Triggers, Remedies and Tariff Cuts: Assessing the Impact of a Special Safeguard Mechanism for Developing Countries

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Abstract

On July 30, 2008, the WTO negotiations broke down because Members could not bridge their differences on the operation of a Special Safeguard Mechanism (SSM) for low-income countries. This study evaluates two scenarios concerning the recent July (2008) SSM proposal – one in which low-income countries are allowed to breach their pre-Doha bound tariffs and one in which they are not -- using a global, stochastic, partial equilibrium model of world wheat markets. We find that the July (2008) SSM proposal is not very trade distorting despite leading to sizeable SSM duties. Moreover, the question of whether developing countries should be allowed to exceed their pre-Doha bound tariffs depends heavily on the product under consideration, the extent of tariff cuts to bound rates, and the gap between a Members bound and applied tariffs, particularly when the volume-based SSM remedies are used.

Introduction

Negotiations over the *Special Safeguard Mechanism* (SSM) for developing countries in the WTO's agricultural negotiations intensified in July of 2008, and ultimately, proved to be a major reason for the failure of the WTO talks that were expected to produce the final modalities texts for agricultural reform. That a relatively technical detail in the WTO negotiations such as the SSM would lead to the collapse of the mini-ministerial meeting in Geneva came as quite shock to international trade economists and policy makers alike. Why would negotiators fail to deliver on the prospect of a new round of agricultural reforms over a temporary SSM tariff that is designed to counter import surges or sharp price declines? After so much had been agreed in the lead up to the final ministerial meeting among negotiators such as cuts to countries' high bound tariffs, reductions in the overall level of trade-distorting domestic support, and improving market access conditions in controversial tariff-rate quota trade, it is surprising that developing countries seemingly walked away from the negotiations over the SSM.

From a developing country perspective, the new round of negotiations (termed the Doha Development Agenda, or DDA) is designed to take into account more seriously the special needs of low-income countries. WTO provisions that address the needs of developing countries fall under the umbrella of *Special and Differential Treatment* (SDT). However, the breakdown of the negotiations on July 29, 2008 in Geneva was not about SDT more generally. Many of the SDT provisions for low-income countries, at least in terms of market access, have already been worked out:

- Developing country tariff cuts will be two-thirds of developed country commitments;
- Even smaller tariff cuts will be allowed for Small Vulnerable Economies (SVEs) and Recently Acceded Members (RAMS);

- Low-income countries will be allowed to exclude a certain number of special products[1] from reforms; and
- Least Developed Countries (LDCs) will be exempt from tariff cuts.

The collapse of the WTO negotiations concerning agricultural trade was more about one particular trade policy tool (the SSM) under SDT. In fact, most sources contend that the breakdown of the WTO talks wasn't even about the SSM in general since many of its technical parameters are already on the table. At issue was one particular instance of the SSM and that is whether low-income countries should be allowed to exceed their pre-Doha bound tariff rates when the SSM is triggered (WTO 2008; Bridges 2008). Two important points are worth noting at this point. First, it appears that developing countries want the maximum amount of flexibility to levy additional SSM duties to protect small-scale farmers even if it means breaching pre-Doha bound tariff levels. Second, for some products in developing countries, applied and bound tariffs are very similar making it almost impossible not to exceed pre-Doha bound tariff rates when the SSM is triggered. Vegetable oils in India and many agricultural tariffs in China due to its recent accession to the WTO are two examples.

WTO Members currently have recourse to other safeguard measures such as general WTO Safeguards under Article XIX of the General Agreement on Tariffs and Trade (GATT) which apply to all products, not just agricultural goods, as well as the *Special Agricultural Safeguard* (SSG) established under Article 5 of the Agreement on Agriculture during the Uruguay Round. However, there are at least three reasons why developing countries are calling for a new SSM.

[1] Special Products will be subject to "more flexible treatment" through lower tariff reductions over longer implementation periods. At the WTO ministerial Conference in Hong Kong in December 2005, Members agreed that developing countries will have the flexibility to self-designate an appropriate number of SPs but this designation should be guided by indicators of food security, livelihood and rural development initiatives.

First, the general WTO Safeguard requires an injury test as well as the provision of compensation when it is used. Proving injury and providing compensation are often beyond the technical and financial capabilities of low income countries (Grant and Meilke 2006; Sharma 2006). Moreover, developing countries argue that by the time injury to local farmers is demonstrated, the damage from import surges or price declines has already occurred. Second, the Uruguay Round SSG was created specifically for agricultural products and does not require and injury test nor the provision of compensation if it is used. However, the SSG is restricted to those products that were included in the tariffication process, a process that applied to fewer than 20 percent of agricultural tariff lines in developing nations (Valdes and Foster 2005). Most developing countries set bound tariffs outside of the tariffication process because they did not apply non-tariff barriers prior to the Uruguay Round. As a result, SSG use since the start of the Uruguay Round has been dominated by developed countries (Grant and Meilke 2006).

The commitment to a new SSM for developing countries is recognized in all of the draft modalities texts tabled to date, but continued disagreement over the exact parameters of the SSM (i.e., trigger levels and additional duties), as well as the question of whether developing countries should be allowed to exceed their pre-Doha bound tariff rates supports the need for research on the issue. A safeguard mechanism is similar to a variable levy that has the implied objective of stabilizing staple commodity markets should imports exceed or prices fall below and exogenous trigger level, defined as the most recent three year average of imports or prices, respectively. Developed countries might accept a new safeguard mechanism if it does not shut off export markets; does not lead to a significant increase in protection on average than what is currently in place; and entices low-income importers to reduce tariffs more than in the absence of an SSM.

In this study we use a global, stochastic, partial equilibrium model developed in Grant and Meilke (2006) to quantify the impact of the recent July Package proposal for tariff cuts and the SSM (herein refereed to as the July Package and July Package SSM, respectively). Three scenarios are evaluated. First, we cut world wheat tariffs according to the July Package formula (WTO 2008) and save the results. Second, we run the same tariff cutting exercise as in scenario one, only this time we allow developing and least-developed countries the right to the July Package SSM but do not allow them to exceed their pre-Doha bound tariff rates when the SSM is triggered. In the final scenario, we repeat scenario two but remove the provision that developing and least-developed countries are not allowed to exceed their pre-Doha bound tariff rates. To keep the analysis tractable, we focus only on world wheat markets that are generally a staple commodity in many low-income countries.

This study addresses three economic questions:

1. Can the SSM stabilize domestic wheat markets in low-income countries?
2. How costly is the proposed SSM, particularly when we allow developing and least-developed countries to exceed their pre-Doha bound rates?
3. How often will low-income countries make use of the SSM?
4. What is the size of the additional SSM duties and how often will developing countries exceed their pre-Doha bound tariffs?

The economic impact of an SSM depends largely on: (i) the depth of the price (import) fall (surge) relative to the trigger level; (ii) the size and scope of the tariff cutting formula; (iii) the magnitude of the additional SSM duties; and (iv) the frequency with which developing countries actually make use of the SSM. Results from this study will provide important

economic insight for policy makers that will help guide the remainder of the negotiations over the SSM.

This study is organized as follows. Section two reviews the WTO negotiations over the SSM and presents a graphical illustration of its design. In section three, we provide an overview of the magnitude of the additional duties using 2006 applied and bound tariff levels for cereals published by the WTO (WTO 2008). Section four introduces the model and data. Section five discusses the results. In the final section we conclude.

A Summary of the SSM Negotiations

The need for an SSM has been recognized in several WTO documents. Too briefly recount, on 12 February 2003, Stuart Harbinson, then Chair of the Agricultural negotiations, tabled the first draft of modalities texts for agricultural reform. This was followed by a revised modalities draft on 18 March 2003. Both "blueprints" articulated that the Uruguay Round SSG will cease to apply for developed countries and a well-designed SSM will form part of an acceptable agricultural package for low-income countries, subject to further technical work (WTO 2003a; 2003b).

In the 13 September 2003 Draft Cancún Ministerial Text, Mexican Foreign Minister Lois Ernesto Derbez suggested that: "A special agricultural safeguard shall be established for use by developing countries subject to conditions for products to be determined," (WTO 2003c, p. A-3). Paragraph 42 of the "Framework Agreement" tabled on 31 July 2004, also committed WTO Members to establishing an SSM for use by developing nations but no progress over its design or implementation was made (WTO 2004, p. A-6, 2004). By the end of the Hong Kong Ministerial

Conference in December of 2005, Ministers finally agreed that the SSM shall be established only for developing countries and will have both a *price and a volume triggers* (WTO 2005).[2]

At this point, it was clear that the new SSM for developing countries will be similar in structure to the Uruguay Round SSG with both price and volume remedies. Three months later, the G33, a group of (now 42) developing countries tabled the most concrete proposal for an SSM (WTO 2006). [3] The G33 proposal for an SSM was an important building block in the WTO negotiations because many aspects of the proposal formed the basis of Chairman Falconer's first and second modalities texts on 8 February 2008, and 19 May 2008 (WTO 2008a; WTO 2008b). However, the size of the import surge or price decline required to trigger the SSM, as well as the additional duties in Chairman Falconer's first and second revisions contained numerous bracketed options in the draft texts that implied a multitude of scenarios.[4] In many ways, the bracketed text reflected the divergent views among WTO Members.

When Falconer's third revision was tabled in July 2008 (WTO 2008c), it appeared that WTO Members' had reached a consensus on many of the technical aspects of the SSM, except for the question of whether developing countries should be allowed to exceed their pre-Doha bound tariff rates. Members' differences on this issue proved to be irreconcilable and ultimately lead to the collapse of the WTO negotiations.

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[2] After nearly five years of negotiations, this is the first time that Members hinted about the possible design of the SSM.

[3] As of April 2005, the 42 Members of the G33 were: Antigua and Barbuda, Barbados, Belize, Benin, Botswana, China, Congo, Cote d'Ivoire, Cuba, Dominican Republic, Grenada, Guyana, Haiti, Honduras, India, Indonesia, Jamaica, Kenya, Korea, Mauritius, Madagascar, Mongolia, Mozambique, Nicaragua, Nigeria, Pakistan, Panama, Peru, Philippines, Saint Kitts & Nevis, Saint Lucia, Saint Vincent & Grenadines, Senegal, Sri Lanka, Suriname, Tanzania, Trinidad and Tobago, Turkey, Uganda, Venezuela, Zambia, and Zimbabwe.

[4] For example, the lowest volume surge, a five to ten percent increase in average import volumes over the most recent three-year period, will trigger additional duties of 40 percentage points or half the current bound rate, whichever is higher. In another scenario, no duties will be imposed until imports reach at least 30 to 35 percent above the reference level with additional SSM duties not exceeding 20 percentage points or one-fifth of the current bound rate. Other bracketed provisions constrain SSM duties within the maximum bound tariff rates established in the UR. The price-based SSM, contains similar options and scenarios.

Concerns with the G33 and July Package Safeguard Mechanisms

In this section, we review the structure and design of the G33 and July Package proposals for a new SSM in more detail. As it turns out, we can gain a number of insights surrounding the problem areas of the proposed SSM by presenting a simple graphical analysis of the trigger levels and additional duties.

In both the G33 and July Package SSM proposals, the calculation of the volume trigger is equal to the average of the most recent three year period for which import data are available. The price trigger is defined analogously and is equal to the average monthly c.i.f import price in the most recent three year period for which data are available (WTO 2006; WTO 2008c). WTO Members are largely in agreement with the calculation of the trigger levels and the reference periods. Moreover, Sharma (2006) shows that a three or five year moving average of prices and import volumes provide reasonable reference periods for low-income countries. Because of the disagreement over the magnitude of the additional duties concerning the volume trigger, we start by discussing its operation first.

Volume-Based SSM

The magnitude of the volume-based SSM duty depends on the surge in imports under. Table 1 illustrates the potential size of the additional SSM duties under the G33 and July Package proposals for three countries (India, Bangladesh, and China) using the most recent applied and bound tariff data for cereals based on the WTO World Tariff Profiles 2006 report (WTO 2008d).[5] There are minor differences in the depth of the import surge required to trigger the volume-based SSM between G33 and July Package SSM proposals. For example, to trigger the volume-based SSM the G33 proposal requires an import surge greater than 105 percent of the

[5] We focus on cereals because wheat is used as our case study in the simulation exercise. Moreover, a detailed assessment of the potential SSM duties across all agricultural sectors is beyond the scope of the current study.

trigger level. Higher additional duties are triggered for imports greater than 110 percent but less than or equal to 130 percent of the volume trigger, and greater than 130 percent of the volume trigger. In the July Package SSM, the import surge must be greater than 110 percent before the volume-based SSM can be used. The remaining bands are set at 115 and 135 percent of the volume trigger.

More significant differences between the G33 and July Package SSM proposals occur when we look at the size of the additional duties for two developing countries (India and China) and one least-developed country (Bangladesh) in Table 1. The variables *Tb* and *Ta* denote each country's bound and applied tariff rates for cereals products in 2006, respectively. The G33 proposal allows for much larger additional duties within its respective bands with coefficients of 50, 75, and 100 percent of bound tariffs or 40, 50, and 60 percentage points, whichever is higher. This compares to 25, 40, and 50 percent of bound tariffs or 25, 40, and 50 percentage points, whichever is higher in the July Package SSM. Thus, for a given bound tariff level, the additional SSM duties under the G33 proposal will be roughly double those of the July Package.

What is noteworthy about Table 1 is that if countries chose to apply the maximum additional SSM duty with no restrictions on exceeding pre-Doha bound tariff levels (the main sticking point in the negotiations), then the resulting applied tariff rates are likely to disrupt, if not shut off, normal trade patterns. For example, India's 2006 bound and applied tariff rates were 120 and 40 percent, respectively. For a volume surge greater than 130 percent above the trigger level in the G33 proposal, India is permitted to apply an additional SSM duty of 120 percent bringing its new applied tariff rate to 160 percent! Even under the July Package (assuming pre-Doha bound tariffs can be breached), the new applied tariff rate for India is 100 percent after

applying a 60 percent SSM duty and a volume surge of greater than 130 percent of its trigger level.

Moreover, least-developed countries that are not making tariff cuts and have even larger gaps between bound and applied tariff rates will gain a lot of policy flexibility with the SSM. Bangladesh's bound tariff rate for cereal imports averaged 200 percent in 2006. This translates into a 200 percent safeguard tariff under the G33 proposal and 100 percent safeguard tariff under the July Package SSM if import penetration is greater than 130 percent (Table 1).

China's situation is different because bound and applied tariff rates are very similar given its recent accession to the WTO. This is one case where it is difficult to argue that pre-Doha bound tariffs (or those bound tariffs agreed to under accession) should serve as an upper bound for the application of SSM duties. Not allowing China to exceed its bound tariff level would effectively eliminate the SSM policy altogether. This is an important point. When additional SSM duties are tied to current bound tariff levels as in the July Package or G33 proposal, countries with similar applied and bound tariff rates have no choice but to exceed their bound tariff levels when the SSM is triggered.

Price-Based SSM

Figure 1 illustrates the operation of the price-based SSM. This time however, we add in the Uruguay Round safeguard for comparison.[6] The G33 price-based SSM allows for full compensation (expressed as a percentage of the import price) once prices fall below the price trigger. Letting P^m denote the current *c.i.f.* import price in local currency and *PT* the price trigger level, the remedy allowed under the G33 price-based SSM is: *Pm/PT-1*. However, as Figure 1 demonstrates, prices must fall by at least 10 percent below the trigger level before the SSM is

[6] We did not evaluate the Uruguay Round SSG when discussing the volume SSM above because the SSG is not very trade distorting and the issue of exceeding bound tariff levels is almost of no consequence since the volume-based remedy under the SSG is simply equal to one-third of the country's applied tariff rate.

triggered. The July Package modified the G33 price-based remedy in two ways. First, the *c.i.f.* import price must fall by greater than 15 percent below the trigger level before an SSM duty may be imposed (Figure 1). Second, the price-based remedy is equal to 85 percent of the fall in the import price below the trigger level. Thus the July Package does not allow Members to fully offset price declines.

Illustrated in Figure 1 is a hypothetical situation for a developing country importer with a price trigger of $100. The horizontal axis measures the percentage fall in the import price below the trigger. The vertical axis measures import prices and each line traces out the behavior of import prices when an additional price-based SSM duty is added to applied tariff rates. As noted, the G33-SSM fully compensates the price fall such that import prices of $100 are maintained as long as the depth of the price decrease is greater than 10 percent below the trigger. The July Package compensates for 85 percent of the price fall. Thus, import prices decrease linearly beyond a 15 percent fall below the price trigger. On the other hand, the UR SSG allows for higher additional SSM duties the greater the fall in the import price below the trigger but never allows for the compensation provided in the G33 or July Package SSM.

To see this, Figure 2 plots the size of the additional price-based SSM duties as we allow the import price to fall by up to 90 percent below the price trigger. Interestingly, all three proposals (G33, July Package and the UR SSG) could potentially exceed pre-Doha bound tariff levels if the price fall below the trigger is severe. For example, if import prices fell by 60 percent below the trigger level, the July Package (G33 proposal) would trigger a 198 (233) percent SSM tariff. These additional duties are more than double the SSM duties generated by the UR SSG. If the SSG was continued, a 60 percent fall in import prices below the trigger level would generate a more modest 86 percent SSM duty.

Why Do Developing Countries Need an SSM?

A final concern of the SSM relates the difference between bound and applied tariff rates in developing and least-developed countries. Figure 3 shows the simple average difference in bound and applied tariffs for cereal products across five country groupings: (i) Least-Developed Countries (LDC); (ii) Developing countries; (iii) Small Vulnerable Economies (SVE); (iv) the CAIRNS group; and (v) the G33 group of developing nations. What is interesting about Figure 3 is that low-income countries appear to have a natural safeguard mechanism built into their tariff schedules. In other words, developing countries could, in principle, offset volume surges or price declines by simply raising applied tariffs within their bound duty levels. The gap between bound and applied tariffs in LDCs is 61 percentage points. In other words, LDCs have the ability to raise applied tariff rates by a magnitude similar to the final maximum duty option (60 percent) in the G33 proposal when the import surge exceeds 130 percent. The G33 and SVE countries have similar flexibility with 54 and 41 percentage point gaps between applied and bound tariff rates.

Why are countries with such large differences between their bound and applied tariffs worried about an SSM? As Grant and Meilke (2006) point out, there are at least three reasons why a country might not want to raise applied tariffs. First, applied tariffs are usually specified in domestic legislation and are not easily changed. Second, raising applied tariffs makes it clear that the government is favoring domestic producers over domestic consumers. Finally, while wheat tariffs might not be a problem for most low- income countries, there may be a few politically sensitive commodities where applied and bound tariffs are very similar. If a country wants an SSM for even a few commodities, it must support the proposal to create this mechanism for all commodities.

Stochastic Simulation Model

This section briefly reviews the stochastic simulation model used to evaluate the July Package SSM proposal.[7] The model is a static, synthetic, stochastic, global, partial equilibrium model of the world wheat sector calibrated to supply and demand data averaged over the 1999-2001 reference years.[8] The model includes 38 countries/regions, 32 of which are net importers. The equations used to represent a typical wheat importing country include a domestic price linkage equation which relates the importing country's domestic price to the world price adjusted for the exchange rate, the applied tariff rate, and potentially, an additional SSM tariff.[9] The price linkage for net exporting countries are similar except there is no adjustment for tariffs, and modifications are made to handle domestic farm programs discussed below.

Local wheat supply and food and feed demands are a function of the domestic price. Net trade for each country (defined as net exports) is calculated with beginning and ending stocks held fixed. Global market-clearing determines the world price by forcing to zero the sum of net trade across all countries. The parameters in the model are derived from elasticities in the Organisation for Economic Co-operation and Development's AGLINK model (OECD 2002)[10].

In order to simulate the operation of the July Package SSM, pseudo-random error terms, which are derived from the residuals of trend regression equations for each country are incorporated into the supply, food demand and price linkage equations. Random shocks to an

[7] More specific details on the modeling framework can be found in Grant and Meilke (2006).
[8] One may note that our reference years are somewhat outdated given that the final year of developing country implementation of the UR market access commitments was 2004. In light of this fact, the reader should interpret the simulation results of the SSM as an upper bound.
[9] Supply, distribution, and trade flows of wheat are obtained from the PS&D database (U.S. Department of Agriculture, 2002b). FAOSTAT data are employed where data are missing (Food and Agriculture Organization). World prices for wheat are taken from the OECD database and reflect the free on board (fob) U.S. dollar price per-metric ton of wheat. Exchange rate data are from the U.S. Department of Agriculture's (USDA) Agricultural Exchange Rate Database and the International Monetary Fund's *Financial Statistics Yearbook* for the period 1999–2001 (International Monetary Fund, U.S. Department of Agriculture 2002a). Tariff data are from the Agricultural Market Access Database (AMAD) and, in some cases, from United Nations Conference on Trade and Development's (UNCTAD) Trade Analysis and Information System (TRAINS) database.
[10] The elasticities are provided in Grant (2003) and available from the authors upon request.

individual country's supply and food demand results in random net imports. As imports increase, the volume trigger of the SSM can be breached and the importing country is allowed to impose an SSM duty. [11] Because of the pseudo-random errors, not all importers will breach the volume trigger at the same time. To introduce some differentiation in domestic price movements, a pseudo-random error term is attached to the exchange rate in each country's price linkage equation. In this way some countries will apply the price based safeguard while others are not and the size of the additional duty allowed will vary across countries depending on the size of the error term.[12]

Ad valorem tariffs are the primary policies considered. However two domestic policies are incorporated into the model: the U.S. loan rate and the EU's intervention pricing system. In the U.S., the average loan rate for wheat during 1999-2001 was US$94.80/mt and the average farm price was US$96.63/mt. Thus, in the benchmark equilibrium, the loan rate is not binding. However, in the stochastic simulations, the farm price may drop below the loan rate. In this case, the price received by U.S. producers is not allowed to fall below the loan rate and the government cost of an implied deficiency payment equal to the difference between the loan rate and the market price is calculated. We assume that U.S. consumer prices for food and feed demand are allowed to follow market prices to levels below the loan rate.

The EU paid substantial export subsidies on wheat in 1999 and 2000, when the intervention price was 119 euro/mt. However, almost no export subsidies were paid in 2001, when the intervention price was lowered to 101 euro/mt. The WTO notifications show that EU export subsidy payments averaged 15 euro/mt in 1999-2001. Thus, we assume that the EU farm

[11] Due to the potential size of the additional volume based SSM duties (discussed shortly), we added an autarky condition to each WTO developing country's net trade equation (5) that does not allow them to switch to a net exporter in the model.

[12] Due to the low quality of domestic price data that exists for many developing and least-developed countries, it is extremely difficult to introduce shipment-by-shipment price variability for each country.

price equals the average intervention price and a 15 euro/mt export subsidy payment is incorporated by defining an EU export price for wheat. This export price is equal to the farm price minus 15 euro/mt or 95.6 euro/mt. When the world price falls below the 110.6 euro/mt average intervention price, the appropriate export subsidy is calculated.

WTO Members have agreed on a tiered approach to cutting tariffs as contained in the July (2008) Package. In the policy scenarios, we are interested in the cost and stability implications of the July Package SSM when it is used in conjunction with tariff cuts. Modeling the SSM in conjunction with a tariff cutting exercise is important because the additional volume-based SSM duties are tied to bound tariff levels such that deeper cuts to bound tariffs will result in smaller additional SSM duties.

Developed countries have four tiers of less than or equal to 20 percent, greater than 20 percent but less than or equal to 50 percent; greater than 50 percent but less than or equal to 75 percent, and greater than 75 percent. The tariff cuts in these bands correspond to 50, 57, 64, and (66) or (73) percent respectively (WTO 2008).[13] Developing countries have tiers of zero to less than or equal to 30 percent; greater than 30 percent but less than or equal to 80 percent; greater than 80 percent but less than 130 percent; and greater than 130 percent. Developing country tariff cuts are equal to two-thirds of the developed country cut within the respective bands. Least-developed countries are not required to make tariff cuts.

In each liberalization scenario, the EU's intervention price is lowered from 110.6 euro/mt to 101 euro/mt, its actual value since 2001, while the U.S. loan rate program is left unchanged.

Results

Three policy experiments are conducted. In scenario one (July Package Tariff Cuts) we assess the impact of the July 2008 tariff cutting proposal. In scenario two (Tariff Cuts with July

[13] In the model we cut tariffs by 66 percent in the final developed country band.

Package SSM & Pre-Doha Bound Tariff Cap) we assess the market stability and welfare implications of the July Package SSM for developing and least-developed countries simultaneously with the July 2008 tariff cuts and do not allow low-income countries to exceed their pre-Doha bound tariff levels when the SSM is triggered.[14] Scenario three (Tariff Cuts with July Package SSM & No Pre-Doha Bound Tariff Cap) is identical to scenario two except we allow developing and least-developed countries to exceed their pre-Doha bound tariff levels. Scenario one is measured with respect to the benchmark equilibrium (1999-2001). To isolate the cost and stability implications of the SSM, scenarios two and three are judged with respect to the tariff cutting scenario alone (scenario one) and not the benchmark equilibrium. The policy results are obtained by averaging the results over 1000 drawings of pseudo-random errors. In this way, it is possible to measure the number of times the SSM is triggered, the size of the additional duties and its effects on the stability of key market variables.

Scenario 1: July Package Tariff Cuts

The impacts of the July 2008 tariff cuts from bound rates are modest (Table 2). World prices rise by only 3.91 percent and most of this price rise (two percentage points) is due to lowering the EU intervention price. This result is driven by the large differences between applied and bound tariffs. Cutting bound tariffs only results in a reduction in applied rates in four countries: Japan, Egypt, Nigeria, and a group of other developed countries (DCG) (Iceland, Switzerland and Norway).[15] However, domestic prices are more stable for 30 out of 31 net importing countries (the exception being Brazil) (Table 2). In Japan and the DCG, large tariff cuts result in a decrease in the standard deviation of their domestic price by over 38 and 41 percent, respectively.

[14] Least developed countries are granted an SSM in the model but are not required to make tariff cuts.
[15] The only reason the July Package Tariff Cuts forced a reduction in Egypt's applied tariff rate is because Egypt's bound and applied rate are both five percent.

Globally, world welfare increases by 1.15 percent or $1.28 billion (Table 3).[16] However, the distribution of welfare changes is mixed. Developed importers gain 21.75 percent on average due to the large tariff cuts (and welfare gains) in Japan and the DCG. Developing and least developed countries lose 2.27 and 2.78 percent, respectively, due to higher world prices. All four developed exporters gain by an average of 1.52 percent due to higher world prices for wheat exports.

Scenario 2: Tariff Cuts with July Package SSM & Pre-Doha Bound Tariff Cap

The July Package SSM with a bound tariff cap at pre-Doha levels results in domestic prices rising in 23 out of 31 low-income countries but becoming less stable in 21 out of 31 low-income countries (Table 2) relative to cutting tariffs alone. Remarkably, the SSM stabilized import volumes (over and above cutting tariffs alone) in 27 out of 31 low-income countries. Moreover, if we restrict our attention to the 25 low-income WTO Members eligible to use the SSM, imports are stabilized in 24 out of 25 cases. World prices fall only slightly (-0.90 percent) as a result of the SSM and become less stable with the standard deviation increasing by over 16 percent compared to scenario one (see appendix I for full list of results).

Several countries including Mexico, Morocco, Tunisia, the United Arab Emirates, and many least-developed countries experienced large increases in the standard deviation around domestic prices. This result is driven by the size and frequency with which they apply the SSM. For example, Morocco increased its domestic price instability by 165 percent because it applies

[16] The countries in each group are: (1) Exporters – Australia, Canada, EU-25; U.S., Argentina, and Kazakhstan; (2) Developed Importers – Israel, Japan and a group of developed importers (DCG); (3) Developing Countries – Algeria, Brazil, China, Columbia, Egypt, Indonesia, Iran, Iraq, Malaysia, Mexico, Morocco, Nigeria, Peru, Philippines, South Korea, Tunisia, United Arab Emirates, Venezuela and six geographically aggregated groups consisting of African developing countries (AFD), Central American developing countries (CTA), South American developing countries (STA), Asian developing countries (ASG), Middle East developing countries (MEG) and a Rest of the World (ROW) group; and (4) Least Developed Countries – Bangladesh, Ethiopia, Yemen and two geographically aggregated groups consisting of South African least developed countries (SAG) and North African least developed countries (NAG).

the volume safeguard almost 30 percent of the time (296 times out of 1000), well above the 13.7 percent average for all eligible SSM countries. Moreover, the size of Morocco's applied tariff rate plus the additional volume based SSM averaged 87 percent which is among the highest of all developing countries. Bangladesh increased its domestic price instability by some 574 percent (appendix I) not necessarily because it applied the volume or price SSM excessively (26 and 18) percent of the time, respectively) but because its additional volume-based SSM duties ranged from 50 percentage points (25 percent of its bound tariff) to 100 percentage points (50 percent of its bound tariff), well above the average volume-based SSM duty of 36 percent.

On the other hand, there are several countries that stabilized domestic prices using the July Package SSM for wheat. For example, the Philippines and South Korea used the price-based SSM 29 and 33 percent of the time, very similar to Morocco and Bangladesh's use of the volume trigger discussed above. However, the Philippines and South Korea increase and stabilize their domestic wheat prices because they apply they impose smaller price-based additional SSM duties. The average price-based SSM duty for these two countries is 3.8 and 3.9 percent, respectively.

The welfare cost of the July Package SSM is $204 million (Table 3), compared to a welfare gain of $1.28 billion from trade liberalization (i.e., cutting tariffs alone). Thus, 84 percent of the increase in world welfare is still realized when low-income countries are granted an SSM. All wheat exporters (Australia, Canada, EU, US, Argentina and Kazakhstan) lose slightly when low-income countries are granted an SSM. Nineteen out of 29 low-income importing countries gain by using the SSM; however, for least-developed countries, the losses in Bangladesh (-2.86 percent) and Ethiopia (-0.55 percent) are large enough to result in an average loss (-0.41 percent) for all least-developed countries.

Scenario 3: Tariff Cuts with July Package SSM & No Pre-Doha Bound Tariff Cap

This final scenario is analogous to the previous scenario except that we allow developing and least-developed countries to (potentially) exceed their pre-Doha bound tariff rates when the SSM is triggered. In the interest of space most of the discussion will focus on the frequency of application and additional SSM duties. In terms of market stability, domestic prices in 24 countries (versus 21 in scenario two) out of 31 low-income countries become less stable (Table 2). Twenty-five (versus 27 in scenario two) low-income countries stabilized imports. Moreover, allowing low-income countries to breach their pre-Doha bound tariffs costs just 19 million -- a very small amount in terms of the economic welfare gains from pure tariff reform (Table 3).

Table 4 summarizes pre-Doha bound and current applied tariff rates, the frequency of SSM use, the average and maximum duties imposed, and the number of times pre-Doha bound rates are breached for each of the 25 countries eligible to use the SSM. Looking across the final row, low-income countries used the price-based SSM relatively more than the volume SSM at 23.9 and 14.3 percent respectively. Bangladesh, a least developed country not making tariff cuts to bound rates, stands out as applying the highest volume SSM duties. For all others however, countries seem to be making use of the maximum duty options contained in the July Package SSm rather than applying a duty that is based on a percentage of their bound tariff. This result is driven by the fact that as bound tariff come down through further tariff cuts, so too will the size of the additional SSM duties unless there is provision of choosing a higher duty which is the case in the July Package.

The most interesting piece of information contained in Table 4 is the number of times a country exceeds its pre-Doha bound tariff rate, and whether this is due to the volume or price SSM. Collectively, all low-income countries exceeded their pre-Doha bound tariff rates 4.6

percent of the time, with many countries never doing so. Brazil, Egypt, Indonesia, Korea, Mexico, Philippines, Asian Developing Group (ASG), the South American Developing Group (STA), and Ethiopia are only nine countries out of 25 that breached their pre-Doha bound tariff rates with the SSM for wheat. Ethiopia stands out because it used the volume SSM almost 40 percent of the time and almost always chose the 25, 40, or 50 percent maximum duties the July Package allows. Conversely, Egypt exceeded its pre-Doha bound tariff rate almost 34 percent of the time by applying the price SSM. However, Egypt's case for wheat is very similar to China's in Table 1 because Egypt's applied and bound tariff rates for wheat in 2001 were five percent. Thus, the question of whether or not developing countries should be allowed to exceed their pre-Doha bound tariffs depends fundamentally on the product being traded, the extent to which bound tariffs will be cut, and the gap between applied and bound tariffs.

Conclusions

The critical elements of the SSM are product coverage, reference periods, trigger mechanisms and remedy measures.[17] Discussion over a new SSM for developing countries took center stage in the July mini-ministerial conference in Geneva because WTO Members could not bridge their differences on whether developing countries should be allowed to exceed their pre-Doha bound tariffs. Chairman Falconer's recent Draft Text commits WTO Members to establish an SSM for developing countries as part of an acceptable agricultural package.

We combined the recent July Package tariff cuts with an SSM for developing countries to evaluate the market stabilization and welfare cost of the this policy instrument. The July Package SSM costs very little in terms of economic welfare. When we allow developing and least-developed WTO Members the use of an SSM in conjunction with tariff cuts (scenario 2),

[17] There are other elements of the SSM currently under negotiation including country eligibility and the duration of additional duties or other remedies.

but did not allow them to exceed their pre-Doha bound tariffs, global welfare fell by only US$204 million. Similarly, the welfare cost of an SSM with no cap on the level of the additional duties they can impose results in a welfare loss of $223 million. Thus, exceeding pre-Doha bound tariffs may have been a small price to pay (roughly 19 million) to reach a final deal on agricultural reform in the Doha Development Agenda.

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Table 1: The G33 and July Package SSM Duties for Cereals

G33-SSM Proposal		Examples of Additional SSM Duties		
		India	Bangladesh	China
Import Surge	***Remedy***	***Tb=120; Ta=40***	***Tb=200; Ta=10***	***Tb=25; Ta=24***
X <= 110%	No Remedy	0% ----> 40%	0% ----> 10%	0% ----> 24%
110% < X <= 115%	Max{0.25*Tb, 25 Percentage Points}	30% ----> 70%	50% ----> 60%	25% ----> 49%
115% < X <= 135%	Max{0.4*Tb, 40 Percentage Points}	48% ----> 88%	80% ----> 90%	40% ----> 64%
X > 135%	Max{0.5*Tb, 50 Percentage Points}	60% ----> 100%	100% ----> 110%	50% ----> 74%

July Package SSM Proposal		Examples of Additional SSM Duties		
		India	Bangladesh	China
Import Surge	***Remedy***	***Tb=120; Ta=40***	***Tb=200; Ta=10***	***Tb=25; Ta=24***
X <= 105%	No Remedy	0	0	0
105% < X <= 110%	Max{0.50*Tb, 40 Percentage Points}	60% ----> 100%	100% ----> 110%	40% ----> 64%
110% < X <= 130%	Max{0.75*Tb, 50 Percentage Points}	90% ----> 130%	150% ----> 160%	50% ----> 74%
X > 130%	Max{Tb, 60 Percentage Points}	120% ----> 160%	200% ----> 210%	60% ----> 84%

Source: WTO World Tariff Profiles (2006)

Note: *Tb* and *Ta* denote bound and applied tariff rates, respectively. In the columns labeled India, Bangladesh, China, the first number denotes the maximum additional SSM duty that can potentially be applied give the import surge, whereas the second number denotes the new applied tariff rate inclusive of the additional SSM duty. The cells shaded in grey illustrate cases where the new applied tariff, inclusive of the SSM duty, exceeds the pre-Doha bound tariff rate (*Tb*).

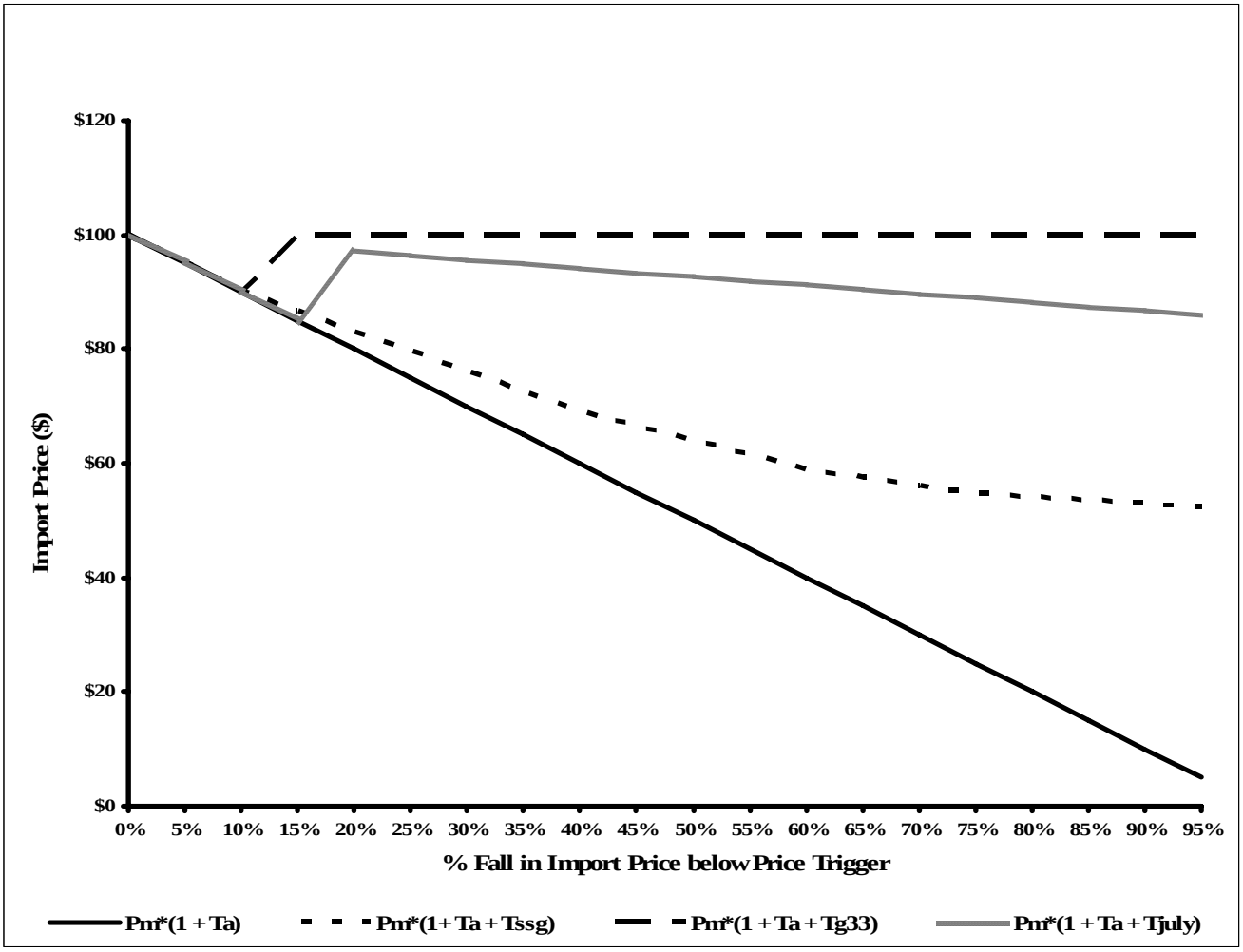

Figure 1: Effect on Import Prices of the G33, July Package, and Uruguay Round Price-Based Safeguard Mechanisms

Note: *Tssg, Tg33*, and *Tjuly* denote the additional safeguard duties under the Uruguay Round, G33, and July Package proposals, respectively.

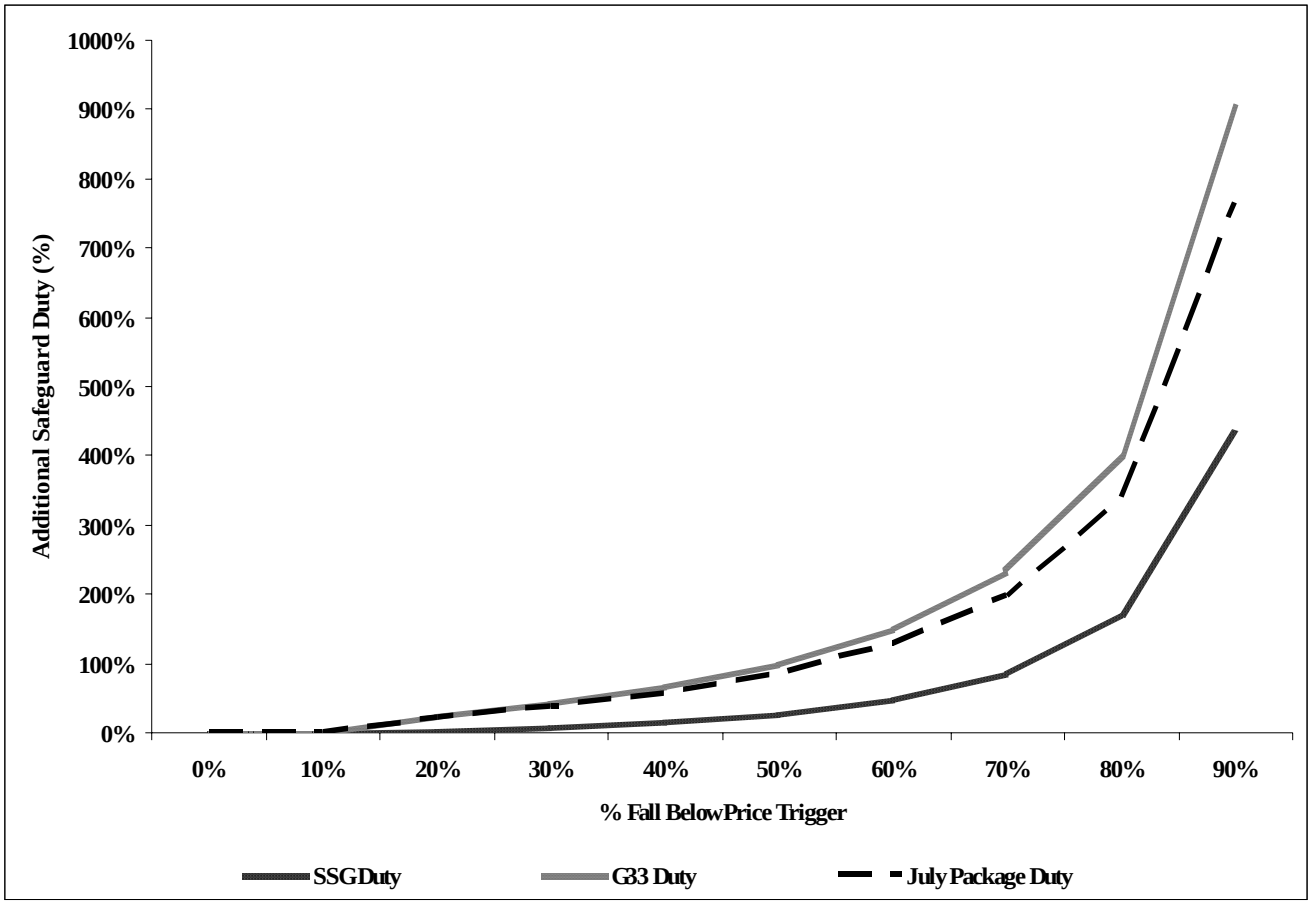

Figure 2. Additional Price-Based SSM Duties of the Uruguay Round (SSG), G33, and July Package Proposals

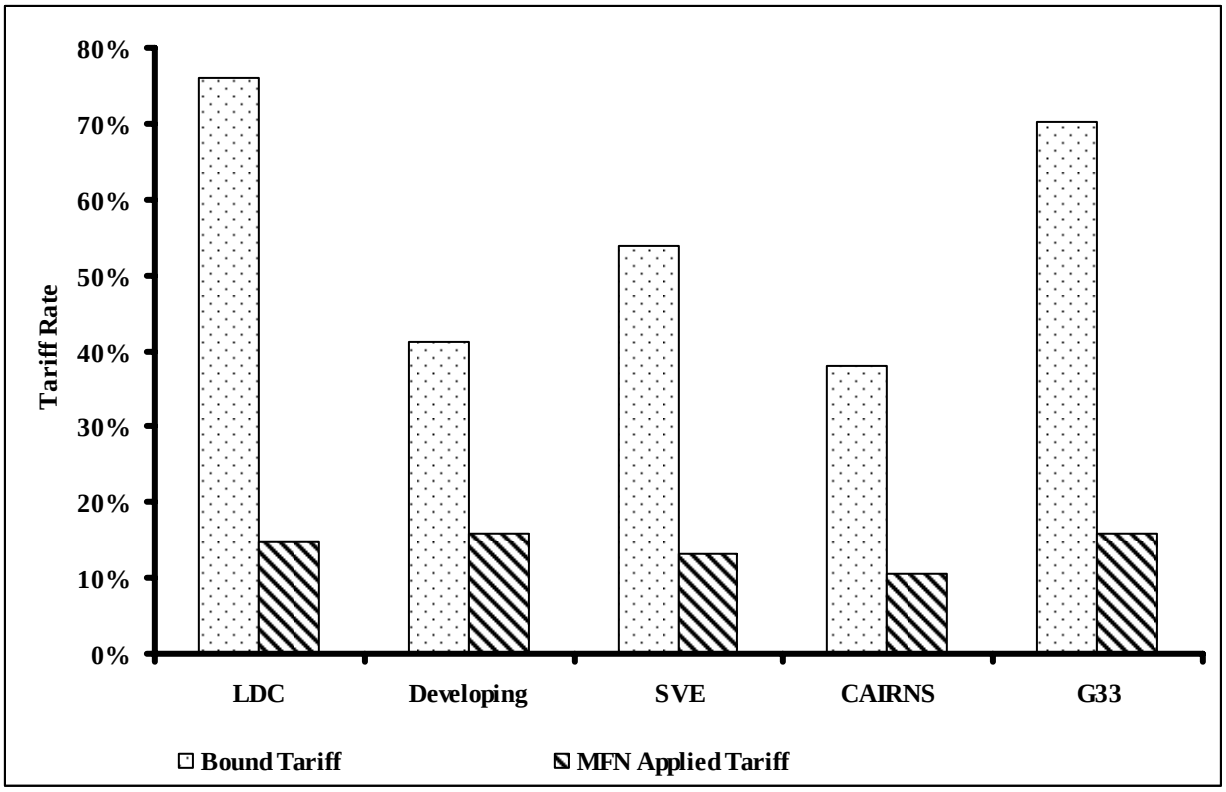

Figure 3. Average Applied and Bound Tariff Rates for Cereal Products, 2006

Source: World Tariff Profiles (WTO 2006)

Table 2. Price and Stability Effects for 31 Low-Income Countries

	July Package Tariff Cuts[a]				July Package Tariff Cuts with SSM & Cap on Pre-Doha Bound Tariffs[b]				July Package Tariff Cuts with SSM & No Cap on Pre-Doha Bound Tariffs[b]			
	----------Mean--------		-----Stability-----		----------Mean--------		-----Stability-----		----------Mean--------		-----Stability-----	
	Up	***Down***	***More***	***less***	***Up***	***Down***	***More***	***less***	***Up***	***Down***	***More***	***less***
Domestic Price	31	0	30	1	23	8	10	21	23	8	7	24
Producer Surplus	28	0	13	15	21	7	18	10	21	7	16	12
Imports	3	28	27	4	5	26	27	4	5	26	25	6
	World Price Increase = 3.91%				**World Price Decrease = -1.16%**				**World Price Decrease = -0.90%**			

Note: The results in the table are based on 1,000 pseudo-random draws and show the number of countries in each category. For domestic price and imports, there are 31 low-income countries. For producer surplus, three low-income countries (Indonesia, Malaysia and Philippines) that have no wheat production for a total of 28 countries in this category.

[a] Scenario one (July Package Tariff Cuts) is measured relative to the baseline (1999-2001).

[b] Scenarios two and three (July Package Tariff Cuts with SSM and July Package Tariff Cuts with G33-SSM) are measured relative scenario one -- the tariff cutting scenario without an SSM.

Table 3. Summary of Welfare Changes across each Scenario

	-----July Package Tariff Cuts[a]----			July Package Tariff Cuts with SSM & Cap on Pre-Doha Bound Tariffs[b]			July Package Tariff Cuts with SSM & No Cap on Pre-Doha Bound Tariffs[b]		
	Gain	***Loss***	***Welfare Δ (%)***	***Gain***	***Loss***	***Welfare Δ (%)***	***Gain***	***Loss***	***Welfare Δ (%)***
Exporters	6	0	1.52	0	6	-0.34	0	6	-0.44
Developed Importers	2	1	21.75	3	0	0.37	3	0	0.48
Developing Importers	0	24	-2.27	16	8	0.05	15	9	0.10
Least Developed Importers	0	5	-2.78	3	2	-0.41	3	2	-0.53
World	**8**	**30**	**1.15**	**22**	**16**	**-0.18**	**21**	**17**	**-0.20**
	Welfare Gain by Value = $1.28 Billion			**Welfare Loss by Value = $-204 Million**			**Welfare Loss by Value = $-223 Million**		

Note: The results in the table are based on 1000 pseudo-random draws. *Gain* and *Loss* show the number of countries that gained or lost in each category. *Welfare Δ (%)* is the average change in aggregate economic welfare for all of the countries belonging to a particular category.

[a] Scenario one (July Package Tariff Cuts) is measured relative to the baseline (1999-2001).

[b] Scenarios two and three (July Package Tariff Cuts with SSM and July Package Tariff Cuts with G33-SSM) are measured relative scenario one -- the tariff cutting scenario without an SSM.

Table 4. SSM Frequency and Additional Duty Results, July Package SSM and No Cap on Pre-Doha Bound Tariffs

Country	Pre-Doha Bound Tariff	Current Applied Tariff	Freq. of Price-Based SSM	Freq. of Vol-Based SSM	Max. Price Safeguard Duty	Max. Vol Safeguard Duty	# of Times Vol. Safeguard Exceeded Pre-Doha Bound Rate	# of Times Price Safeguard Exceeded Pre-Doha Bound Rate	Mean Vol. Safeguard Duty	Mean Price. Safeguard Duty
Developing										
Algeria	80	3	26.8%	5.2%	19.2%	40.0%	0.0%	0.0%	27.0%	5.0%
Brazil	55	13	27.0%	16.8%	44.3%	50.0%	0.2%	0.1%	33.9%	5.6%
Columbia	124	15	31.4%	2.6%	25.6%	25.0%	0.0%	0.0%	25.0%	5.0%
Egypt	5	5	33.9%	13.3%	5.0%	40.0%	13.3%	33.9%	31.7%	3.3%
Indonesia	30	0	25.8%	21.2%	30.0%	40.0%	14.1%	0.1%	35.0%	6.8%
Korea	9	4	32.8%	5.7%	9.0%	40.0%	5.7%	12.1%	28.7%	4.1%
Morocco	170	49	19.0%	30.4%	18.9%	50.0%	0.0%	0.0%	38.1%	4.5%
Mexico	67	28	14.4%	18.2%	12.6%	50.0%	13.4%	0.0%	36.5%	2.9%
Malaysia	69	11	27.9%	0.1%	18.7%	25.0%	0.0%	0.0%	25.0%	4.5%
Nigeria	150	81	29.0%	20.1%	17.6%	50.0%	0.0%	0.0%	34.0%	4.0%
Peru	68	20	26.6%	3.7%	15.9%	40.0%	0.0%	0.0%	25.4%	4.4%
Philippines	30	15	29.2%	4.4%	18.6%	40.0%	4.4%	0.1%	29.1%	4.0%
Tunisia	100	20	16.4%	30.6%	17.1%	50.0%	0.0%	0.0%	39.1%	4.8%
United A.E.	80	4	16.9%	31.1%	18.7%	50.0%	0.0%	0.0%	38.1%	4.1%
Venezuela	118	15	26.8%	0.9%	17.9%	25.0%	0.0%	0.0%	25.0%	4.5%
AFD	72	29	21.4%	14.1%	16.7%	40.0%	0.0%	0.0%	32.1%	4.1%
ASG	34	10	23.2%	12.1%	15.1%	50.0%	12.1%	0.0%	32.8%	3.5%
CTA	83	4	23.9%	6.7%	17.6%	40.0%	0.0%	0.0%	27.7%	4.3%
STA	36	10	18.4%	16.7%	15.8%	50.0%	12.3%	0.0%	36.6%	3.8%
MEG	35	1	27.0%	0.8%	18.5%	25.0%	0.0%	0.0%	25.0%	4.3%
Least-Developed							0.0%	0.0%		
Bangladesh	200	5	18.4%	26.6%	17.9%	100.0%	0.0%	0.0%	78.1%	4.2%
Ethiopia	30	5	11.8%	39.7%	14.1%	50.0%	39.7%	0.0%	44.8%	4.1%
NAG	75	7	23.7%	12.3%	16.8%	40.0%	0.0%	0.0%	31.3%	4.9%
SAG	78	6	26.3%	4.2%	15.3%	40.0%	0.0%	0.0%	28.6%	4.3%
YE	80	0	20.7%	20.8%	17.3%	40.0%	0.0%	0.0%	33.7%	4.6%
World	**75.16**	**14.37**	**23.9%**	**14.3%**	**18.2%**	**43.6%**	**4.6%**	**1.9%**	**33.7%**	**4.4%**

Note: Freq. of Vol. and Price SSM measures the number of times the volume and price SSM were triggered out of 100 random draws; Max. Price and Vol. Safeguard denotes the maximum duty triggered; and Mean Vol. and Price Safeguard reports the average safeguard duty applied out of 1000 random draws. See footnote 14 for a description of country/regional aggregations.

Appendix I. Individual Country Results, Scenario 2,

	Wheat Variables															
	Price (%)		Production (%)		Total Use (%)		Net Trade (%)		Cons. Surplus (%)		Prod. Surplus (%)		Gov't Revenue (%)		Net Welfare (%)	
COUNTRY	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**
Developed																
Australia	-0.90	9.46	-0.52	-0.94	0.22	5.89	-0.83	-1.00	0.38	2.03	-1.32	-1.97	----	----	-0.60	-1.91
Canada	-0.90	14.11	-0.55	-0.72	0.58	10.99	-1.01	-0.44	0.36	1.46	-1.31	-0.59	----	----	-0.55	-1.29
EU-25	-0.25	-0.60	-0.15	-1.44	0.14	-0.56	-11.62	-3.69	0.28	-0.29	-0.36	-3.44	18.36	13.52	0.00	-0.56
Israel	-0.90	12.19	-0.35	12.19	0.50	7.08	0.55	7.31	0.16	0.14	-1.10	11.55	-0.39	6.44	0.25	0.34
Japan	-0.90	5.09	-1.29	1.11	0.42	3.73	0.50	3.87	0.76	3.67	-2.10	-0.25	-0.28	1.85	0.51	2.76
USA	-0.66	2.14	-0.31	-0.14	0.46	11.71	-1.23	-0.72	0.17	1.01	-0.87	-0.73	120.64	72.02	-0.13	-0.93
DCG	-0.90	10.35	-1.48	4.11	0.33	2.09	1.06	4.79	0.52	1.10	-2.72	2.24	0.09	-0.94	0.37	0.77
Developing																
Algeria	1.39	23.27	0.86	-4.87	-0.30	-2.77	-0.64	-10.98	-0.62	-3.01	1.53	-5.40	91.09	3076.84	0.28	0.45
Argentina	-0.90	16.45	-0.49	-0.66	0.30	1.37	-0.82	-0.61	0.61	1.70	-1.26	-0.64	----	----	-0.56	-1.08
Brazil	4.43	-14.87	3.08	-12.30	-2.61	-19.73	-4.62	-32.62	-4.86	-22.73	5.71	-12.47	39.20	837.07	-0.15	-3.26
China	-0.84	13.62	-0.12	-0.74	0.57	10.83	-23.70	-2.37	1.13	11.12	-0.94	-1.89	----	----	0.02	-0.27
Columbia	0.63	-19.59	----	----	-0.23	-6.66	-0.23	-6.66	-0.50	-7.37	0.63	-19.59	10.93	329.29	0.49	1.00
Egypt	-0.26	-1.39	-0.12	-0.67	0.06	-0.90	0.24	-1.45	0.11	-0.88	-0.35	-1.48	20.70	179.11	0.16	0.13
Indonesia	5.82	-12.76	----	----	-6.25	-33.15	-6.20	-33.15	-13.22	-39.44	----	----	A	B	0.41	-4.30
Iran	-0.90	14.96	-0.59	0.45	0.17	0.84	1.25	1.05	0.35	1.03	-1.31	0.25	----	----	0.14	0.34
Iraq	-0.90	16.45	-0.59	0.44	0.08	-0.04	0.22	-0.09	0.14	0.03	-1.26	-0.11	----	----	0.12	0.02
Kazakhstan	-0.90	2.10	-0.46	0.00	0.26	0.24	-1.29	0.02	0.17	-0.01	-1.21	-0.56	----	----	-0.21	-0.20
Malaysia	-0.03	-18.21	----	----	0.01	-2.03	0.01	-2.03	0.01	-2.08	----	----	8.03	325.26	0.52	2.48
Mexico	3.79	68.14	2.54	-13.08	-2.06	11.64	-8.79	-5.10	-3.50	3.13	5.62	-2.62	6.34	63.76	-0.60	-2.59
Morocco	7.05	165.95	6.43	-22.59	-1.59	14.37	-7.93	-32.97	-3.21	11.86	9.49	-17.82	15.62	87.90	-0.78	5.16
Nigeria	3.33	33.38	2.44	0.25	-4.93	-29.01	-5.11	-29.05	-10.37	-34.11	5.33	4.88	3.54	28.86	-2.57	-20.08

See table notes next page

Appendix I cont'd

----------Wheat Variables----------

	Price (%)		Production (%)		Total Use (%)		Net Trade (%)		Cons. Surplus (%)		Prod. Surplus (%)		Gov't Revenue (%)		Net Welfare (%)	
COUNTRY	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**
Developing																
Peru	0.52	0.38	0.40	-2.63	-0.19	-6.93	-0.27	-8.47	-0.43	-7.52	0.82	-1.88	7.61	287.82	0.43	0.58
Philippines	0.37	-21.81	----	----	-0.39	-16.53	-0.39	-16.53	-0.30	-3.72	----	----	9.14	480.21	0.68	1.20
South Korea	0.22	-12.76	----	----	-0.25	-12.47	-0.25	-12.47	-0.21	-9.03	0.22	-12.76	29.17	2496.29	1.04	6.42
Tunisia	9.16	198.32	5.82	-17.80	-2.30	-15.36	-11.44	-38.64	-4.69	-17.33	12.83	-9.24	42.49	249.55	-0.57	-2.96
United A.E	10.68	313.89	----	----	-5.83	-29.67	-5.84	-29.67	-13.01	-37.77	10.68	313.89	297.57	2074.42	-0.47	-3.82
Venezuela	0.05	-16.69	0.03	-0.08	-0.02	-3.52	-0.02	-3.52	-0.06	-3.70	0.07	-1.90	6.52	251.67	0.63	2.01
AFD	2.75	36.75	3.01	-5.08	-2.10	-17.20	-3.54	-22.44	-4.32	-18.89	5.62	-2.79	10.78	187.23	-0.41	-7.38
CTA	1.43	38.87	----	----	-0.73	-14.50	-0.73	-14.50	-1.64	-16.24	1.43	38.87	53.59	1981.15	0.81	1.05
STA	3.08	17.84	3.00	-16.29	-1.48	-4.01	-7.97	-18.76	-2.99	-6.17	5.79	-14.12	25.76	263.94	-0.20	0.34
ASG	1.25	-0.43	1.08	-7.31	-0.94	-13.28	-2.23	-20.71	-1.86	-14.02	2.00	-6.99	20.54	384.85	0.29	0.50
MEG	0.16	-18.74	----	----	-0.06	-4.23	-0.06	-4.23	-0.14	-4.51	0.16	-18.74	596.61	33257.84	0.70	2.86
ROW	-0.90	15.86	-0.69	3.74	0.72	1.30	4.20	3.19	1.41	1.58	-1.42	4.50	3.05	0.47	0.29	0.51
Least-Developed																
Bangladesh	16.62	573.97	5.75	77.28	-9.28	0.48	-28.18	32.29	-17.49	-9.99	21.96	379.28	53.77	297.25	-2.86	-24.15
Ethiopia	8.47	163.77	3.36	-9.73	-4.19	-21.12	-28.25	-36.21	-8.63	-24.74	10.43	11.19	134.71	311.43	-0.55	-2.18
Yemen	6.51	192.88	1.55	2.70	-2.75	-27.27	-3.10	-27.69	-5.99	-31.59	7.63	46.10	C	D	0.26	-1.96
SAG	0.85	0.35	0.71	0.43	-0.58	-12.00	-0.80	-12.16	-1.21	-13.05	1.46	2.45	27.15	E	0.68	0.57
NAG	3.08	58.09	2.73	6.43	-2.86	-19.62	-2.99	-19.36	-5.92	-22.90	5.83	13.71	56.84	1353.06	0.41	-5.41
WORLD	**-0.90**	**16.45**	**-0.09**	**-2.32**	**-0.09**	**-2.32**	----	----	----	----	----	----	----	----	**-0.18**	**-5.30**

Welfare Difference from Tariff Cuts Alone ($US) = $-204 Million

Appendix II. Individual Country Results, Scenario 3,

	Wheat Variables															
	Price (%)		Production (%)		Total Use (%)		Net Trade (%)		Cons. Surplus (%)		Prod. Surplus (%)		Gov't Revenue (%)		Net Welfare (%)	
COUNTRY	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**
Developed																
Australia	-1.15	12.92	-0.67	-1.25	0.29	8.35	-1.06	-1.33	0.48	3.04	-1.70	-2.51	----	----	-0.77	-2.47
Canada	-1.16	19.47	-0.70	-0.91	0.74	15.29	-1.30	-0.47	0.46	2.08	-1.68	-0.54	----	----	-0.70	-1.61
EU-25	-0.33	0.02	-0.20	-1.77	0.19	0.07	-15.20	-4.05	0.36	0.38	-0.47	-3.96	20.69	14.10	0.00	-0.67
Israel	-1.16	16.98	-0.45	16.98	0.64	9.93	0.71	10.26	0.20	0.18	-1.41	16.08	-0.50	9.23	0.32	0.47
Japan	-1.15	7.55	-1.65	1.66	0.53	5.58	0.63	5.77	0.97	5.46	-2.63	-0.16	-0.37	2.91	0.65	4.13
USA	-0.81	2.56	-0.37	-0.14	0.59	16.10	-1.54	-0.91	0.22	1.41	-1.05	-0.85	167.06	98.19	-0.17	-1.21
DCG	-1.16	13.81	-1.90	5.50	0.43	2.76	1.37	6.37	0.66	1.44	-3.48	3.01	0.11	-1.26	0.47	1.01
Developing																
Algeria	1.30	23.02	0.80	-4.93	-0.28	-2.79	-0.60	-11.11	-0.58	-3.00	1.39	-5.57	97.56	3133.96	0.36	0.78
Argentina	-1.16	22.43	-0.64	-0.91	0.38	1.89	-1.06	-0.84	0.78	2.32	-1.61	-0.74	----	----	-0.71	-1.39
Brazil	4.39	-15.28	3.05	-12.47	-2.59	-20.23	-4.58	-33.28	-4.82	-23.16	5.64	-12.74	40.88	851.80	-0.01	-2.61
China	-1.06	17.68	-0.15	-0.96	0.71	14.04	-29.81	-2.93	1.43	14.42	-1.18	-2.12	----	----	0.02	-0.32
Columbia	0.56	-19.37	----	----	-0.20	-7.19	-0.21	-7.19	-0.45	-7.92	0.56	-19.37	12.15	362.59	0.64	1.47
Egypt	3.61	55.33	1.72	-6.56	-0.77	-17.13	-3.34	-25.56	-1.60	-18.13	4.71	13.82	137.48	2714.76	0.09	-1.73
Indonesia	6.90	0.56	----	----	-7.42	-34.03	-7.35	-34.03	-15.36	-40.51	----	----	A	B	0.14	-7.23
Iran	-1.16	20.40	-0.75	0.66	0.22	1.13	1.60	1.47	0.44	1.38	-1.68	0.47	----	----	0.18	0.45
Iraq	-1.16	22.43	-0.76	0.64	0.10	-0.06	0.28	-0.13	0.18	0.04	-1.61	-0.03	----	----	0.15	0.02
Kazakhstan	-1.16	2.78	-0.59	0.00	0.34	0.31	-1.67	0.02	0.22	-0.02	-1.55	-0.71	----	----	-0.27	-0.25
Malaysia	-0.13	-17.84	----	----	0.04	-2.03	0.04	-2.03	0.08	-2.07	----	----	9.37	391.94	0.67	3.41
Mexico	3.91	73.05	2.63	-12.90	-2.13	13.70	-9.09	-3.46	-3.61	4.57	5.82	-1.50	6.96	66.69	-0.59	-2.54
Morocco	6.97	164.89	6.36	-22.65	-1.57	13.92	-7.84	-33.25	-3.17	11.44	9.33	-18.03	16.04	88.05	-0.73	5.15
Nigeria	3.36	33.43	2.46	0.20	-4.97	-29.98	-5.16	-30.04	-10.48	-34.98	5.37	4.85	3.89	29.86	-2.43	-20.40

See table notes next page

Appendix II cont'd

	Wheat Variables															
	Price (%)		Production (%)		Total Use (%)		Net Trade (%)		Cons. Surplus (%)		Prod. Surplus (%)		Gov't Revenue (%)		Net Welfare (%)	
COUNTRY	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**	**Mean**	**Stdev**
Developing																
Peru	0.44	0.67	0.34	-2.78	-0.16	-7.22	-0.23	-8.83	-0.37	-7.79	0.69	-2.10	8.47	305.04	0.55	0.94
Philippines	0.72	-16.06	----	----	-0.76	-16.81	-0.75	-16.81	-0.57	-6.03	----	----	12.74	825.89	0.79	-0.02
South Korea	1.35	-21.07	----	----	-1.57	-21.97	-1.53	-21.97	-1.24	-18.59	1.35	-21.07	59.50	7265.04	1.10	3.68
Tunisia	9.08	197.52	5.78	-18.04	-2.28	-15.17	-11.35	-38.66	-4.65	-17.12	12.71	-9.57	43.46	251.20	-0.53	-2.88
United A.E	10.54	311.28	----	----	-5.76	-29.55	-5.76	-29.55	-12.86	-37.58	10.54	311.28	300.55	2071.61	-0.21	-3.52
Venezuela	-0.05	-16.19	-0.03	0.03	0.02	-3.75	0.02	-3.75	0.03	-3.91	-0.07	-1.78	7.50	288.56	0.81	2.79
AFD	2.69	37.57	2.95	-5.15	-2.05	-17.72	-3.47	-23.08	-4.25	-19.37	5.49	-2.97	11.48	192.68	-0.24	-7.23
CTA	1.39	41.19	----	----	-0.72	-14.85	-0.72	-14.85	-1.60	-16.55	1.39	41.19	58.40	2098.96	1.06	1.72
STA	4.49	67.03	4.37	-4.11	-2.16	24.04	-11.63	8.86	-4.26	18.64	8.83	1.81	23.13	218.25	-0.53	2.67
ASG	2.84	65.94	2.46	-7.67	-2.14	16.27	-5.07	1.22	-4.00	5.29	4.85	-4.96	29.16	558.13	-0.10	0.36
MEG	0.06	-19.32	----	----	-0.02	-4.24	-0.02	-4.24	-0.06	-4.49	0.06	-19.32	685.97	36169.67	0.90	4.00
ROW	-1.16	21.73	-0.89	5.27	0.92	1.84	5.39	4.50	1.82	2.14	-1.82	6.36	3.87	0.75	0.38	0.65
Least-Developed																
Bangladesh	16.94	577.69	5.86	77.23	-9.46	0.95	-28.72	32.69	-17.80	-9.67	22.37	380.82	56.85	303.87	-2.87	-24.25
Ethiopia	15.62	372.41	6.19	-4.68	-7.73	-25.54	-52.10	-36.56	-15.29	-31.22	19.93	76.10	40.27	227.81	-1.85	-7.22
Yemen	6.43	192.04	1.53	2.71	-2.72	-27.27	-3.06	-27.69	-5.92	-31.56	7.54	45.83	C	D	0.45	-1.68
SAG	0.80	1.27	0.67	0.81	-0.54	-12.37	-0.75	-12.47	-1.15	-13.42	1.38	2.81	30.44	E	0.91	2.23
NAG	3.21	61.89	2.85	6.58	-2.98	-20.14	-3.12	-19.87	-6.16	-23.48	6.07	14.19	62.09	1419.55	0.71	-5.26
WORLD	**-1.16**	**22.43**	**-0.10**	**-2.95**	**-0.10**	**-2.95**	----	----	----	----	----	----	----	----	**-0.20**	**-5.56**

Welfare Difference from Tariff Cuts Alone ($US) = $-223 Million