

The Doha Round of the World Trade Organization and Agricultural Markets Liberalization: Impacts on Developing Economies

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We investigate the impacts of multilateral removal of all border taxes and farm programs and their distortions on developing economies, using a world agriculture partial equilibrium model. We quantify changes in prices, trade flows, and production locations. Border measures and farm programs both affect world trade, but trade barriers have the largest impact. Following removal, trade expansion is substantial for most commodities, especially dairy, meats, and vegetable oils. Net agricultural and food exporters emerge with expanded exports; net importing countries with limited distortions before liberalization are penalized by higher world prices and reduced imports. We draw implications for current World Trade Organization negotiations.

Key words: Agriculture, developing economies, Doha, domestic policy, trade negotiations

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Many developing countries have been disappointed with the limited accomplishments of the World Trade Organization's (WTO) Uruguay Round Agreement on Agriculture (URAA). Their concerns were largely reflected in the Doha Declaration of the WTO (Kennedy et al.; Matthews; WTO 2001). Despite their divergent interests, developing countries (particularly the G20 group) emerged as a unified front at the Cancun Ministerial Meeting. Catalyzed by their frustration and realization of their new bargaining power in the WTO negotiations, developing countries focused on the lack of market access in high-income countries, especially the United States and the European Union (E.U.). The protection and support provided to U.S. and E.U. producers is perceived as "unfair" given that most developing countries cannot compete in terms of fiscal resources. The lack of market access constrains trading opportunities for exporting developing economies via tariff rate quotas (TRQs) and other trade barriers upsetting competitive exporters, a subset of the G20 and Cairns groups (Aksoy and Beghin; Anderson et al.; Martin and Winters).

Second, agricultural subsidies in high-income countries depress world market prices. Exports from some of these countries are subsidized explicitly or implicitly through production subsidies and are often "dumped" on world markets. The objective of income transfer to domestic farmers is not in question, but rather, the way it is accomplished with coupled and untargeted policies. These transfers frustrate competitive exporters in developing economies and compromise income generation in poor countries, such as in the case of cotton (Baffes). These policies may help food consumers in net food deficit importing countries (NFDICs) as long as their government does not tax them at the border. Many NFDICs' governments use trade barriers to protect their producers. Trade barriers are a regressive policy instrument that hurts poor consumers.

Among developing countries, policy interests are heterogeneous. Some natural exporters, such as Brazil and Argentina, would benefit from trade liberalization and multilateral removal of domestic farm programs. By contrast, NFDICs, such as Egypt and Middle East countries, benefit

from depressed world prices and cheaper food imports. Many countries fall between these two extremes, importing and exporting commodities with varying degrees of distortions.

With the URAA fully implemented, various market interventions in high-income economies still distort resource allocation and trade in agriculture. E.U. countries rely heavily on export subsidies and domestic support (Tangermann; Organisation for Economic Co-operation and Development). Large U.S. domestic subsidy programs subsidize crop exports. Both E.U. and U.S. border measures in sugar and dairy markets are prohibitive. Net-importing, high-income Asian countries (Korea and Japan) use strict border measures to protect their agriculture and some food sectors. Developing countries exhibit a heterogeneous set of policies. When they subsidize their farmers, they tend to rely on border measures. Overall, the scope for more efficient location of production and large terms-of-trade effects remains in agriculture. It is worth asking what would happen in unfettered markets.

This paper presents the key findings of an exhaustive investigation of the impact of trade and farm policies on world trade flows, prices, and market equilibrium (Food and Agricultural Policy Research Institute, 2002a). We report on two key scenarios of the analysis. The first one considers the total removal of all domestic farm programs and border measures (TRQs, tariffs, export subsidies) distorting agriculture. The second scenario analyzes removal of border distortions alone, leaving domestic subsidies in place, to gain additional insight on the respective effects of border and domestic distortions.

We focus on developing economies' terms of trade, trade flows, and relocation of production. With these two scenarios, we assess the policy debate and elucidate claims made by various developing members of the WTO. The Food and Agricultural Policy Research Institute (FAPRI) model used covers all temperate crops including sugar and cotton, livestock products, poultry, and dairy products. The analysis includes all major producers, consumers, exporters, and

importers in these markets. The coverage of developing economies encompasses most countries involved in agricultural production and trade of temperate crops and livestock, except Sub-Saharan Africa.

Our paper contributes to the literature analyzing agricultural negotiations in the Doha Round of the WTO (Beghin, Roland-Holst, and van der Mensbrugge; Burfisher; Francois; and World Bank 2001, 2003). Our analysis departs from the literature in its unique coverage of countries, the rich disaggregation of commodities, and the incorporation of the most recent policy information within a realistic baseline. We qualify the common views in the WTO debate that the Southern nations have much to gain from reform in the North, and alternatively that the South gain by reforming itself. We show that this monolithic North/South taxonomy has some limitation and actually obscures the understanding of the political economy of the Doha Negotiations. Protectionist and pro-reform forces transcend the North/South dichotomy and beg for a more disaggregated understanding of gainers and losers.

We present the policy scenarios and the major assumptions incorporated into the model and baseline, as well as the simulation results. See Food and Agricultural Policy Research Institute, 2002b for extensive tables with results for several scenarios and for all major producing and/or trading countries.

Policy Scenario and Background

Scenarios

We start from a reference baseline (Food and Agricultural Policy Research Institute, 2002b) that incorporates most major actual policies and policy commitments such as the URAA, the Berlin Accord on the Common Agricultural Policy (CAP), and China and Taiwan's accession to

the WTO. As the baseline was prepared in early 2002, it did not incorporate provisions of the United States Food Security and Rural Investment Act, but assumed a simple extension of the 1996 farm legislation. The main policy scenario is presented in deviations from this baseline. FAPRI (2002a) provides further details on the baseline and its policy parameters.

The main scenario (Full Trade Liberalization [FTL]) investigates the simultaneous removal of all domestic farm programs¹ and border measures, including all TRQ schemes, tariffs, and direct export subsidies such as in the E.U. CAP. We assume the reform is fully implemented in 2002. A second scenario, trade-only liberalization (TOL), considers removal of trade distortions alone. The comparison of the two policy reform scenarios allows the United States to gauge the respective contribution of each type of distortion (border measures as opposed to domestic farm programs) and to see the consequences of maintaining farm subsidies and associated constraints on land allocation, under free trade. There are some limitations to this type of scenario given the fiscal stress induced by large domestic subsidy outlays under free trade (Food and Agricultural Policy Research Institute (2002a)).

Policy Background

The analysis of domestic subsidies focuses on 34 countries that made WTO commitments to reduce significant and distorting forms of support included in the “amber box” as the aggregate measure of support (AMS). Many are developed countries (with high-income as per the World Bank 2003).² All other countries keep their AMS at less than 5 percent of the value of production (10 percent for developing members) which is deemed negligible. Among the 34 countries, only a small number use fiscal outlays for subsidy payments because of budget constraints. Hence, the bulk of domestic support is provided with market price support (MPS) policies that rely on consumer-paid instruments or trade distortions to sustain producer prices. U.S. and E.U. support

programs are significant sources of taxpayer supported subsidies in world agricultural markets. Payments in Canada, former Central and Eastern European countries, Norway and Switzerland also contribute to world farm subsidy spending, though to a lesser extent than the United States and E.U. Some of these less trade-distorting payments occur under the WTO “blue box,” because they are based on production limiting programs such as land set-aside. Currently, the European Union is the only significant user of blue-box payments. In most years, the European Union, Japan, and the United States account for 80 to 90 percent of reported AMS. Japan relies mostly on border protection to provide this farm support (Organisation for Economic Co-operation and Development).

Most developing countries limit amber-box support and their fiscal exposure by relying on market price support (i.e., border impediments) (U.S. Department of Agriculture, 1998a, 1998b; Organisation for Economic Co-operation and Development).³ The exception is domestic subsidies for cotton in developing countries, mostly put in place to shield their own producers from the world-price impact of E.U. and U.S. subsidies. The relative size of cotton subsidies in developing countries is small compared to U.S. and E.U. subsidies and suggests that their impact is small as well

Key Distortions in Agricultural Markets

Domestic dairy policies include the E.U. intervention for butter and skimmed milk powder (SMP) and production quotas, the Canadian milk marketing quotas and support prices for milk, butter and SMP, the U.S. milk support prices and Commodity Credit Corporation (CCC) stocks for butter and SMP. Hungary, Japan, and Slovakia have milk marketing quotas. Poland’s policies include milk marketing quotas, milk support prices, and intervention stocks for butter and SMP. Our analysis also accounts for the limited border duties, subsidized exports, and price support intervention schemes for meat employed by many countries. Japan, for example, has a 38.5-

percent beef duty and the specific duty implied by the “gate price” policy of pork. Similarly, South Korea and the Philippines have a 40-percent beef duty, while China’s duties of range from 12 to 20 percent for beef and 12 to 15 percent for pork. South America, a natural exporter of meat, has a zero duty for intra-MERCOSUR trade, the dominant share in their meat markets. The analysis accounts for the E.U. tariff rate quota (TRQ), out-quota duties, subsidized exports and the beef intervention scheme, with its stocks released to the market after reform, as well as Canada’s poultry TRQ and out-of-quota duties.

In the European Union, we also account for industrial rapeseed production on the set-aside land, which when reformed is returned to regular production. Without subsidies, we assume that crush demand for industrial rapeseeds is not sustained and is eliminated. The assumptions for the E.U. sunflower sector are similar, with the demand for sunflower oil reduced by the quantity produced from sunflowers grown on set-aside area in the baseline. This, however, covers about half of the industrial use. We assume that the other half is unsubsidized market demand.

All distortions on world grain markets are eliminated, including the E.U. set-aside program. Accounting for small-farm exemptions, mandatory set-aside is 7.6 percent of the total cereal and oilseed area potentially released for production. The removal of the set-aside acreage leads to a significant potential increase in total E.U. crop area, although returns are reduced with the removal of trade protection and domestic support. We assume a 10-percent decrease in yields on the area that returns to production from set-aside. We also account for E.U. rice intervention prices, tariffs, export subsidies, and direct payments, resulting in domestic prices twice as high as world prices.

In China, we remove TRQs on corn, rice, and wheat with in-quota rates of 1 percent and out-quota rates of 68 percent. In addition, procurement prices for wheat, corn, and rice are eliminated. Mexican corn farmers are still protected under the NAFTA regime by a combined

system of TRQ and tariff. Since tariffs will be phased out by 2007, however, we set them to zero in 2002. We remove India's export subsidies used in recent years to reduce its large stocks. U.S. crops are subsidized through price-conditioned payments (loan deficiency payments [LDPs]) and fixed (decoupled) payments based on a farm's historical production. In the baseline, soybeans, cotton, and rice are the only crops for which LDP programs provided any benefits.

Sugar markets are distorted and mostly by trade impediments in most producing countries. OECD support to sugar producers amounted to \$5.2 billion (average annual PSE 2000-02) and is by far the most distorted (Organisation for Economic Cooperation and Development). But many other countries provide some indirect support to their sugar producers, including low-cost producers, such as Brazil (Mitchell). The European Union, Japan, and the United States use TRQs and TRQ-like schemes to block imports with prohibitive duties on out-of-quota imports. Turkey and the Philippines have no TRQs, but have high tariffs on imports. A Colombia, Egypt, and India provide limited domestic farm subsidies to their producers, either directly or through sugar processors who rebate them to farmers. In most countries, domestic production policies are supported by trade barriers. For example, India imposes a 60 percent ad valorem duty plus a specific countervailing duty (INR 850/mt) which is higher than the minimum guaranteed price (INR 620/mt). Closed borders reduce or eliminate government outlays on these farm programs. Sugar users and consumers bear most of the production support (Mitchell).

The Interesting Case of Cotton Distortions

International cotton trade is relatively free with a world average tariff near 5 percent. Textiles protection is not part of the current agricultural negotiations and has been dealt with separately in the 1994 Agreement on Textiles and Clothing (ATC). The consensus view (Baffes) is that the indirect effect of ATC textiles barriers on world cotton markets is moderate. However, cotton markets in

many countries are distorted by domestic policies. Developing countries have provided subsidies to farmers despite their fiscal constraints. Table 1 shows the recent (2001/02) levels of domestic assistance among cotton producers.

The United States, the European Union, and China are major subsidizers of cotton production. The United States provided further subsidies than what the International Cotton Advisory Committee (ICAC) data suggest in table 1. Baffes computed \$3.6 billion of support extended to U.S. producers in 2001/02.⁴ The European Union (mostly Greece and Spain) dispensed in excess of \$0.7 billion to its producers the same year (Baffes, International Cotton Advisory Council). These support levels correspond to nominal protection coefficients of 1.87 and 2.60 (multiple of the world price). U.S. growers receive variable production subsidies and so-called “decoupled” production flexibility contract (PFC) payments, as well as some implicit export and consumption known as “Step-2 payments.” The E.U. CAP provides support payments to ginners, which are passed on in the form of higher prices to cotton growers. In Turkey, there is a premium payment calculated on the basis of seed cotton deliveries to either cooperatives or private ginners. In Egypt, a small marketing subsidy pays the difference between selling and purchase prices to farmers. The Brazilian government sets a support price.

China support for cotton production in recent years totaled about \$1.5 billion annually or about 10 cents per pound. Baffes and independent Chinese policy analysts report that there is uncertainty about subsidies reaching Chinese farmers given the complexity of Chinese policies and the unreliability of data. Chinese academic sources claim there were no subsidies in 2001/2 and 2002/03. Domestic prices were 10-15 percent lower than in the international market, and subsidies may have benefited textiles production. There is also some uncertainty regarding India’s support level. Indian cotton export restrictions reduce cotton prices in domestic markets. The price differential is hard to quantify because of regional quality differences. The government

also provides 50-percent subsidies on fertilizer for cotton production.

The reactive support provided to producers in developing economies to cope with low world prices is important to consider. Table 1 shows that Brazil, Egypt, India, Mexico, and Turkey provided significant support, with subsidies outlays totaling \$0.6 billion in 2001/02.

The Modeling Approach

The FAPRI modeling system is a multimarket, world agricultural nonspatial⁵ partial-equilibrium (PE) model. Computable general equilibrium (CGE) and PE models offer complementary and somewhat incomplete insights in policy analysis. PE models provide a finer disaggregation of products and incorporate up-to-date policy information. These models generate a more plausible baseline than the typical CGE model that uses the Global Trade Analysis Project (GTAP) database (Westhoff et al.). PE models do not model factor markets (land and labor) explicitly; they abstract from the interaction with manufacturing sectors other than food. However, most manufacturing distortions have been dramatically decreased by eight rounds of the GATT/WTO. The likelihood of feedback effects between manufacturing and agricultural distortions is small, which is a mitigating factor.

The model provides extensive geographic and commodity coverage. The model focuses on markets in which developing and developed countries compete and which are distorted by developed countries' farm policies. One caveat is that some important agricultural markets are left out of the analysis (fruits and vegetables, and other tropical products).

Functionally, the modeling system is organized into modules according to major commodity groupings—grains, other crops, oilseeds, livestock, and dairy—with country submodels. The system captures important linkages between dairy, livestock, grain, and oilseed markets. Feed prices impact dairy and livestock supply decisions, and animal inventories affect milk and meat

production.⁶ Both dairy and livestock animal numbers are used to determine feed demand, which ultimately influences feed prices. Oilseed and livestock markets are through oilseed meal demand. Vegetable oils are substitutes and compete in final consumption for consumers' income.

The model solves for world prices by equating excess supply and demand in the world market. The model is driven by two major groups of exogenous shifters. First, policy instruments are parameterized and can be altered for policy analysis. Second, the model incorporates forecasts of macroeconomic variables, such as gross domestic product, inflation rates, exchange rates, and population. Policy parameters are changed for the reform scenarios and a new baseline is computed for the same outlook period. The two trajectories are compared in deviation.

Results

Table 2 reports results with countries grouped according to their development level (developing/developed)⁷ and trade status (predominantly net exporters/net importers). The table presents trade and price results for both scenarios in deviations from the baseline for 17 commodities, and reported as average annual changes over the outlook period (2002/3–2011/2).

Exports are shown as positive and imports negative in the table. Detailed tables are available upon request showing annual impacts for both scenarios, for the full set of commodities and for trade, production and consumption. We first provide a few “big-picture” aggregate results and then we discuss the impact of the respective scenarios by country grouping.

Key Aggregate Impact Results

World prices for most commodities go up but unevenly from very high (dairy, rice, pork, and sugar) to marginally higher (soybean and wheat) (table 2). Meal prices, which suffer from the expansion of vegetable oil markets, are the exception. Oil and meal are joint products and expand or contract together. The price increases are positively related to the size of the trade distortions and/or

farm subsidies in these markets. The almost unidirectional impact on prices leads to a simple taxonomy of impacts based on the net effect on domestic prices of higher world prices offset to various degrees by the removal of trade barriers and/or domestic distortions. Unprotected importers prior to reform get hurt in unfettered markets although their producers benefit from higher prices. Users in highly protected markets gain while producers lose large transfers and face increased market discipline as long as the net impact on domestic prices is negative (e.g., vegetable oil prices in India after reform).

Aggregate trade expands for most commodities, sometimes substantially, such as world pork and poultry (table 2A). These expansions are linked to cheap feed availability (meal prices) lowering the cost of livestock production.

The two scenarios provide different impacts on trade and prices. When the E.U. set-aside is removed (FTL scenario), production and trade of crops directly affected by land restrictions expand further than under the partial reform scenario (TOL). Conversely, their world prices do not increase as much as under trade liberalization alone. Because the E.U. set-aside helps competitive exporters of crops affected by the land restriction, the elimination of blue-box policies in a new WTO agreement could be counter-productive for some competing exporters.

Impact on Developing Net Exporters

Argentina, Brazil, Thailand, Vietnam and South Africa emerge with expanded exports in a majority of products following both full trade liberalization (FTL rows) and trade liberalization alone (TOL row) (table 2B). There are a few surprises, however. Trade expansion is more pronounced under the partial scenario for many products except cotton and sugar. Cotton is largely affected by domestic subsidies rather than by trade barriers.

Under FTL, Argentina and Brazil expand their production of oilseeds. Aggregate world oilseed output does not vary much but relocation to natural exporters is massive. Brazil crushes

more and consumes more meal (7 percent), the additional domestic production does not cover this increase entirely, and meal exports are actually reduced slightly (1 percent). Brazilian soybean oil exports increase by 11 percent. The opening of soybean markets through trade-only liberalization has similar impacts on the Brazilian market, with a slightly smaller impact on area and production (3 percent).

Hence, the *multilateral* elimination of farm programs has a small effect on Brazilian soybean production relative to the gains achieved via trade liberalization alone. This result does not invalidate the contention that U.S. farm policy depresses the soybean world price, but it qualifies it in the context of multilateral negotiations that are targeting all forms of farm subsidies in high-income countries, including blue-box policies.

In Argentina, the additional 1.2 million mt of oilseed production is exported entirely. Argentina's oil production and exports contract because its crushing industry loses protection from the export tax on beans. It misses the opportunity to expand value-added exports. Argentina fares better with dairy products and expands its dairy exports substantially. Argentina, Brazil, and to a lesser extent, Thailand expand meat production and exports, helped by cheap feed meal availability. These increases in meat production and exports boost the price of feed grains.

Developing Asian exporters also benefit from rice liberalization and associated large trade expansion (29 percent). There is little difference between the two reforms because of the predominance of border distortions in most markets. Brazil is the main market for Argentine rice exports, which decline overall. Brazil experiences a trade reversal in rice and becomes a small exporter.

Cotton shows the importance of dismantling subsidies outlays and other producer subsidies. With the removal of all distortions, Africa (not shown) expands production by 6 percent (112,000 mt) and exports by almost 13 percent (158,000 mt). Brazil and Uzbekistan show a

similar result. The removal of trade barriers do as little for Africa, where production and exports expand by less than 2 percent. Table 2A indicates the results are similar for other exporters. Cotton is, of course, the extreme but powerful case of domestic production subsidies.

Developing Net Importers

Results for this group of countries are for the most part converse to the developing net exporter group. Once again there are few surprises (see table 2B). Domestic use and imports of commodities by highly-protected net importers increase as domestic market prices decrease and domestic production shrinks under market discipline. This is the case of corn imports in Mexico, wheat imports in China, and rice imports in the Philippines (not shown in table 2B). Further, highly-protected value-added activities get hit. It is cheaper to import vegetable oil and meat than to produce them domestically when facing world prices. Importers with tariffs (e.g., China, India) reduce their soybean and rapeseed production and crush given the reduced protection on oil. Increased rapeseed oil demand in India requires additional imports of about 177,000 mt. The difference between the two reform scenarios for these importing countries is often marginal as long as the world price effects under the two scenarios are close.

A few contrasting results occur with grains under the alternative scenarios. Chinese net imports of corn increase when all distortions are removed because the world price increase is moderate (recall the E.U. set-aside story). The net effect of tariff removal *cum* higher world price induces increased imports and decreased domestic production. However, net imports decrease in the trade-only scenario (TOL) because the world price increase is much stronger, and animal numbers are lower, decreasing feed demand. China's "silver lining" is the increased rice exports with trade liberalization. China is a competitive producer of rice, and the increased world price stimulates production and exports while consumers also decrease their use.

The removal of rice barriers in protected markets such as the Philippines leads to higher imports despite increased world prices. These countries tax their rice consumers and the net effect of the reforms are beneficial. Another counterpoint is the Former Soviet Union's rapeseed expansion given it is quite competitive in production of this crop.

India has somewhat mixed trade patterns, protecting many markets (oilseeds, grains) but having comparative advantage in a few important ones, such as dairy and rice. Without export subsidies, Indian wheat exports vanish and India becomes a net importer. However, India expands its rice exports given the higher world price prevailing after reforms. India becomes a net exporter of dairy products (butter and SMP) with liberalization because world price increases are large enough to make India competitive.

Developed Predominantly Exporters

There is some communality within the developed exporters group (in the North) but also with their counterparts in the South. There are several common traits among high-income exporters. Under FTL, for example, most of them expand production and exports of products for which they are competitive. Australia and New-Zealand expand their share in many markets and U.S. meat exports increase. U.S. farmers who benefited from farm programs lose much of the rents from the policies and so tend to much better under the TOL scenario. Export markets appear more enticing with higher prices. However, Australia and New-Zealand have more in common with Brazil and Vietnam since they tend to have limited trade barriers and are natural agricultural exporters. This supports our contention that coalitions of interests do not always rely on a North-South divide, as dairy and sugar illustrate very well. There is a strong contention among high-income net exporters to liberalize these bastions of protectionism, as shown in the recent negotiations of the Australia-U.S. agreement. Canada would become a net importer of all dairy

products because of increased consumption and decreased milk production. U.S. and Canadian dairy producers would lose.

There are also sharp contrasts between the two scenarios within countries with large farm programs. For example, without domestic subsidies, U.S. rice exports decrease by 118 percent. The United States eventually becomes a net importer, whereas with the second scenario (TOL) rice production is almost unchanged. U.S. cotton follows a similar logic but with less dramatic trade results. When domestic subsidies are removed, U.S. cotton production declines by nearly 7 percent and exports fall 3.5 percent. Rents from farm programs to producers would evaporate.

Developed Predominantly Importers

The biggest changes occur in the European Union, and high-income Asian countries (Japan and South Korea). Removing all distortions would induce a general contraction of agriculture and increased imports. The production and export changes for cotton, dairy, rice, and sugar are particularly dramatic. For example, E.U. cotton production falls about 79 percent and cotton net imports increase 143 percent. E.U. sugar production gets nearly wiped out and a massive trade reversal takes place. Korea and Japan use mostly trade policies to sustain their domestic programs and these collapse once borders are open. The two scenarios provide contrasting results in the European Union for crops affected by the set-aside (grains, oilseeds). The FTL scenario provides seemingly counter-intuitive production and trade expansion in crops despite lower returns because land is no longer constrained. Not all these crops expand. The new allocation responds to relative returns. For example, rapeseed acreage decreases because of lower relative domestic prices, but wheat production expands significantly and induces a 6.4 million mt increase in E.U. wheat exports. As a result, the increase in world price for wheat is dampened under the full liberalization scenario, which is somewhat counter-intuitive at first glance. The wheat price is up 5 percent after full liberalization. Consumers gain in these countries under both

reform scenarios. The removal of rice and meat trade barriers in Japan and Korea, and the European Union leads to higher imports despite higher world prices. These countries tax their consumers and the net effect of the reforms are beneficial.

Conclusions

Following removal of all distortions affecting agriculture, terms-of-trade effects are substantial but heterogeneous. Most world prices increase, except for oilseed meals. Dairy, meat, sugar, and oil prices exhibit large increases, whereas wheat and corn prices rise moderately. Trade flows are significantly affected by distortions. Substantial changes in trade occur in highly protected markets such oilseed and oil markets in India and meat markets in the Philippines, resulting in big gains for consumers in net importing countries. Net trade of all dairy products increases. Argentina, Australia, New Zealand, and India expand exports. Many OECD countries protecting agricultural production become importers and their producers lose substantially from reforms.

Significant agricultural production expansions occur in countries that are natural exporters in the developing world, such as Brazil, Argentina, and Thailand, but also in a few high-income countries, such as Australia, New-Zealand, and the United States. There is a shift from feed-grain trade to feed-intensive, value-added product trade and to increased feed use among traditional meat exporters. Several developing economies capture these expanded opportunities in valued-added agricultural markets. Argentina, Brazil, and Thailand expand their meat and/or poultry production and exports significantly. Brazil also expands its trade in oilseed value added products more than Argentina. Net agricultural consumers in low-duty countries are worse off because of substantial price increases. Their net agricultural consumption is taxed under the new terms of trade. However, many consumers in highly protected net-importing countries

(Philippines and Korea) are better off, as the unit cost of most food items decreases. We find that removing trade barriers is sufficient to benefit users of commodities and impose the discipline of comparative advantage, but not always. In markets that are highly distorted by production subsidy outlays (e.g., cotton, rice), removal of domestic subsidies in a *sine-qua-non* condition to remove inefficiencies in production and see production relocate to least-cost producers.

There have been two powerful points of view advanced in the WTO debate on agricultural trade reforms and associated welfare gains. The first is the view that the North is imposing large costs to the (unified) South with its farm policies; the second and more recent one is that large gains for the South will come from its own reforms. Our analysis shows that with qualifications, both arguments have merit but are only partial truth. Argentina, Brazil, Thailand, and Vietnam would gain a lot from a removal of agricultural distortions in the North and South. India would gain mostly from removing its own distortions but also if the North removed its dairy policies; and Iran would lose its access to cheap food imports if the North removed its distortions.

The North/South dichotomy presents some limitations because it aggregates heterogeneous impacts and interests and because it abstracts from the compensation of losers. Both in the North and the South, some countries systematically would emerge as “winners” with enhanced agricultural income from increased production and exports with higher world prices. This would occur for many commodities. While Australia and Brazil are the best examples, they are not unique. More important, the slow progress of the Doha Round can be explained by the reluctance of strong protectionist interests in the North and the South to reform because they would lose. These interest groups have effectively seized the negotiating position of their country. Protectionist interests transcend the North/South dichotomy—sugar and rice protection in the North has much in common with vegetable oil protection in China, and oilseed protection in

India. Sadly large efficiency and consumer gains could arise in many countries but are highly unlikely because of these powerful coalitions of protectionist interests.

Hence, the political economy within each country is driven by various mixtures of mercantilist and protectionist interests, which then attempt to negotiate within the WTO with little coherence. This explains the lack of progress in the multilateral process. There is no coherent view of the negotiations process even along the North/South dichotomy. Rather, the predominant force comes from protectionist interests vested in a status-quo at all development levels. The pro-reform voices are mainly the competitive exporters in the South and North. Consumer interests, absent at the negotiation table, also transcend the North/South dichotomy as many countries penalize consumers with regressive border protection (e.g., Japan and India). The sole united front within the South is the current effort to redistribute power from the old E.U.-U.S. hegemony that decided the URAA, to promote country-specific agendas. The unified position against the large E.U. and U.S. subsidies and protection reflect this power struggle rather than a push to liberalize trade, which partly explains why India and Brazil are in the same G-20 and G-5 group.

Domestic programs of high-income countries matter in many markets, although it is not always clear that these programs would remain unchanged with open borders. This is especially true for uncompetitive agricultural sectors in countries facing tight fiscal constraints and in which trade protection maintains high domestic prices. However, the claim that domestic farm programs in aggregate depress world prices has to be qualified. The reason is that the current E.U. CAP takes a large chunk of land out of agricultural production, which would otherwise be planted and depress world prices other things being equal. A progressive removal of domestic farm programs is mostly conceivable in a multilateral context such as the Doha Round. It is hard to imagine any high-income country alone committing to a unilateral removal of its offending

farm programs while other countries keep theirs. This qualifier being provided, we reiterate that most other features of U.S. and E.U. agricultural policies are supply-inducing and pro-cyclical in the sense that supply expands under lower world price signals. They also maintain production location in many high-income countries in disregard to comparative advantage.

Our analysis is very policy relevant and sheds light on the question whether Cancun was missed opportunity or a likely political economy outcome? Our analysis documents the divergent interests among negotiating parties and the Cancun “failure” is less surprising in this context. The potential welfare transfers implied by the removal of all distortions in (and within) both North and South have much explanatory power. Consumers’ interest is underrepresented in the negotiations, but the failure of Cancun can be rationalized by the diverging and heterogeneous producer-based interests. Countries with inefficient agricultural sectors are reluctant to reform and have vested interest in the status quo. This includes the LDCs afraid of losing their preferences and pushing for an unlikely cotton initiative given the entrenched U.S. cotton interests and WTO’s reluctance to single specific reforms. Within the G-20, countries like Brazil are exasperated with E.U. and U.S. farm policies and want to liberalize markets. In contrast, nations like India antagonize the European Union and United States on their subsidies but request special protectionist safeguards. Beside the G-20 group, the NFIDCs push for self sufficiency; the Cairns Group wants open borders; and new tentative coalitions (G-5, G-10, and G-90) try to wield new leverage. Last, the traditional E.U.-U.S. coalition is fragile. The U.S. 2004 election year made subsidy reduction unpalatable. In the European Union, well-intended reformers deal with their internal tensions between protectionist France and more reformist Germany and Denmark. Consumers in protected markets and competitive exporters are the biggest losers in the Cancun failure. Protectionist interests gain with a status-quo on agricultural

distortions. Producers in exporting countries and a few enlightened policy-makers are the only forces steering the negotiations in a constructive direction.

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Endnotes

1. The scenario maintains all environmental programs and policies, including the U.S. Conservation Reserve Program.
2. The countries are Argentina, Australia, Brazil, Bulgaria, Canada, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, the European Union, Hungary, Iceland, Israel, Japan, Jordan, Korea, Lithuania, Mexico, Moldova, Morocco, New Zealand, Norway, Papua New Guinea, Poland, Slovak Republic, Slovenia, South Africa, Switzerland-Liechtenstein, Chinese Taipei, Thailand, Tunisia, the United States, and Venezuela.
3. For this reason, we do not consider a separate scenario for domestic subsidies in developing countries alone as suggested by a referee, since the latter are limited and influence world markets minimally.
4. Using USDA data, Baffes computes the total support to U.S. producers of \$3.63 billion by adding \$ 2.25 billion of loan deficiency payments and marketing loan gains, 0.52 billion of market loss assistance, \$0.47 billion flexibility payments, \$0.27 billion of insurance, and \$0.13 billion of Step-2 payments.
5. The FAPRI model does not quantify Regional Trade Agreements and Preferential Trade Agreements (RTAs and PTAs) since it is a net-trade model and cannot track trade spatially.
6. Cotton and sugar are also included. They are nearly recursive to the system given their limited feedback on other crops.
7. We use the World Bank's classification of economies by income to categorize low- and middle-income countries as developing, and high-income countries as developed (see World Bank 2003, page 296).

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Table 1. Cotton production domestic support by country

Country	Production (1,000 mt)	Average Assistance U.S. cent/pound	Assistance to Production (million US\$)
USA	4,421	24	2,291
China	5,320	10	1,196
Greece	410	59	537
Spain	107	76	179
Turkey	901	3	59
Brazil	750	3	50
Egypt	314	3	23
Mexico	92	9	18
India	2,475	9	500
Africa-Benin	179	5	20
Africa-Mali	242	3	14
Colombia	33	16	12
Africa-Côte d'Ivoire	163	2	8
Argentina	74	4	7
All Countries	15,481	14	4,913

Source: International Cotton Advisory Committee

Table 2.A: Impact of policy reforms on total trade and world price

Average	Wheat		Corn		Rice		Soybean		Soybean		Rapeseed		Rapeseed		Oil	Cotton	Sugar	Beef	Pork	Poultry	Butter	Cheese	NFD	
	Wheat	Corn	Rice	Soybean	Meal	Oil	Meal	Rapeseed	Meal	Oil	Cotton	Sugar	Beef	Pork										Poultry
World Price																								
Baseline	143.58	106.15	205.38	184.23	196.42	383.53	231.09	143.90	497.55	1,115.91	214.61	1,593.02	950.22	1,329.26	1,632.24	2,268.14	1,874.47							
FTL Change	6.89	6.06	21.27	5.74	7.77	26.16	47.72	-1.78	54.96	125.77	139.32	63.68	97.54	99.22	638.59	504.24	570.72							
% chg	4.77%	5.67%	10.32%	3.14%	3.83%	6.88%	20.51%	-1.32%	11.03%	11.44%	66.18%	3.77%	10.30%	7.46%	39.56%	22.34%	30.47%							
TOL Change	10.82	6.59	21.75	5.15	8.23	23.42	52.30	-0.35	61.45	33.43	67.69	54.96	103.31	105.10	544.97	641.72	523.68							
% chg	7.60%	6.23%	10.65%	2.83%	4.16%	6.17%	22.53%	-0.21%	12.35%	2.93%	31.95%	3.28%	10.92%	7.91%	33.56%	28.58%	28.04%							
Total Trade																								
Baseline	104,404	78,338	20,349	61,922	39,085	7,706	6,704	2,428	1,479	5,658	32,015	4,107	3,186	2,982	672	967	990							
FTL Change	6,518	4,060	6,563	-120	-1,182	372	383	626	-7	143	3,747	533	914	376	57	44	66							
% chg	6.24%	5.18%	32.25%	-0.19%	-3.02%	4.82%	5.71%	25.80%	-0.50%	2.53%	11.70%	12.98%	28.68%	12.61%	8.45%	4.52%	6.65%							
TOL Change	3,804	1,304	5,617	40	-1,124	390	395	-53	-24	24	810	481	933	370	40	-54	120							
% chg	3.64%	1.66%	27.60%	0.06%	-2.87%	5.06%	5.89%	-2.16%	-1.64%	0.43%	2.53%	11.70%	29.28%	12.42%	6.02%	-5.63%	12.08%							

FTL=Full trade liberalization with removal of trade and domestic distortions

TOL=Trade liberalization alone with the removal of trade distortions only

(Thousand Metric Tons)

(U.S. Dollars per Metric Ton)

Table 2.B: Impact of policy reforms on trade*

Average	Wheat	Corn	Rice	Soybean	Soybean Meal	Oil	Rapeseed	Rapeseed Meal	Oil	Cotton	Sugar	Beef	Pork	Poultry	Butter	Cheese	NFD
<i>Developing Predominantly Exporters</i>																	
<i>Argentina</i>																	
Baseline	16,168.64	10,024.67	137.38	9,138.74	17,189.18	3,711.66				90.50	118.83	332.97	-46.70	-68.13	5.67	11.85	23.32
FTL Change	254.80	251.22	-117.98	1,189.49	-39.30	-11.21				1.76	126.77	135.20	-0.89	-13.31	7.30	23.82	7.50
% chg	1.53%	2.44%	-90.89%	12.93%	-0.24%	-0.31%				2.08%	104.55%	40.30%	2.21%	28.27%	128.77%	258.18%	32.08%
TOL Change	515.47	369.11	-122.02	1,143.30	-57.27	-15.11				-1.49	-83.35	114.00	-0.60	-13.02	5.17	17.62	5.06
% chg	3.16%	3.66%	-92.86%	12.35%	-0.34%	-0.41%				-1.94%	-73.96%	34.99%	1.65%	28.20%	91.01%	188.82%	21.61%
Brazil																	
Baseline	-7,080.28	951.27	-209.26	22,800	10,851.3	1,677.05				-228.43	11,311.48	746.07	412.74	1,968.51	-3.47	-0.63	-12.34
FTL Change	105.72	186.17	334.91	839.27	-70.88	182.61				-16.78	4,733.77	67.43	254.77	456.76	6.95	-50.42	14.83
% chg	-1.48%	27.05%	-185.29%	3.63%	-0.67%	11.00%				7.56%	41.72%	10.27%	60.53%	24.22%	-516.99%	11306%	-119.93%
TOL Change	175.52	101.21	346.25	498.79	-125.16	178.23				-15.07	2,123.04	43.34	265.95	455.11	2.88	-22.42	9.35
% chg	-2.47%	6.17%	-186.84%	2.10%	-1.17%	10.71%				6.68%	18.70%	7.22%	63.11%	24.14%	-281.85%	5176.09%	-75.56%
South Africa																	
Baseline		2,190.83									1,547.00						
FTL Change		218.44									192.34						
% chg		9.97%									12.27%						
TOL Change		235.62									11.50						
% chg		11.71%									0.72%						
Thailand																	
Baseline		-76.63	8,312.42								4,179.72	-18.34	6.82	416.33			
FTL Change		112.43	576.00								43.48	-59.89	-48.58	175.49			
% chg		109.01%	6.84%								1.19%	423.13%	-924.28%	42.24%			
TOL Change		132.75	580.01								-227.35	-60.99	-48.03	176.76			
% chg		158.32%	6.93%								-5.33%	437.00%	-919.34%	42.55%			
Vietnam																	
Baseline		-233.04	4,427.79														
FTL Change		38.13	1,098.85														
% chg		-17.59%	24.59%														
TOL Change		45.58	1,132.28														
% chg		-23.87%	25.58%														
Uzbekistan																	
Baseline																	
FTL Change																	
% chg																	
TOL Change																	
% chg																	

(Thousand Metric Tons)

FTL=Full trade liberalization with removal of trade and domestic distortions

TOL=Trade liberalization alone with the removal of trade distortions only

*Note: Positive flows are exports, negative flows are imports.

Table 2.B: Impact of policy reforms on trade (continued)*

Average	Wheat	Corn	Rice	Soybean	Soybean Meal	Oil	Rapeseed	Rapeseed Meal	Oil	Cotton	Sugar	Beef	Pork	Poultry	Butter	Cheese	NFD
Developing Predominantly Importers																	
China																	
Baseline	-4,631.36	-5,184.04	1,638.22	-17,943	-677.37	-753.33	-2,115.27	516.15	-282.83	-629.72	-1,450.67	-47.47	-162.75	-806.17	-30.13	-23.13	-28.91
FTL Change	394.95	-1,935.86	5,175.77	8.46	-183.12	-46.15	-178.81	466.63	35.37	191.58	2,416.26	-164.85	-311.04	-291.49	6.43	-6.97	10.00
% chg	-8.66%	35.93%	330.69%	-0.08%	31.98%	6.00%	8.45%	100.64%	-15.29%	-30.66%	-182.19%	-178.97%	189.52%	41.40%	-22.56%	-1.79%	-36.76%
TOL Change	874.84	945.40	3,061.89	-197.28	-84.42	-52.56	-271.17	5.82	54.07	21.02	704.30	-186.59	-339.93	-304.19	4.06	2.75	6.57
% chg	-20.84%	-28.52%	198.69%	1.06%	22.73%	7.19%	12.70%	0.95%	-24.25%	-3.29%	-53.24%	-200%	205.44%	42.69%	-13.02%	-124.65%	-23.52%
Eastern Europe																	
Baseline	-162.94	-3,202.0	-206.25	1,015.95	440.12	91.24	-200.74	-1,091.26									
FTL Change	38.81	250.98	-4.01	-43.18	85.79	27.89	1.63	-294.73									
% chg	-23.85%	-7.79%	1.95%	-4.41%	19.51%	30.88%	-0.82%	26.75%									
TOL Change	36.15	245.71	-4.14	-28.91	81.31	25.94	0.17	-362.80									
% chg	-22.18%	-7.62%	2.02%	-2.95%	18.49%	28.66%	-0.09%	33.14%									
Former Soviet Union																	
Baseline	-294.79	-499.41	-390.96	219.98	12.04	-145.35		-7,613.89									
FTL Change	8.43	9.32	-8.20	33.98	-12.51	-12.61		374.24									
% chg	-3.12%	-1.94%	2.10%	15.66%	-108.78%	8.90%		-4.95%									
TOL Change	3.56	8.92	-8.42	35.87	-13.19	-12.03		-757.47									
% chg	-1.36%	-1.85%	2.16%	16.50%	-114.29%	8.49%		9.91%									
India																	
Baseline	1,151.64	-916.68	1,447.03	2,865.38	-1,590	-64.94	430.57	92.58	-64.94	430.57	697.32				-17.68		
FTL Change	-3,856.73	179.74	1,346.45	-106.25	-76.08	-176.91	-69.09	-189.52	-176.91	-69.09	-778.07				72.04		
% chg	164.90%	-24.31%	101.87%	-3.25%	4.62%	-215.54%	363.83%	-16.10%	-125.47%						-399.12%		
TOL Change	-2,889.10	162.07	779.51	-101.53	-78.70	-170.00	8.27	-229.82	-170.00	8.27	-932.51				34.19		
% chg	132.98%	-24.85%	56.25%	-3.09%	4.80%	-251.43%	349.38%	1.95%	-143.90%						-184.72%		
Indonesia																	
Baseline	-1,573.82	-2,457.86									-2,202.74	-69.75	-0.84	-50.91	-15.35	-9.96	-113.97
FTL Change	156.86	373.17									1,145.44	-11.86	0.00	-37.84	-2.22	-0.30	-13.16
% chg	-9.84%	-16.74%									-49.89%	12.32%	0.00%	79.32%	14.42%	3%	11.55%
TOL Change	179.22	342.45									153.40	-13.87	0.00	-35.54	-2.30	-0.26	-13.44
% chg	-11.42%	-16.36%									-6.87%	15.05%	0.00%	75.52%	14.97%	2.59%	11.78%
Mexico																	
Baseline	-3,307.32	6,262.07															
FTL Change	69.47	900.14															
% chg	-2.18%	15.31%															
TOL Change	109.93	884.30															
% chg	-3.48%	14.98%															
FTL=Full trade liberalization with removal of trade and domestic distortions																	
TOL=Trade liberalization alone with the removal of trade distortions only																	
*Note: Positive flows are exports, negative flows are imports.																	

Table 2.B: Impact of policy reforms on trade (continued)*

Average	Wheat	Corn	Rice	Soybean		Rapeseed		Cotton	Sugar	Beef	Pork	Poultry	Butter	Cheese	NFD
				Meal	Oil	Meal	Oil								
Russia															
Baseline	1,229.99	-297.16						-378.63	4,989.95	1,458.36	1.10	17.14	121.08	208.62	221.39
FTL Change	43.06	21.80					8.14	-6.84	701.60	138.31	26.92	15.58	33.43	27.26	63.24
% chg	3.66%	-7.57%					-2.17%	1.27%	13.88%	9.47%	149.15%	93.19%	27.60%	13%	28.57%
TOL Change	662.78	27.16					2.72	-23.97	328.07	114.94	26.93	15.13	27.64	13.68	54.26
% chg	61.16%	-9.96%					-0.72%	3.66%	6.46%	7.87%	154.72%	91.09%	22.81%	6.72%	24.53%
Developed Predominantly Exporters															
Australia															
Baseline	18,176.42	135.04						712.20	4,989.95	1,458.36	1.10	17.14	121.08	208.62	221.39
FTL Change	76.25	-0.75					18.70	1.25	701.60	138.31	26.92	15.58	33.43	27.26	63.24
% chg	0.41%	-0.38%					4.75%	1.83%	13.88%	9.47%	149.15%	93.19%	27.60%	13%	28.57%
TOL Change	192.97	3.99					73.28	1.26	328.07	114.94	26.93	15.13	27.64	13.68	54.26
% chg	1.07%	3.32%					5.00%	1.83%	6.46%	7.87%	154.72%	91.09%	22.81%	6.72%	24.53%
New Zealand															
Baseline															
FTL Change															
% chg															
TOL Change															
% chg															
United States															
Baseline	25,221.34	58,774.41	2,853.92	28,517.23	8,178.86	1,218.41		2,328.92	-2,423.2	-153.94	303.38	3,273.75	-8.62	-137.57	117.39
FTL Change	1,106.78	2,910.37	-3,310.94	-2,126.20	-996.31	214.09		-80.51	-518.16	626.06	587.78	841.38	-47.80	68.11	61.71
% chg	4.53%	5.15%	-118.10%	-7.45%	-12.18%	17.62%		-3.50%	22.58%	-1539%	188.24%	25.37%	554.61%	-50%	52.15%
TOL Change	1,200.87	102.39	-32.37	-1,572.65	-879.60	233.35		10.99	-620.61	529.48	595.20	841.34	0.79	89.47	56.29
% chg	4.81%	0.34%	-1.20%	-5.50%	-10.60%	19.24%		0.47%	29.62%	-1245%	190.59%	25.32%	-9.20%	-65.04%	53.02%

FTL=Full trade liberalization with removal of trade and domestic distortions

TOL=Trade liberalization alone with the removal of trade distortions only

*Note: Positive flows are exports, negative flows are imports.

Table 2.B: Impact of policy reforms on trade (continued)*

Average	Wheat	Corn	Rice	Soybean	Soybean Meal	Oil	Rapeseed	Rapeseed Meal	Oil	Cotton	Sugar	Beef	Pork	Poultry	Butter	Cheese	NFD
Developed Predominantly Importers																	
European Union																	
Baseline	17,054.74	-2,149.03	-580.41	-18,910.11	-15,447.3	1,099	-430.39	-496.46	519.05	-468.68	3,734.87	404.22	1,302.01	578.31	115.84	307.50	107.26
FTL Change	6,443.37	-1,719.78	-1,931.93	78.69	1,121.12	-13.86	342.47	-991.06	-58.13	-497.97	-11,950	-467.29	-117.66	-269.49	-107.94	-124.94	-108.53
% chg	38.95%	79.68%	335.29%	-0.42%	-7.25%	-1.22%	-98.85%	214.55%	-11.64%	108.60%	-323.47%	-113.62%	-8.58%	-45.78%	-96.40%	-40%	-101%
TOL Change	1,958.23	-1,863.79	-702.05	8.30	972.55	-6.73	288.42	-45.81	-63.77	10.99	-702.57	-224.08	-118.84	-274.59	-51.80	-180.37	5.81
% chg	11.02%	86.26%	124.91%	-0.05%	-6.29%	-0.58%	-79.77%	7.90%	-12.78%	-2.41%	-19.56%	-55.48%	-8.68%	-46.65%	-53.64%	-59.78%	5.11%
Japan																	
Baseline	-5,308.50	-15,185.62	-411.34	-5,111.72	-736.08	-3.12	-2,235.89	-79.07	-29.17	-209.07	-1,531.41	-1,009.03	-1,089.54	-759.54	-2.50	-224.92	-43.41
FTL Change	70.17	-203.71	-951.81	95.39	51.76	-39.14	89.75	-33.43	-53.43	6.44	-518.65	-202.87	-291.66	88.86	-14.50	-11.02	22.86
% chg	-1.32%	1.34%	394.23%	-1.87%	-7.17%	2729%	-4.02%	43.37%	201.68%	-3.05%	33.92%	20.24%	26.20%	-11.75%	886.30%	6%	-51.17%
TOL Change	79.24	-185.77	-468.35	99.43	78.58	-40.31	90.78	-25.76	-50.21	2.16	-187.77	-206.73	-285.16	91.39	-12.65	-3.97	-1.74
% chg	-1.49%	1.22%	200.97%	-1.94%	-10.84%	2828%	-4.07%	33.51%	188.90%	-1.03%	12.27%	20.64%	25.59%	-12.08%	720.29%	2.35%	5.96%
South Korea																	
Baseline	-7,236.50	-142.42	-1,448.1	-1,460.22	-1,448.1	-193.13				-270.07	-1,499.67	-305.64	-95.27	-106.52	-2.00	-58.89	-3.50
FTL Change	129.37	-1,140.50	10.95%	10.95%	5.70	-5.41				6.73	-64.39	-58.11	-74.02	-56.71	-9.39	-10.18	-18.45
% chg	-1.75%	1023.28%	0.00%	3.04%	0.00%	3.04%				-2.48%	4.22%	18.93%	77.04%	52.93%	509.57%	17%	629.48%
TOL Change	133.79	-839.35	25.02	25.02	15.23	-4.53				1.84	-87.91	-60.16	-72.36	-55.77	-10.29	-8.95	-19.17
% chg	-1.83%	754.16%	-1.72%	-1.72%	-0.76%	2.50%				-0.68%	5.85%	19.62%	75.32%	52.04%	564.75%	14.72%	650.28%
Taiwan																	
Baseline	-4,891.01	57.36	-29.53	-2,307.24	-45.93	-87.27				-241.47		-95.18	-85.07	-63.96			
FTL Change	167.26	-29.53	-54.45%	-7.69	60.65	2.33				16.06		-0.49	-28.93	-46.08			
% chg	-3.40%	-54.45%	0.34%	0.34%	-122.27%	-2.01%				-6.64%		0.45%	31.41%	87.60%			
TOL Change	180.55	-31.66	-23.21	-23.21	78.83	4.32				5.42		-0.62	-31.96	-47.33			
% chg	-3.68%	-57.15%	1.01%	1.01%	-188.36%	4.62%				-2.24%		0.60%	35.40%	91.31%			

FTL=Full trade liberalization with removal of trade and domestic distortions

TOL=Trade liberalization alone with the removal of trade distortions only

*Note: Positive flows are exports, negative flows are imports.