comparison with Table 5 is very instructive. Unskilled labor benefits much more from full liberalization than from partial liberalization in Argentina, Brazil, Chile, Indonesia, SACU, Thailand, Zimbabwe, Vietnam, Uruguay, Malawi. These benefits come mainly from large gains for agricultural unskilled labor.

On the contrary unskilled labor draws more benefits from partial liberalization than from full liberalization in China, India, Morocco, Philippines, Tunisia, Bangladesh, Madagascar, Sub-Saharan

Africa, Zambia. The ambitious scenario gives, for example, larger gains for agricultural unskilled labor in these countries than full liberalization.

Inside the first set, countries benefit initially from a large agricultural trade surplus while countries from the second group have a deficit or a small surplus. Under the two Doha scenarios special and differentiated treatment is applied and allows for reduced liberalization in agriculture by developing countries: the unambitious scenario even exempts LDCs from any liberalization. As a consequence, import competition increases less and productive factors attached to import-competing sectors faces less downward pressure on remuneration than under full trade liberalization. In case of free trade in the first set of countries, import competition is increased but this is more than fully offset by exports-driven activity in agricultural sectors: productive factors attached to these sectors are benefiting from this trade reform. In the second set of countries full trade liberalization increases import competition in agricultural sectors, while exports are especially increasing in industrial sectors.

Of course the previous mechanisms do not consider maximization of national real income and accompanying redistributive policies. Higher national incomes allow options for poverty reduction beyond those associated directly with remuneration of those production factors owned by poor households.

5 Concluding Remarks

We have presented an analysis of an ambitious versus an unambitious Doha Round outcome. Our simulations are based on negotiating proposals from the run-up to the Hong Kong ministerial meeting but not agreed upon in December 2005, and we compared those outcomes with the 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 based on the most ambitious components of the negotiating proposals of the U.S. and EU delivers noticeably greater benefits than an unambitious

outcome based on the lower-end elements of their 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. Negotiating commitment and diligence are needed in 2006 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—when they join in the reform process for a global trade agreement. 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 Round outcome.

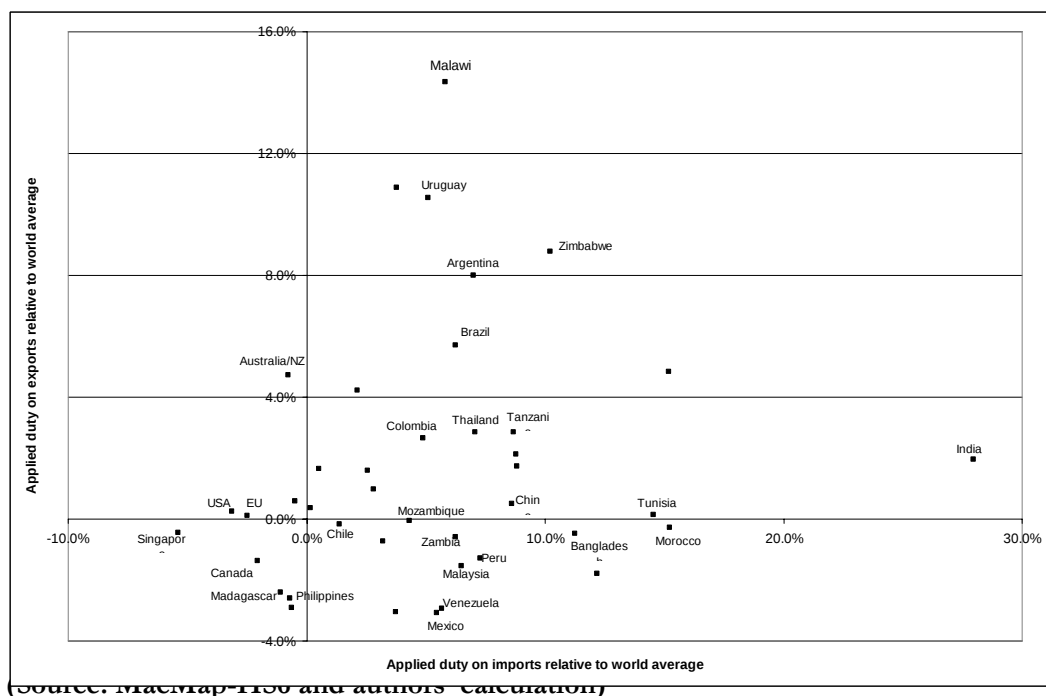
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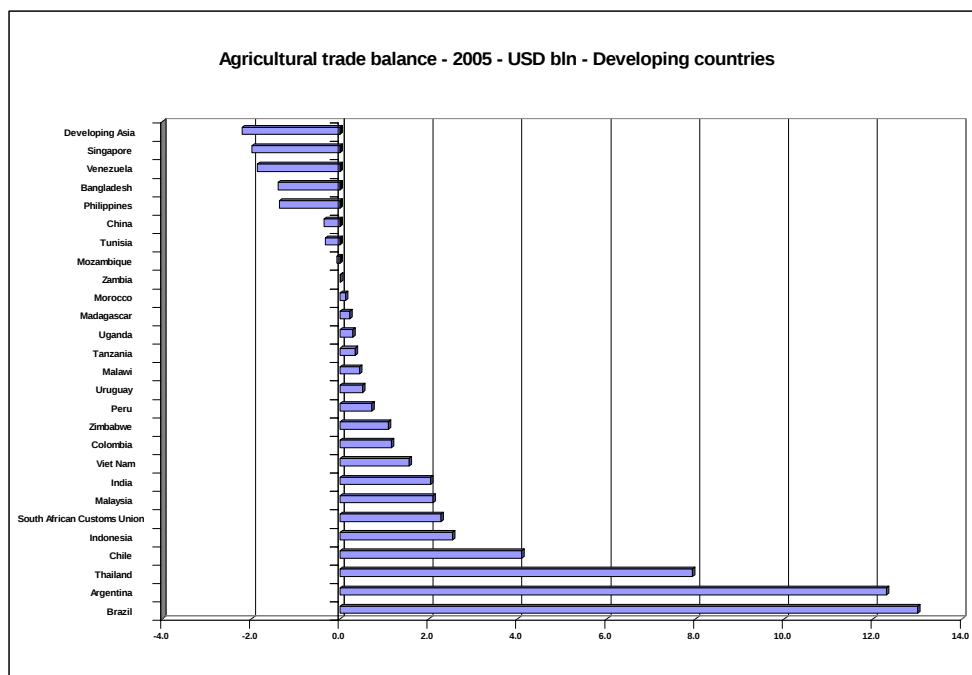
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Graphic 1. Protection applied and faced in 2001



Graphic 2.



(Source: GTAP6 and authors' calculation)

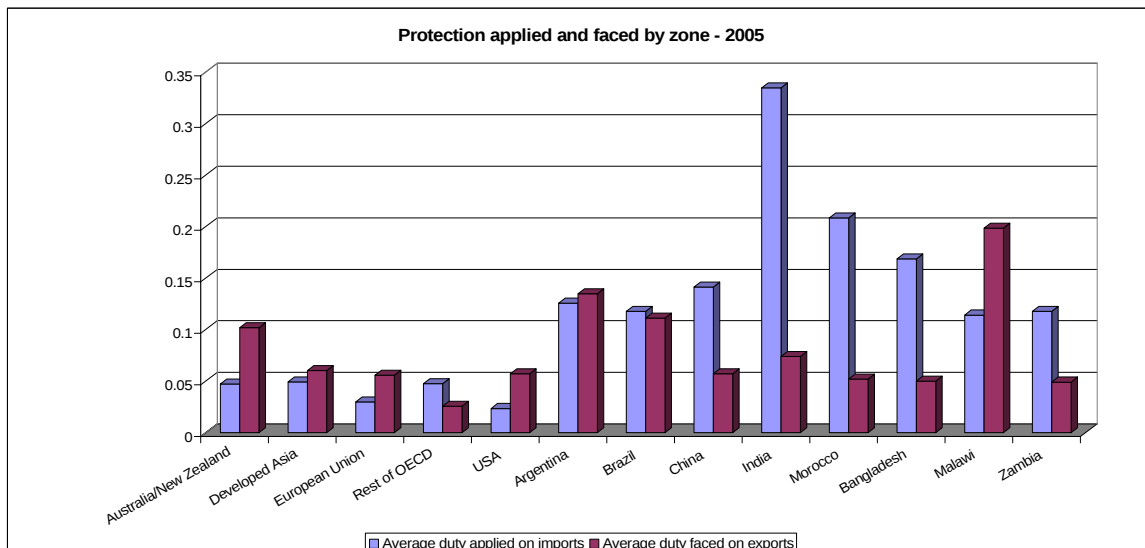
Table 1: Geographic decomposition

#	Abbrev.	Region	North / South
1	AUNZ	Australia/New Zealand	North
2	Cana	Canada	North
3	DvdA	Developed Asia	North
4	EU25	European Union	North
5	Mexi	Mexico	North
6	Roec	Rest of OECD	North
7	Turk	Turkey	North
8	USAm	USA	North
9	Arge	Argentina	South
10	Braz	Brazil	South
11	Cari	Caribbean economies	South
12	Chil	Chile	South
13	Chin	China	South
14	Colo	Colombia	South
15	DvgA	Developing Asia	South
16	Indi	India	South
17	Indo	Indonesia	South
18	Mala	Malaysia	South
19	Moro	Morocco	South
20	Peru	Peru	South
21	Phil	Philippines	South
22	SACU	South African Customs Union	South
23	Sing	Singapore	South
24	Thai	Thailand	South
25	Tuni	Tunisia	South
26	Urug	Uruguay	South
27	Vene	Venezuela	South
28	Viet	Viet Nam	South
29	Zimb	Zimbabwe	South
30	Bang	Bangladesh	South
31	Mada	Madagascar	South
32	Malw	Malawi	South
33	Moza	Mozambique	South
34	Tanz	Tanzania	South
35	Ugan	Uganda	South
36	Zamb	Zambia	South
37	RAme	Rest of America	South
38	RMen	Rest of Middle East and North Africa	South
39	RSAm	Rest of South America	South
40	RSSA	Rest of Sub Saharan Africa	South
41	RofW	Rest of World	South

Table 2: Sector decomposition

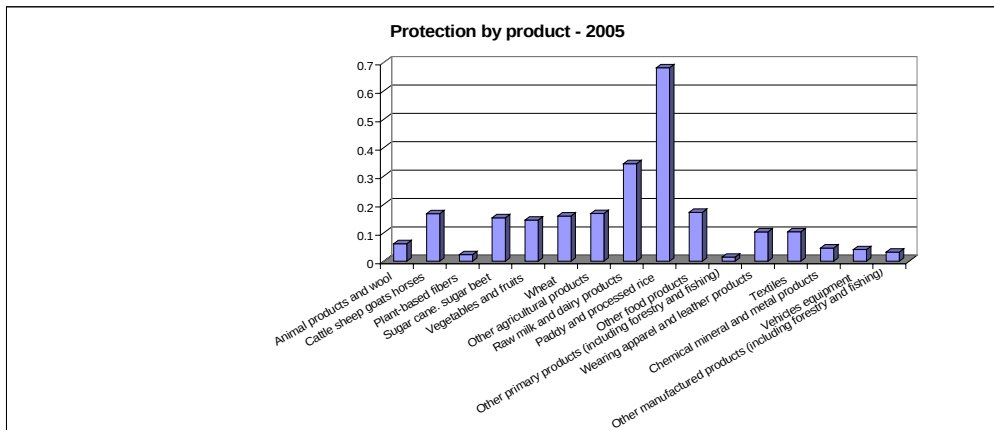
#	Abbrev.	Sector	Type of competition	Agr./Non agr.
1	AniP	Animal products and wool	Perfect	Agricultural
2	Meat	Cattle sheep goats horses	Perfect	Agricultural
3	Milk	Raw milk and dairy products	Perfect	Agricultural
4	Plfb	Plant-based fibers	Perfect	Agricultural
5	Rice	Paddy and processed rice	Perfect	Agricultural
6	Sugr	Sugar cane. sugar beet	Perfect	Agricultural
7	VgFr	Vegetables and fruits	Perfect	Agricultural
8	Whet	Wheat	Perfect	Agricultural
9	OtFP	Others food products	Perfect	Agricultural
10	Otag	Others agricultural products	Perfect	Agricultural
11	Mich	Chemical mineral and metal products	Perfect	Non agricultural
12	Text	Textiles	Perfect	Non agricultural
13	Veeq	Vehicles equipment	Perfect	Non agricultural
14	Weap	Wearing apparel and leather products	Perfect	Non agricultural
15	Omnf	Others manufactured products	Perfect	Non agricultural
16	Oprm	Others primary products (including forestry and fishing)	Perfect	Non agricultural
17	OtSr	Others services	Perfect	Non agricultural
18	TrT	Transportation and trade	Perfect	Non agricultural

Graphic 3:



(Source: MacMap-HS6 and authors' calculation)

Graphic 4:



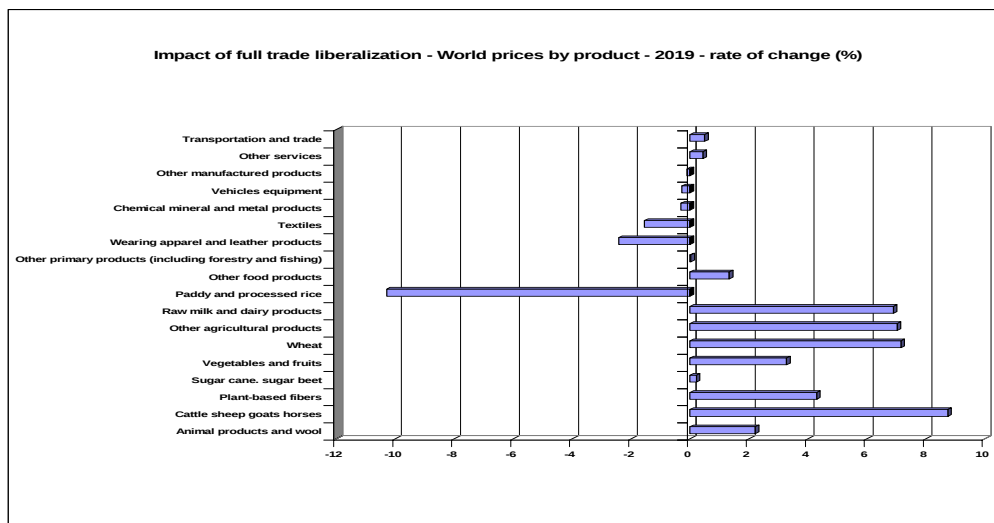
(Source: MacMap-HS6 and authors' calculation)

Table 3: impact of full trade liberalization on world real income

	OECD	MIC	LDC
<i>Real income gain (\$ bln)</i>	124.2	33.4	0.1
<i>Share in world real income gain</i>	78.7%	21.2%	0.1%
<i>Share in initial world real income</i>	80.6%	18.5%	0.9%
<i>Real income gain (in %)</i>	0.49%	0.58%	0.05%

(Source: authors' calculation)

Graphic 5:



(Source: authors' calculation)

Table 4: impact of full trade liberalization on countries' real income

Region		Real income (in %)	Allocation efficiency gains (in %)	Terms of trade gains (in %)
High income countries	Australia/New Zealand	1.5	0.1	1.2
	Canada	0.1	0.3	0.0
	Developed Asia	1.1	1.4	0.1
	European Union	0.5	0.3	0.1
	Mexico	-0.2	0.7	-0.6
	Rest of OECD	3.0	8.4	-0.7
	Turkey	5.2	1.0	2.2
	USA	0.1	0.0	0.1
Middle income countries	Argentina	1.2	0.2	0.5
	Brazil	0.8	0.3	0.3
	Caribbean economies	0.7	0.6	-0.1
	Chile	0.7	0.2	0.0
	China	-0.1	1.0	-0.8
	Colombia	0.2	0.2	-0.1
	Developing Asia	0.8	0.8	0.1
	India	0.3	1.9	-1.4
	Indonesia	1.5	0.2	0.3
	Malaysia	8.0	9.3	1.7
	Morocco	-0.1	2.5	-3.2
	Peru	-0.3	0.3	-0.6
	Philippines	-0.1	0.4	-1.1
	Rest of America	4.8	7.7	-0.3
	Rest of Middle East and North Africa	0.1	0.4	-0.3
	Rest of South America	3.1	0.7	1.4
	Rest of World	-0.1	0.4	-0.5
	South African Customs Union	1.1	0.6	0.3
	Singapore	2.3	0.0	2.0
	Thailand	4.9	2.0	0.8
	Tunisia	1.6	3.6	-3.0
	Uruguay	1.8	0.4	0.3
	Venezuela	-0.5	0.2	-0.5
	Viet Nam	3.3	2.7	-1.2
	Zimbabwe	3.1	1.3	1.6
Low income countries	Bangladesh	-0.5	1.3	-1.7
	Madagascar	-0.3	0.0	-0.4
	Malawi	11.2	1.4	7.3
	Mozambique	-0.2	0.4	-0.7
	Rest of Sub Saharan Africa	0.1	1.4	-1.3
	Tanzania	0.7	0.6	-0.3
	Uganda	0.5	0.1	0.3
	Zambia	-0.6	0.6	-1.0

(Source: authors' calculation)

Table 5: impact of full trade liberalization on remuneration of productive factors

Region		Unskilled real wages	Unskilled real wages in agriculture	Unskilled real wages in non agricultural sector	Real return to capital	Real return to land	Real return to natural resources	Skilled real wages
High income countries	Australia/New Zealand	2.8	11.1	2.0	0.2	3.4	-8.5	1.7
	Canada	0.0	2.9	-0.1	0.2	-23.1	0.4	-0.1
	Developed Asia	1.2	-12.3	1.4	1.2	-32.9	-4.4	1.9
	European Union	0.5	-0.6	0.5	-0.7	-41.8	0.7	0.9
	Mexico	-0.7	-3.0	-0.5	-0.6	-11.1	1.0	0.1
	Rest of OECD	2.8	-7.7	3.0	1.4	-45.4	4.3	3.7
	Turkey	4.9	1.7	5.6	4.5	-6.3	-8.6	9.4
	USA	0.0	1.5	0.0	0.1	-16.8	-0.3	0.1
Middle income countries	Argentina	2.0	9.8	1.2	-0.1	11.4	-5.3	1.0
	Brazil	0.6	7.9	0.2	0.6	10.8	-8.8	0.1
	Caribbean economies	1.3	5.3	0.8	0.1	5.6	-15.2	-0.4
	Chile	1.2	4.7	0.6	-1.2	4.7	-7.2	0.3
	China	-0.3	-0.3	-0.3	-0.6	-1.1	-8.2	-0.4
	Colombia	0.4	4.6	-0.2	-1.4	6.6	-0.5	-0.9
	Developing Asia	0.5	-2.5	1.4	1.5	-4.1	2.6	1.4
	India	0.0	-1.7	0.9	-0.6	-3.2	-21.2	3.5
	Indonesia	1.9	2.5	1.6	-0.4	2.4	-5.8	1.3
	Malaysia	-3.6	1.0	-3.7	-8.1	4.4	-32.1	-4.0
	Morocco	-0.7	-2.8	0.0	-0.8	-5.4	-14.1	0.3
	Peru	0.0	0.3	-0.1	-0.9	1.1	-0.8	-0.3
	Philippines	0.1	0.0	0.2	-0.2	-0.4	-8.5	-0.6
	Rest of America	9.0	14.0	7.9	0.0	9.7	-27.0	7.9
	Rest of Middle East and North Africa	-0.5	-0.8	-0.5	-0.6	-1.3	2.2	-0.5
	Rest of South America	4.8	10.6	3.3	-1.9	8.6	-24.7	1.6
	Rest of World	-0.2	0.3	-0.4	-0.4	0.9	-1.6	-0.9
	South African Customs Union	0.6	3.9	0.4	0.3	4.7	1.9	0.3
	Singapore	2.8	20.5	2.7	1.7	12.9	-0.5	2.3
	Thailand	5.8	12.7	4.0	-1.8	17.5	-17.8	3.2
	Tunisia	-0.4	-4.9	0.7	2.2	-10.8	-12.1	0.0
	Uruguay	3.1	7.6	1.8	-0.4	6.0	-6.9	1.8
	Venezuela	-1.3	-1.2	-1.3	-0.3	0.6	4.0	-1.7
	Viet Nam	8.4	8.4	8.4	0.9	5.5	-10.5	8.1
	Zimbabwe	4.6	9.6	2.7	1.0	7.3	-6.5	1.9
Low income countries	Bangladesh	-0.5	-0.9	-0.5	-0.8	-0.8	-9.8	-1.0
	Madagascar	-0.2	0.7	-0.9	-0.7	1.7	1.5	-2.0
	Malawi	14.7	19.3	11.1	4.3	8.4	-21.9	8.1
	Mozambique	0.3	3.0	-1.0	0.3	3.4	-7.2	-4.3
	Rest of Sub Saharan Africa	-1.2	-1.6	-1.0	-0.5	-1.1	0.3	-0.9
	Tanzania	0.9	1.7	0.1	-1.9	1.8	-5.0	0.1
	Uganda	1.2	1.4	0.6	-1.3	0.2	-4.2	1.0
	Zambia	-0.9	-0.7	-1.0	-1.4	-0.7	-6.7	-0.6

(Source: authors' calculation)

Box 1. Overview of Two Scenarios

AMBITIOUS SCENARIO Tariffs: • U.S. tariff formula for agriculture • Tariff caps in agriculture (developed countries, 100 percent; developing countries, 150 percent) • U.S. sensitive/special products clause (1 percent) • Swiss formula cuts for manufacturing tariffs (developed-country coefficient, 8 percent; MIC coefficient, 20 percent; LDC coefficient, 30 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 • No agricultural tariff caps • EU sensitive/special products clause (8 percent) • Swiss formula cuts for manufacturing tariffs (developed-country coefficient, 10 percent; MIC coefficient, 30 percent) • LDCs do not reduce their import duties • Additional free OECD access for LDCs, but exceptions for Japan and South Korea (rice) and the U.S. (sugar, textile and apparel) Domestic support levels unchanged Export subsidies are eliminated

Table 6: Global results of alternative liberalization scenarios

World protection

Real income gain

World trade

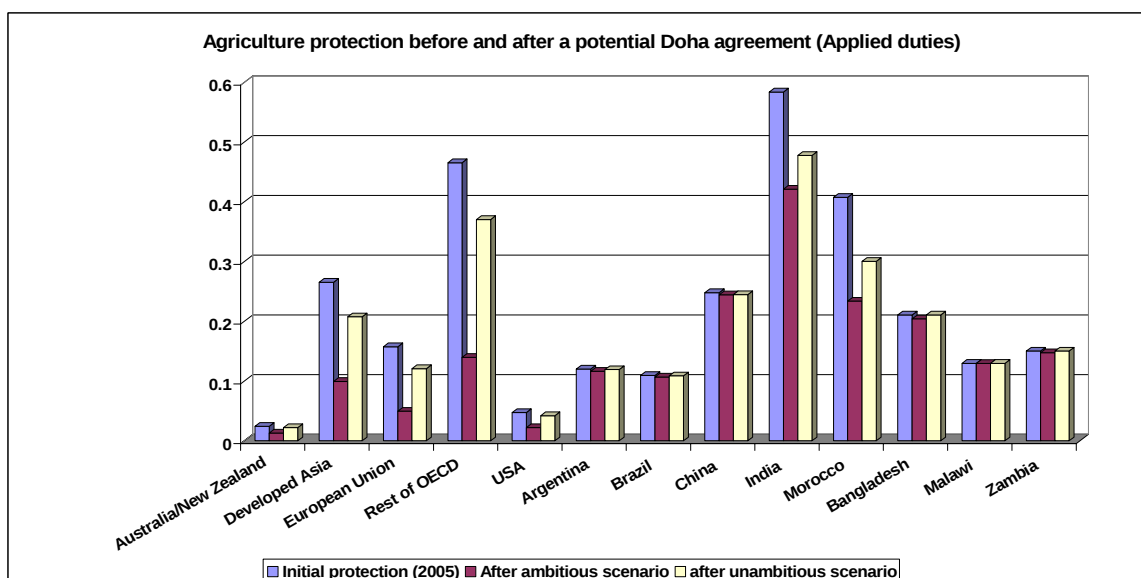
(Source: MacMaps-HS6 and authors' calculation)

Table 7. MTRI from alternative liberalization scenarios

	MTRI
<i>Current situation</i>	4%
<i>Unambitious scenario</i>	3.20% (-20%)
<i>Ambitious scenario</i>	2.60% (-35%)

(Source: authors' calculation)

Graphic 6.



(Source: MacMaps-HS6 and authors' calculation)

Table 8. Effects of liberalizing scenarios on real income

Region		Real income (in %)			Allocation efficiency gains (in %)			Terms of trade gains (in %)			Real income (in %)			Allocation efficiency gains (in %)			Terms of trade gains (in %)		
		Ambitious Sc.			Unambit. Sc.														
High income countries	Australia/New Zealand	0.7	0.1	0.5	0.4	0.1	0.2												
	Canada	0.1	0.1	0.0	0.0	0.0	0.0												
	Developed Asia	0.3	0.6	-0.1	0.1	0.1	0.0												
	European Union	0.2	0.2	0.0	0.1	0.0	0.0												
	Mexico	0.1	0.3	-0.2	0.0	0.2	-0.1												
	Rest of OECD	2.9	7.0	-0.6	2.4	6.3	-0.4												
	Turkey	4.0	0.3	1.8	3.8	0.2	1.8												
	USA	0.0	0.0	0.0	0.0	0.0	0.0												
Middle income countries	Argentina	0.3	0.1	0.1	0.2	0.0	0.1												
	Brazil	0.3	0.1	0.1	0.1	0.1	0.0												
	Caribbean economies	0.4	0.2	0.2	0.2	0.1	0.1												
	Chile	0.2	0.0	0.1	0.1	0.0	0.0												
	China	0.4	0.0	0.2	0.4	0.0	0.2												
	Colombia	0.2	0.1	0.1	0.0	0.0	0.0												
	Developing Asia	0.5	0.3	0.1	0.3	0.1	0.1												
	India	0.4	0.8	-0.5	0.3	0.7	-0.4												
	Indonesia	0.5	0.1	0.1	0.5	0.0	0.2												
	Malaysia	3.4	4.7	-0.6	2.9	3.9	-0.6												
	Morocco	0.5	1.5	-1.2	0.4	1.1	-0.9												
	Peru	0.0	0.0	0.0	0.1	0.0	0.0												
	Philippines	0.1	0.1	-0.1	0.1	0.0	0.0												
	Rest of America	0.8	0.1	0.9	0.2	0.0	0.1												
	Rest of Middle East and North Africa	0.1	0.2	-0.1	0.0	0.1	-0.1												
	Rest of South America	0.9	0.2	0.3	0.0	0.1	-0.2												
	Rest of World	0.0	0.1	0.0	-0.1	0.0	-0.1												
	South African Customs Union	0.4	0.3	0.1	0.2	0.2	0.0												
	Singapore	0.3	0.0	0.3	0.1	0.0	0.1												
	Thailand	1.4	1.0	-0.1	0.7	0.8	-0.3												
	Tunisia	1.8	1.8	-0.8	0.8	1.0	-0.6												
	Uruguay	0.7	0.1	0.2	0.2	0.1	0.0												
	Venezuela	-0.3	0.1	-0.3	-0.3	0.0	-0.2												
	Viet Nam	0.7	0.0	0.4	0.5	0.0	0.3												
	Zimbabwe	0.7	0.6	0.1	0.3	0.4	-0.1												
Low income countries	Bangladesh	2.3	0.9	1.0	0.3	0.0	0.2												
	Madagascar	2.6	0.0	2.0	-0.1	0.0	-0.1												
	Malawi	5.1	0.8	3.3	5.1	0.0	3.3												
	Mozambique	1.4	0.1	0.9	0.1	0.0	0.0												
	Rest of Sub Saharan Africa	1.2	0.8	0.2	0.0	0.3	-0.3												
	Tanzania	0.2	0.1	0.0	0.2	0.0	0.1												
	Uganda	0.2	0.0	0.2	0.2	0.0	0.2												
	Zambia	-0.2	0.1	-0.1	-0.1	0.0	0.1												

(Source: authors' calculation)

Table 9. Effects of liberalizing scenarios on remunerations

		Region													
		Ambitious scenario							Unambitious scenario						
High income countries	Australia/New Zealand	1.3	5.0	1.0	0.2	2.0	-2.0	0.8	0.5	1.8	0.4	0.2	0.7	1.4	0.3
	Canada	0.0	1.2	0.0	0.2	-4.7	0.5	0.0	-0.1	1.2	-0.1	0.1	0.8	0.0	-0.1
	Developed Asia	0.3	-7.2	0.4	0.5	-16.9	1.3	0.6	0.1	-1.0	0.2	0.2	-2.7	0.0	0.2
	European Union	0.2	-1.0	0.3	-0.3	-10.4	1.7	0.5	0.0	-0.9	0.1	0.0	-1.0	1.0	0.2
	Mexico	-0.1	-1.0	0.0	0.0	-2.8	0.1	0.3	-0.1	-0.4	0.0	0.0	-0.2	-0.5	0.1
	Rest of OECD	2.8	-4.2	2.9	1.7	-15.3	5.3	3.5	2.6	1.4	2.6	1.4	-0.5	3.7	2.9
	Turkey	4.0	2.1	4.4	3.4	-3.1	-6.2	7.3	3.8	2.2	4.1	3.2	-2.3	-6.5	6.8
	USA	0.0	1.7	0.0	0.1	-1.8	0.2	-0.1	0.0	0.7	0.0	0.1	0.9	0.0	0.0
		Unskilled real wages	Unskilled real wages in agriculture	Unskilled real wages in non agricultural sector	Real return to capital	Real return to land	Real return to natural resources	Skilled real wages	Unskilled real wages	Unskilled real wages in agriculture	Unskilled real wages in non agricultural sector	Real return to capital	Real return to land	Real return to natural resources	Skilled real wages
Middle income countries	Argentina	0.7	2.5	0.6	0.2	2.2	-2.5	0.6	0.4	1.0	0.3	0.1	0.6	-1.4	0.4
	Brazil	0.4	2.2	0.3	0.2	2.4	-1.9	0.3	0.1	0.8	0.1	0.0	0.8	-0.4	0.1
	Caribbean economies	1.0	3.3	0.7	0.3	3.4	-3.7	0.2	0.3	0.5	0.3	0.3	0.2	-2.1	0.2
	Chile	0.5	1.4	0.3	-0.1	1.2	-0.9	0.3	0.2	0.7	0.2	-0.1	0.6	-0.5	0.2
	China	0.7	1.2	0.5	-0.3	1.4	-1.3	0.7	0.6	0.8	0.5	-0.2	0.9	-1.2	0.6
	Colombia	0.5	2.9	0.2	-0.4	3.3	-2.1	-0.2	0.1	0.3	0.0	-0.2	0.2	-0.2	0.0
	Developing Asia	0.6	0.3	0.7	0.1	0.0	-0.3	0.7	0.4	0.4	0.4	0.0	0.2	-0.6	0.4
	India	0.5	0.5	0.5	-1.3	0.6	-11.6	1.7	0.4	0.5	0.4	-1.0	0.8	-8.9	1.2
	Indonesia	0.6	0.7	0.6	-0.1	0.4	-0.2	0.4	0.5	0.4	0.5	0.0	0.0	0.0	0.4
	Malaysia	-1.5	-2.1	-1.5	-4.5	-4.0	-16.3	-1.0	-1.0	-2.1	-1.0	-3.6	-4.4	-13.6	-0.4
	Morocco	0.7	0.7	0.7	-0.3	0.5	-5.4	0.5	0.5	0.7	0.5	-0.3	0.7	-3.4	0.4
	Peru	0.1	0.4	0.0	0.0	0.1	-0.7	-0.1	0.0	0.1	0.0	0.1	0.0	-0.9	0.0
	Philippines	0.5	0.5	0.5	-0.1	0.2	-0.5	0.2	0.3	0.3	0.4	0.0	0.0	-0.4	0.2
	Rest of America	2.6	7.6	1.4	0.0	8.1	-5.2	0.2	0.3	0.8	0.2	-0.1	0.6	-0.9	0.2
	Rest of Middle East and North Africa	0.0	0.1	-0.1	0.0	0.2	1.3	-0.2	0.0	0.3	-0.1	0.0	0.5	0.8	-0.2
	Rest of South America	1.6	4.1	1.0	-0.8	3.8	-6.4	0.2	0.2	1.0	0.0	-0.5	1.0	-1.7	-0.3
	Rest of World	0.2	0.5	0.1	0.0	0.8	-0.3	-0.1	0.0	0.3	0.0	-0.1	0.5	-0.4	-0.2
	South African Customs Union	0.3	1.5	0.2	0.2	1.4	2.9	0.2	0.1	0.6	0.1	0.1	0.5	2.5	0.1
	Singapore	0.4	7.2	0.3	0.2	-1.0	-0.3	0.2	0.2	1.6	0.2	0.1	0.0	1.1	0.0
	Thailand	1.5	2.5	1.2	-0.3	2.5	-5.8	1.1	0.4	-0.3	0.5	0.0	-1.6	-4.2	0.5
	Tunisia	1.2	-0.5	1.6	1.5	-3.0	-1.7	2.1	0.3	-0.8	0.6	0.6	-2.2	0.1	1.0
	Uruguay	1.3	2.6	1.0	0.0	1.7	-3.0	1.1	0.3	0.6	0.3	-0.1	0.3	-0.9	0.4
	Venezuela	-0.1	0.5	-0.2	-0.3	0.9	-1.8	-0.3	0.0	0.3	-0.1	-0.3	0.5	-2.5	-0.2
	Viet Nam	1.5	2.1	1.3	0.0	2.4	1.0	1.3	1.0	1.0	1.0	0.1	0.7	0.7	1.0
	Zimbabwe	0.8	1.6	0.5	0.4	1.2	0.1	0.4	0.3	0.8	0.2	0.0	0.9	1.5	0.4
Low income countries	Bangladesh	1.9	6.8	0.9	1.1	11.3	-3.3	0.7	0.4	0.5	0.4	0.1	0.2	0.2	0.5
	Madagascar	7.3	12.4	2.4	-4.3	7.4	-4.7	-1.4	0.1	0.4	-0.2	-0.3	0.5	0.5	-0.6
	Malawi	4.6	3.8	5.1	6.2	-1.9	-11.7	5.0	4.1	2.8	4.9	6.7	-2.6	-11.2	5.1
	Mozambique	3.5	8.6	0.9	-1.0	7.5	-4.0	-3.3	0.4	1.2	0.1	-0.2	1.0	-0.1	-1.0
	Rest of Sub Saharan Africa	3.7	7.0	1.8	-1.7	5.5	-2.7	0.5	0.0	0.2	-0.1	-0.3	0.0	0.1	-0.2
	Tanzania	0.3	0.4	0.2	-0.3	-0.1	-0.4	0.3	0.3	0.4	0.3	-0.1	-0.1	0.1	0.4
	Uganda	0.5	0.5	0.3	-0.3	-0.2	-0.5	0.3	0.4	0.4	0.2	-0.2	-0.1	-0.5	0.3
	Zambia	0.3	0.6	0.2	-0.6	0.2	0.6	0.0	0.4	0.6	0.2	-0.5	0.3	0.4	0.1

(Source: authors' calculation)