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Profiles of Tariffs in Global Agricultural Markets. Paul Gibson, John Wainio, Daniel Whitley, and Mary Bohman. Market and Trade Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 796

Abstract

High protection for agricultural commodities in the form of tariffs continues to be the major factor restricting world trade. The large differences in average tariffs across countries make it possible for farmers in one country to benefit from tariff protection while farmers in other countries lose income because of lower prices resulting from those tariffs. This report provides the first comprehensive analysis of agricultural tariffs and tariff-rate quotas (limits on imported goods) across a large number of countries and commodities and finds that high average tariffs create barriers to markets for U.S. and other farmers.

Keywords: Market access, megatariffs, tariff profiles, over-quota tariffs, in-quota tariffs, tariff-rate quotas, World Trade Organization.

Acknowledgments

The authors wish to thank Adrie Custer, our technical editor, and Sue DeGeorge and Victor B. Phillips, Jr., our graphic staff. The authors gratefully acknowledge the reviews of Nicole Ballenger, Jean-Christophe Bureau, Mary Burfisher, Praveen Dixit, John Dunmore, Carol Goodloe, Debra Henke, Cathy McKinnell, Karl Meilke, and Sharon Sheffield.

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Summary

High protection for agricultural commodities in the form of tariffs continues to be the major factor restricting world trade. The large differences in average tariffs across countries make it possible for farmers in one country to benefit from tariff protection while farmers in other countries lose income because of lower prices resulting from those tariffs. This report provides the first comprehensive analysis of agricultural tariffs and tariff-rate quotas (limits on imported goods) across a large number of countries and commodities and finds that high average tariffs create barriers to markets for U.S. and other farmers.

Tariffs impose costs both in the country where they are applied and on other countries. Tariffs tax all products that cross a border, thus raising prices within the country imposing the tariff. Higher prices affect supply because farmers respond by increasing output, and higher prices affect demand because consumers buy less. The effects of tariffs on domestic markets can also spill over onto world markets as the combined effect of more supply and less demand reduces imports. If the country imposing the tariff is a large importer, then world prices can fall. Thus, the case against tariffs has two components: the distortions created within a country by higher domestic prices and the costs imposed on other countries by lost export sales and lower world prices.

During the Uruguay Round negotiations, the United States and other World Trade Organization (WTO) members began negotiations to reduce support and protection in agriculture. These negotiations, which concluded in 1994, instituted tariffication, which is the process of converting agricultural nontariff barriers (NTBs), such as variable import levies and import quotas, into bound tariffs (tariffs set at established rates). Tariffication resulted in a tariff-based system of border protection that allowed for an initial set of tariff cuts. Countries were also to provide a minimum level of import opportunities for products previously protected by NTBs. This was accomplished by creating tariff-rate quotas (TRQs), which generally impose a relatively low tariff (in-quota) on imports up to a specified level, with imports above that level subject to a higher tariff (over-quota).

In 2000, WTO members agreed to submit detailed proposals on how they plan to further liberalize trade. These proposals include plans for negotiating the levels of tariffs and TRQs, and for negotiating policies for domestic support and export subsidies. Three questions need to be answered in order to understand how the alternative proposals may affect agricultural markets:

- *What is the pattern of agricultural tariffs across countries?* Trade distortions across countries contribute to shifts in global resources, potentially at the expense of countries with a comparative advantage in agriculture.
- *How do tariffs vary across agricultural commodities?* Large trade distortions from high tariffs signal barriers to markets for competitive producers of specific commodities.
- *What does the structure of protection say about strategies in future trade negotiations?* For example, high tariffs for most agricultural commodities suggest the need to include all commodities in negotiations to provide the most benefits.

This report answers these questions and provides the first comprehensive analysis of agricultural tariffs and TRQs across a large number of countries and commodities. This information can help U.S. policymakers, producers, and consumers understand what is at stake in the ongoing WTO negotiations. Key findings include:

—*High average tariffs characterize agricultural markets.* The global average tariff on agricultural products is 62 percent and is much higher than those on manufactured items. From a global perspective, high average tariffs cause demand to contract and supply to expand by drawing resources into agriculture, both leading to lower world prices.

—*Average tariffs across 13 regions range from 25 to 113 percent, indicating that farmers in some countries are protected at the expense of farmers in other countries.* North America has the lowest regional tariff at 25 percent. Both developed and developing countries employ high tariffs, although within each group, the countries in the non-EU Western Europe and South Asia regions tend to apply much higher tariffs than their counterparts. Thus tariffs have the potential to transfer income from farmers in one country to those in another.

—*Average commodity tariffs range from 50 to 91 percent, with the highest tariffs set for tobacco, meats, dairy, sugar, and sweeteners.* Not only is protection high in the dairy, sugar, and meat markets, but it is uniformly high across most countries. This structure of high tariffs likely causes a significant drop in world prices. Thus, multilateral liberalization could substantially increase world prices for these commodities.

—*The average tariff for the United States is 12 percent, among the lowest in the world.* With one of the lowest average tariffs, U.S. agriculture, as a whole, stands to gain from ambitious cuts in tariffs. Like many developed countries, however, the U.S. schedule contains some high tariffs aimed at protecting specific commodities.

—*Agricultural tariffs in developing countries are considerably higher, on average, than in developed countries.* This, in part, reflects the special and differential treat-

ment provided to these countries, such as lower tariff reduction commitments. But, available data suggest that many developing countries actually apply tariffs that are considerably below the rates they agreed to in the Uruguay Round Agreement on Agriculture.

— *TRQs are associated with high tariffs and sensitive sectors, as might be expected from their relationship with products previously protected by nontariff barriers.* The average over-quota tariff of 128 percent is double the average for all agricultural products. This results from the Uruguay Round tariffication process, which allowed the conversion of some NTBs into very high tariffs. A number of countries have bound their in-quota rates at extremely high levels, even though the tariffication process called for the in-quota tariff to be set at a “low or minimal” rate. The estimated average in-quota tariff of 63 percent is 1 percentage point above the global average for all other tariffs. While no numerical rule defined “low or minimal,” these rates would seem to contradict the spirit of the agreement, indicating the need to negotiate some disciplines on these tariffs as well.

— *The presence of megatariffs, defined as tariffs of 100 percent or higher, across all commodities and regions suggests the need to use a formula that reduces higher tariffs at a greater rate.* No imports are likely to enter under tariffs this high, other than the minimum market access granted under a TRQ. In cases where megatariffs are not associated with a TRQ, the only way to provide market access will be to significantly cut tariffs.

— *The complexity of many countries’ tariff and TRQ schedules poses barriers to understanding the nature of protection.* The lack of transparency associated with non-ad valorem tariffs hides the actual level of protection being provided. This is particularly true of compound tariffs or those based on complex technical factors. The result is difficulty in comparing protection across countries or commodities, which hinders the process of negotiating tariff reductions. One of the goals of the next negotiations might be to increase certainty and transparency by formulating stricter rules on the submission of tariff and TRQ schedules.

Glossary of Trade Terms

Agreement on Agriculture. Part of the Uruguay Round agreement covering issues related to agriculture—e.g., market access, export subsidies, and internal support.

Applied tariff rates. The actual tariff rate charged at the border by an importing country, sometimes differing from the bound rate. The rate is allowable under the rules of the WTO if it is at or below the bound rate.

Articles (of the GATT). Clauses of the General Agreement that lay out the rules and procedures that Contracting Parties will observe in their conduct of international trade and trade policy. Each of the 38 Articles in the GATT deals with a different aspect of trade.

Bound tariff rates. Tariff rates resulting from GATT negotiations or accessions that are incorporated as part of a country's schedule of concessions. Bound rates are enforceable under Article II of GATT. If a GATT contracting party raises a tariff above the bound rate, the affected countries have the right to retaliate against an equivalent value of the offending country's exports or receive compensation, usually in the form of reduced tariffs of other products they export to the offending country.

Ceiling binding. In cases where an existing tariff was not already bound, developing countries were allowed to establish ceiling bindings. These ceiling bindings could result in tariffs that were higher than the existing applied rate. The ceiling bindings took effect on the first day of implementation of the Agreement.

Country schedules. The official schedules of subsidy commitments and tariff bindings as agreed to under GATT for member countries.

EU (European Union). Established by the Treaty of Rome in 1957 and known previously as the European Economic Community and the Common Market. Originally composed of 6 European nations, it has expanded to 15. The EU attempts to unify and integrate member economies by establishing a customs union and common economic policies, including CAP (Common Agricultural Policy). Member nations include Austria, Belgium, Denmark, Germany, Greece, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

GATT (General Agreement on Tariffs and Trade). Originally negotiated in Geneva, Switzerland in 1947 among 23 countries, including the United States, GATT is an agreement to increase international trade by reducing tariffs and other trade barriers. The agreement provides a code of conduct for international commerce and a framework for periodic multilateral negotiations on trade liberalization and expansion.

In-quota tariff. The tariff applied on imports within the quota. The in-quota tariff is less than the over-quota tariff.

Market access. The extent to which a country permits imports. A variety of tariff and non-tariff trade barriers can be used to limit the entry of foreign products.

Megatariffs. Extremely high tariffs that effectively cut off all imports other than the minimum access amounts granted under the agreement. Some well-known examples of megatariffs resulting from tariffication include the base tariffs calculated for EU tariffs on grains, sugar and dairy products; U.S. sugar, peanuts and dairy products; Canadian tariffs on dairy products and poultry; and Japanese tariffs on wheat, peanuts and dairy products.

Most-Favored-Nation (MFN) status. An agreement between countries to extend the same trading privileges to each other that they extend to any other country. Under a most-favored-nation agreement, for example, a country will extend to another country the lowest tariff rates it applies to any third country. A country is under no obligation to extend MFN treatment to another country, unless they are both members of the WTO, or unless MFN is specified in an agreement between them.

NAFTA (North American Free Trade Agreement). A trade agreement involving Canada, Mexico, and the U.S., implemented on January 1, 1994, with a 15-year transition period. The major agricultural provisions of NAFTA include: 1) the elimination of non-tariff barriers—immediately upon implementation, generally through their conversion to tariff-rate quotas or ordinary quotas; 2) elimination of tariffs—many immediately, most within 10 years, and some sensitive products gradually over 15 years; 3) special safeguard provisions; and 4) country-of-origin rules to ensure

that Mexico does not serve as a platform for exports from third countries to the United States.

Non-tariff trade barriers. Regulations used by governments to restrict imports from, and exports to, other countries, including embargoes, import quotas, and technical barriers to trade.

OECD (Organization for Economic Cooperation and Development). An organization founded in 1961 to promote economic growth, employment, a rising standard of living, and financial stability; to assist the economic expansion of member and nonmember developing countries; and to expand world trade. The member countries are Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the U.S.

Over-quota tariff. The tariff applied on imports in excess of the quota volume. The over-quota tariff is greater than the in-quota tariff.

Round. Refers to one of a series of multilateral trade negotiations held under the auspices of the GATT for the purposes of reducing tariffs or other trade barriers. There have been eight trade negotiating rounds since the adoption of the GATT in 1947.

Sanitary and phytosanitary (SPS) measures. Technical barriers designed for the protection of human health or the control of animal and plant pests and diseases.

Tariff. A tax imposed on commodity imports by a government. A tariff may be a fixed charge per unit of product imported (specific tariff), a fixed percentage of value (ad valorem tariff), or some combination of both.

Tariff-rate quota. Quantitative limit (quota) on imported goods, above which a higher tariff rate is applied. A lower tariff rate applies to any imports below the quota amount.

Tariffication. The process of converting non-tariff trade barriers to bound tariffs. This is done under the UR agreement in order to improve the transparency of existing agricultural trade barriers and facilitate their proposed reduction.

UR (Uruguay Round) agreement. The Uruguay Round of multilateral trade negotiations, conducted under the auspices of the GATT, is a trade agreement designed to open world markets. The Agreement on Agriculture is one of the 29 individual legal texts included in the Final Act under an umbrella agreement establishing the WTO. The negotiation began at Punta del Este, Uruguay, in September 1986 and concluded in Marrakesh, Morocco, in April 1994.

World Trade Organization (WTO). Established on January 1, 1995, as a result of the Uruguay Round, the WTO replaces GATT as the legal and institutional foundation of the multilateral trading system of member countries. It provides the principal contractual obligations determining how governments frame and implement domestic trade legislation and regulations. And it is the platform on which trade relations among countries evolve through collective debate, negotiation, and adjudication.



Profiles of Tariffs in Global Agricultural Markets

Paul Gibson, John Wainio, Daniel Whitley, and Mary Bohman

Introduction

High protection for agricultural commodities continues to be the major distorting feature of international trade. The global average agricultural tariff,¹ estimated at 62 percent, contrasts with the much lower tariffs for industrial products estimated by Hertel and Martin (see references). Not only are some agricultural tariffs extremely high, but they are also highly uneven across countries and commodities. Clearly, substantial room exists for liberalization of agricultural tariffs.

Among the most important accomplishments of the Uruguay Round Agreement on Agriculture (URAA) was the requirement to convert agricultural nontariff barriers (NTBs), such as variable import levies and import quotas, into bound tariffs. Bound tariffs are set at rates established by the General Agreement on Tariffs and Trade (GATT) negotiations. The process, known as tariffication, resulted in a tariff-based system of border protection that allowed for an initial set of tariff cuts in the URAA. Developed countries agreed to reduce all agricultural tariffs from their base period rates by a total of 36 percent, on a simple average basis, with a minimum cut of 15 percent for each tariff.² Starting in 1995, tariff cuts were to take place in equal installments over 6 years for developed countries and 10 years for developing countries. Countries were also to provide a minimum level of import opportunities for products previously protected by NTBs. This was

¹ In this report, the term “tariff” refers to the import duties that WTO members may levy on imports from other members (bound MFN tariffs based on final URAA implementation).

² Developing countries were required to reduce their tariffs on average by only 24 percent, with a minimum cut of 10 percent for each tariff. However, in the case of previously unbound tariffs or when converting NTBs to tariffs, many developing countries chose the option of offering tariff bindings with no reduction in tariff levels. Least developed countries were not required to reduce their tariffs, although they still had to replace their NTBs with tariffs and bind all tariffs.

accomplished by creating tariff-rate quotas (TRQs), which generally impose a relatively low tariff (in-quota) on imports up to a specified level, with imports above that level subject to a higher tariff (over-quota).

The high tariffs currently existing in the agricultural sector restrict trade in agricultural products and cause world prices to fall. Research conducted by the U.S. Department of Agriculture’s Economic Research Service (ERS) has shown that tariffs and associated TRQs account for the largest share of global agricultural distortions. Export subsidies and domestic farm programs are the other major distortions. When all three types of distorting policies are removed, world prices increase by 12 percent. Tariffs account for 52 percent of the increase in world prices (Burfisher et al). While reducing tariffs is a necessary part of increasing market access, other impediments to trade may also need to be addressed. For example, factors such as sanitary and phytosanitary (SPS) measures or state trading enterprises may also limit market access.

This report addresses three questions about tariffs that are relevant for future negotiations on market access.

- *What is the pattern of agricultural tariffs across countries?* Distortions across countries contribute to shifts in global resources, potentially at the expense of countries with a comparative advantage in agriculture. Figure 1 shows the landscape of global tariffs. Disparities in tariffs indicate that some countries protect their agricultural sectors at the expense of other countries. Leveling the playing field across countries would help alleviate this problem.
- *How do tariffs vary across agricultural commodities?* Global average tariffs range from 50 to 91 percent for the 46 commodity groups analyzed in this report. Large distortions from high tariffs signal barriers to markets for competitive producers of specific commodities.

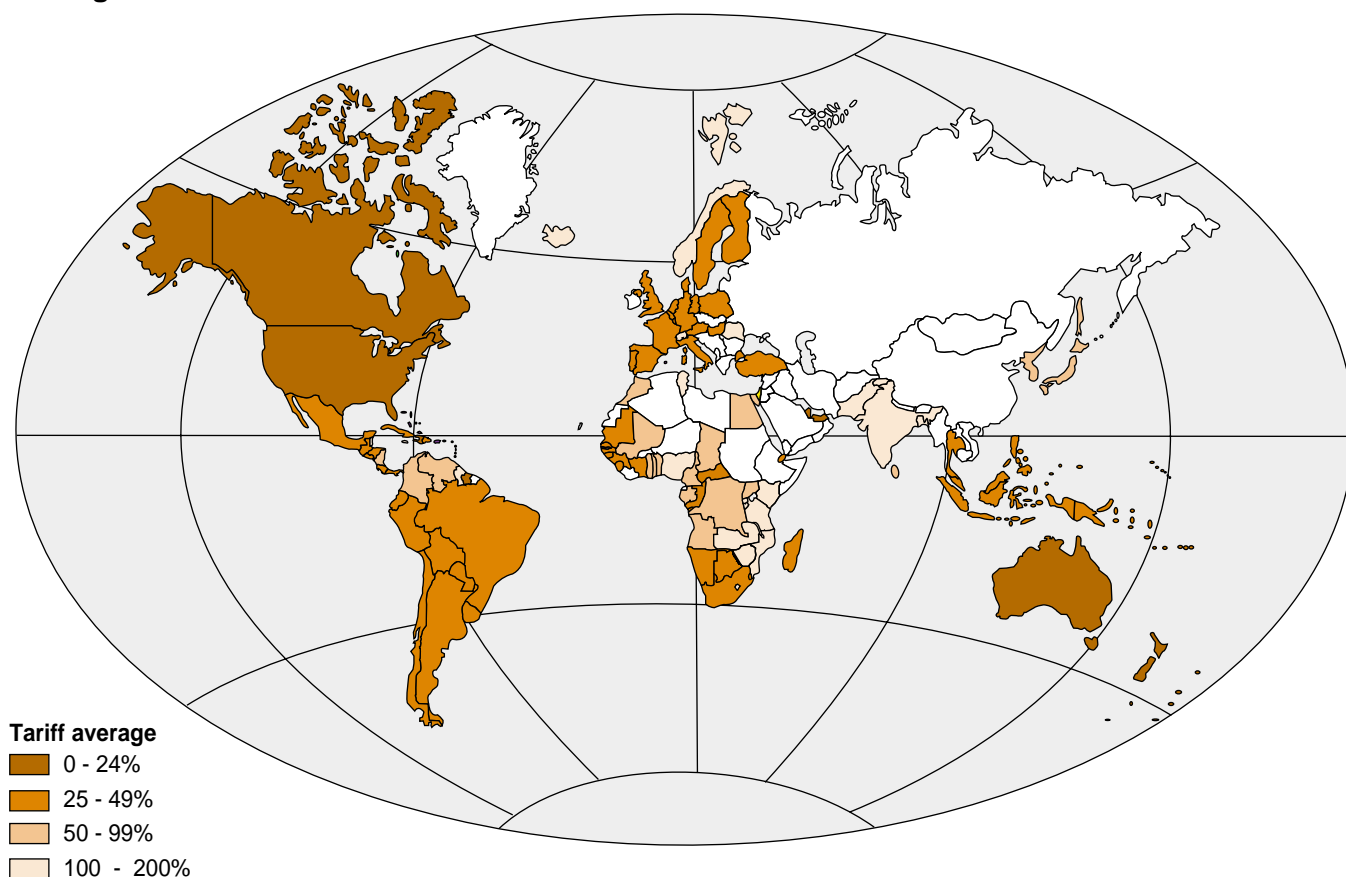
- What does the structure of protection say about strategies in future trade negotiations? In particular, in what countries do high tariffs exist for commodities and food products of interest to the United States?

By answering the three questions above, this report paints a picture of the current pattern of market access protection for agriculture. It begins with an economic perspective of the ways that tariffs affect markets, fol-

lowed by the methodology behind the indicators of tariff impacts, and then compares different types of tariffs. The heart of the report identifies patterns in global tariff and TRQ profiles across countries and commodities. The report then digs deeper into the structure of protection for the three major agricultural players in global markets, the United States, the European Union (EU), and Japan. An overview of protection for commodities of interest to the United States concludes the analysis.

Figure 1

Average tariffs of WTO members¹



¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

Why Tariffs Matter

Tariffs impose a cost on all products that cross a border, thus raising prices within the country that imposes the tariff. Higher prices affect supplies as farmers respond by increasing output and affect demand as consumers buy less. Countries apply tariffs primarily to protect domestic industries. This and other justifications for tariffs are discussed in the box, *Why Countries Use Tariffs*. The domestic market effects of tariffs can also spill over onto world markets as the combined effect of more supply and less demand reduces imports. If the country imposing the tariff is a large importer, then world prices can fall. Thus, the case against tariffs has two components: the distortions created within the country via higher domestic prices and the costs imposed on other countries via lost export sales and lower world prices.

Table 1 shows how tariffs affect different parts of the agricultural economy for three categories of countries: the tariff-imposing country, exporting countries, and importing countries. The effects are shown for the final consumption and the product as an input or intermediate good. For simplicity, the analysis focuses on a single commodity, durum wheat, and two final products, pasta and bread.

The country imposing the tariff in table 1 realizes a drop in net economic benefits. This loss of overall economic benefits comes from two sources. First, a higher domestic price draws resources into wheat farming, instead of other agricultural and nonagricultural uses, that might have created more value elsewhere. For example, capital and labor used to produce extra wheat might be more productive elsewhere, such as producing alternative crops or information technology. Second, higher wheat prices alter consumer choice and lower real income.

While tariffs increase prices in the imposing country, they can also lower world market prices. Producers in all other countries suffer from lower prices. Thus, while tariffs in one country may be seen as protecting its domestic wheat farmers, those same tariffs penalize wheat farmers in other countries. The high level of, and differences in, tariffs across countries shown in figure 1 indicate that current protection levels shift wealth across national borders.

The higher consumer price extends to industries that use the product, such as manufacturers that use wheat in pasta production. For example, tariffs that increase the price of wheat for domestic pasta manufacturers could decrease the price for foreign pasta makers. The higher wheat price raises costs for domestic pasta makers and puts them at a disadvantage to foreign companies in both the domestic and foreign markets.

Table 1 focuses on one commodity, but the costs and benefits from a single tariff can spill over to other commodities as well. As stated earlier, tariffs can draw resources away from the production of other commodities within a country. They can also alter production and consumption decisions in other countries. Lower international wheat prices could cause farmers in other countries to plant alternative crops such as barley or rapeseed, leading to an increase in their supply and a resulting fall in world price. By altering prices, tariffs alter economic incentives, which can significantly affect how efficiently economies use their resources. In general, one might expect that the more complex a country's tariff schedule, the less likely that any single component will have the intended effect.

To summarize, tariffs are a tool to protect domestic industries. They transfer income from consumers to producers and across the value-added chain. Tariffs have other unintended or spillover effects as well.

Table 1—Imposing/increasing a tariff on wheat has widespread effects

	Effect of wheat tariff on—		
	Country imposing tariff (higher domestic price)	Exporting countries (lower world price)	Importing countries (lower world price)
Wheat farmers	+	-	-
Processing industry (bread, pasta)	-	+	+
Consumers (bread, pasta)	-	+	+
Government tariff revenues	+	0	* ¹
Net benefits	- ²	-	+

¹Tariff revenues in other importing countries could fall to the extent that they apply ad valorem tariffs that raise less revenue when world prices fall.

²A theoretical argument shows that for the country implementing the tariff, an "optimal tariff" can increase net benefits if the tariff causes world prices to fall and allows the country to "collect" tariff revenue from producers in other countries. In practice, the pattern of existing tariffs is unlikely to meet this criteria.
Source: Economic Research Service, USDA.

First, they decrease overall wealth by distorting production and consumption. These distortions can filter down to prices of land and other inputs primarily used in agriculture. Second, tariffs in one country hurt farmers in other countries and benefit foreign consumers.

Additional spillover effects across countries include changes in other countries' balance of payments through changes in export or tariff revenue and import costs.

Why Countries Use Tariffs

Providing protection against competition from imports for a specific commodity or sector is the most common reason countries apply tariffs. Underlying this reason, however, is the old mercantilist notion that a country is better off if it exports more than it imports and that, therefore, protective tariffs will add to the nation's prosperity. One of modern economics' greatest contributions has been to point out the fallacy of the mercantilist argument by demonstrating the economywide benefits from free trade.

But, the economic case against tariffs, which exposes the distribution of costs and benefits to the economy, also helps to explain why those who benefit from tariffs continue to lobby ardently for protection. The costs, in the form of higher consumer prices, are spread out over a large number of consumers. However, the benefits are concentrated on a relatively small group of producers of the product. Any change in tariffs simply means more to the average producer than to the average consumer.

Several reasons are commonly used to justify applying tariffs. In agriculture, concern about farm income as well as nonmarket benefits from agriculture (e.g., benefits from agricultural landscapes) provide rationale for farm programs that often include tariffs as a policy instrument. Tariff protection is often an integral and essential element of a country's domestic agricultural policy and can only be eliminated if accompanied by changes in domestic regimes. In particular, programs designed to raise domestic prices above world prices may be unsustainable in the face of increased imports. While providing protection to producers, tariffs also raise consumer

prices and create more distortions than direct support for producers. Therefore, economists find that policies that directly target the policy objective, such as income transfers to address low incomes, are more effective policy instruments than tariffs (Corden).

Some justifications for tariffs relate to current market conditions. Temporary use of tariffs has been justified in order to protect new or infant industries and to provide a window to become established in the market. In practice, however, these tariffs prove difficult to remove, as those that benefit come to rely on the protection they provide. Under specific circumstances, tariffs can be introduced or raised even when they are bound at zero or have low rates. For example, the WTO allows members to apply anti-dumping (AD), countervailing (CVD), or special safeguard (SSG) duties (and, in the case of safeguards, import quotas). CVDs are sometimes applied to offset subsidies by other countries, while ADs are applied when foreign firms sell products below costs. SSGs can be imposed if a country experiences an increase in the volume of imports or a drop in the price of imports which exceed certain trigger levels. Tariffs applied for these three reasons represent an extremely small, but growing share of all tariffs, and WTO rules provide guidelines for their application.

Governments in developing countries sometimes apply tariffs to achieve other objectives. The relative ease of taxing goods at international borders compared to levying income or sales taxes makes tariffs an attractive source of revenue. Managing the balance of payments by restricting imports is another rationale developing countries use to apply tariffs.

Methodology for Developing Tariff Profiles

Countries levy tariffs in a number of different, and sometimes complex, forms. Most tariffs are expressed in “ad valorem” terms, or as a percentage of the value of the imported good. However, a significant portion is expressed in specific, or other non-ad valorem terms (see box, *Tariff Formats Conceal High Levels of Protection*). Agriculture is somewhat unique in the extent to which non-ad valorem tariffs are still used. In the United States and the EU, for example, approximately 44 percent of agricultural tariff-lines (categories of products with tariffs) are specified in non-ad valorem terms. There are a number of reasons for this, including the increased protection that a non-ad valorem tax can provide against large drops in import prices and the lack of transparency associated with these rates, which helps conceal the level of protection being provided.

Tariffs are bound at the tariff-line level, which refers to the category to which the legally established tariff applies. The complexity of many schedules and the lack of transparency associated with this complexity make it very difficult to compare tariffs across countries or across commodity markets. The challenge in making the comparisons is to transform the data to a common basis and then develop measures to summarize the thousands of tariff-lines that can make up a schedule. This section describes the conceptual approach used to develop meaningful tariff profiles for each country. The steps are presented following the same process we used to transform the tariff-lines into statistics that characterize each country’s tariff schedule. Appendix A provides technical details on these calculations.

Calculation of Tariff Ad Valorem Equivalents

The first step in developing tariff profiles is to calculate an ad valorem equivalent (AVE) for each non-ad valorem tariff. Unfortunately, no single AVE exists for non-ad valorem tariffs, as the calculated value depends on the choice of import price and exchange rate, both of which can change over time. The import price should approximate the declared value against which the ad valorem tariff would have been charged. Domestic prices overstate this value because they have been inflated by the tariff, while the country-specific import unit values reflect preferential import conditions and, thus, can be out of line with representative world prices and vary widely across countries (Lind-

Tariff Formats Conceal High Levels of Protection

Countries levy tariffs in a number of different ways:

- As a percentage of the value of imports (ad valorem tariffs)
- As a monetary amount per unit of import such as cents per liter (specific tariffs)
- As a combination of the two, such as 12.5 percent plus 2 cents per liter (compound tariffs)

Other factors can further complicate compound tariffs, including appending a threshold, such as, *but not less than 15 cents per liter or greater than 25 cents per liter*. In this case, either the ad valorem or the specific portion of the tariff can be binding. Tariffs may also vary based on the time of year (seasonal tariffs) or be determined by complex technical factors (such as sugar or alcohol content).

One of the main rationales for specific duties is their administrative simplicity, since they avoid the problem of having to value imports. Defenders of specific tariffs have argued that ad valorem rates give an incentive to importers to underinvoice, since the size of the duty depends on the price of the import. Supporters of ad valorem rates have countered that specific duties place a heavier burden on lower priced items within a given tariff-line and are therefore a regressive tax on consumers. In addition, they point to the lack of transparency associated with specific duties, since the ad valorem equivalent is often difficult to determine (Irwin).

Since calculating AVEs takes considerable time and effort, and since the data needed to perform such calculations are often not available, non-ad valorem tariffs for agriculture are often excluded from calculations of average tariffs. This can result in an average that is underestimated, since the AVE of these tariffs tends to be quite high. Based on the AVEs calculated in this study, non-ad valorem tariffs appear to provide significantly higher tariff protection than ad valorem tariffs. The average of bound tariffs specified solely in ad valorem terms is 58 percent, while the average AVE of non-ad valorem tariffs is 123 percent.

land). In many cases, no country-specific import value even exists, particularly when tariffs are so high as to preclude any trade from taking place. Representative world prices also present a problem since they may not conform to the specific quality or variety of the commodity imported.

In this study, world import unit values were used as a proxy for import prices, since the global perspective corrects for individual country tariffs and represents the average quality or variety of the product in question. This approach also allowed us to calculate AVEs even when the country imported none of the commodity in question. Unfortunately, world import unit values present a drawback as well, since they are only available at the relatively aggregate levels. When countries have many disaggregated tariff-lines, using the world unit import value may underestimate the AVE for some of these tariffs and overestimate it for others.

One characteristic of fixed, specific tariffs is that they provide a level of protection inversely related to prices. Therefore, in a time of low prices, the level of protection provided by the tariff is higher than during a period of high prices. Likewise, when tariffs are denominated in domestic currencies while prices are in U.S. dollars, a depreciation in the exchange rate will result in a decrease in the AVE, even if the specific tariff and the dollar price have not changed. Thus, the AVE will vary based on the time period of the world import unit value used in the calculation. Prices used to calculate AVEs in this report are based on average world import unit values for 1995-97. To the extent that world import prices during this period reflect somewhat higher world prices than prevailed at other times, the AVE tariffs presented here will be lower than AVEs calculated during a period of lower prices, such as current prices.

Country and Commodity Coverage

In order to identify patterns in protection, the next step is to aggregate the tariffs for extremely narrowly defined products (a total of 91,000 tariffs across all countries) into broad country and commodity categories. The next section uses regional aggregations to provide a broad overview of the differences in tariff protection. Country coverage of the data used includes 129 of 140 WTO members.³ Commodity or product groupings used in

this report cover a broad range of agricultural products traded by both developed and developing countries. The commodity list used in this report covers most, but not all of the lines that fall under the WTO definition of agriculture (see Appendix).⁴

The most common way to aggregate tariffs, used in this study, is to calculate the simple, unweighted average. However, drawbacks are associated with a simple average. An unweighted average does not distinguish between “important” and “unimportant” tariffs. Since equal weight is given to all agricultural tariffs, a kumquat tariff is as important as a wheat tariff, if each enters as a single tariff-line item. The different levels of commodity aggregation found in each country’s tariff schedule present another drawback. For instance, in the category “dairy,” there are 27 tariff-lines for Australia, 75 for Canada, 183 for the United States, and 187 for the EU. If tariffs for these items are large (which they are), the higher the level of disaggregation, the greater the upward bias in the country average.

There are a number of alternative ways to average and aggregate tariffs across countries and commodities, none of which is without bias. Weighted averages are often calculated in an attempt to emphasize certain tariffs over others. Weighting based on import values, perhaps the most commonly used weighting scheme, may bias the average downward, because items with the highest tariffs will receive virtually no weight because little or no trade will take place under such tariffs. Weighting based on shares of domestic value of production would assure that highly protected commodities produced in large amounts get appropriately large weights, but this method can result in an upward bias, because many factors other than tariffs affect agricultural production levels. In addition, production data at the tariff-line level are rarely available. The share of the domestic value of consumption is another alternative, but biased to the extent that high tariffs reduce consumption. Similar to production, consumption data are generally not available at the tariff-line level. One alternative is to calculate a simple (unweighted) average aggregated to a level where data on appropriate production weights are available (the 4- or 6-digit HS level), as was done by the Organization for Economic Cooperation and Development (OECD) in a recent analysis (OECD, 1999). Ultimately, there is

³ As of November 30, 2000, WTO membership totaled 140 countries or customs territories. Of this number, 16 are accounted for by the European Union; one each for the EU Commission and the 15 member states.

⁴ A detailed specification of commodity groupings is available from the authors (pgibson@ers.usda.gov).

Tariff Data

A number of sources provide the bound and applied data used in this report. The primary source of bound tariffs is the Agricultural Market Access Database (AMAD). The AMAD is the most comprehensive collection of available public data on WTO market access, containing detailed data on WTO tariff and TRQ schedules, import data, applied tariffs, production, consumption, and trade, among other information. The AMAD contains data on about 40 WTO members, including all major agricultural trading members. AMAD data can be accessed through its website, www.amad.org. Tariff bindings in this report for countries not included in the AMAD are from tariff bindings of the WTO Secretariat. These bindings are reproduced on the CD-ROM "Results of the Uruguay Round," WTO Secretariat. Additional data on applied tariffs is from the United Nations Conference on Trade and Development (UNCTAD) Trade Analysis and Information System (TRAINS) database. UNCTAD TRAINS contains a comprehensive collection of applied tariff data. Applied tariff data for developing countries for the years 1995-99 included in this analysis, as well as in the AMAD, are from the UNCTAD TRAINS database.

no ideal weighting scheme and the transparency of unweighted aggregations has some advantages.

Statistics To Characterize Tariff Profiles

A critical component of this study is to determine appropriate statistical measures to characterize the level of tariff protection in each country or commodity sector. The two most commonly used measures are the arithmetic mean (or average) to capture the overall level of tariffs and the standard deviation to measure the spread or distance of most observations from the mean. While each is the most efficient measure for normal or bell-shaped distributions, arithmetic mean and standard deviation are not the most appropriate measure for highly skewed distributions.⁵

Tariff schedules sometimes have distributions that are highly skewed to the right, meaning that the tariffs

⁵ When the word "mean" is used without a modifier, it refers to the arithmetic mean, or simple average.

continue much farther to the right of the mean than to the left. For these distributions, the mean may overestimate the central tendency of the data. The most common alternative measure is the tariff median, which measures the midpoint of the tariff schedule's distribution. If a country's tariff schedule is normally distributed, then the mean and median tariffs would be very close, and there would be no need to report more than one. But, when the tariff schedule is highly skewed, both the mean and median give useful information, although the median tariff might be considered a more "representative" measure for comparing the overall height of each country's regime, since it is less sensitive to a few extremely high rates.⁶

This report uses means and medians as the two statistics to characterize tariff distributions. While the relationship between the mean and median represents a continuum, four benchmark combinations are identified with associated economic interpretations.

High mean/high median: High levels of protection for a country or commodity sector found across most tariff-lines.

High mean/low median: Extremely high levels of protection for a few specific commodities result in high mean, although most tariff-lines are low. This suggests the need for more detailed analysis that breaks out countries and/or disaggregates commodities to understand nature of protection.

Low mean/high median: Extremely low levels of protection for a few specific commodities result in low mean, although most tariff-lines are high. This suggests the need for more detailed analysis that breaks out countries and/or disaggregates commodities to understand the nature of protection.

Low mean/low median: Low levels of protection for a country or commodity sector found across most tariff-lines.

Before applying these benchmarks to the data, definitions of high and low are required. The dividing lines are the global mean agricultural tariff equal to 62 percent and the global median tariff equal to 40 percent. In parts of the analysis, tariffs for a specific

⁶ This report does not provide a direct measure of the spread or dispersion of the data such as the standard deviation. A comparison of the mean and median provides some information about the dispersion and also indicates the influence of megatariffs.

commodity and country are also compared with regional or commodity mean and median tariffs.

This study also identifies markets subject to extremely high tariffs. This is important because these are markets where tariffs could be significantly reduced without actually improving market access. No internationally accepted definition exists to categorize these “megatariffs.” In this report, tariffs equal to or above

100 percent qualify as megatariffs. Another term for megatariffs used in this study is “international tariff peaks,” or those tariff-lines that exceed some common yardstick.⁷

⁷ The WTO often uses the term “international tariff peaks” to refer to tariffs above 15 percent. This definition has generally been used when examining tariffs on imports of manufactures. For agricultural tariffs, however, defining international peaks as tariffs equal to or above 100 percent has more meaning.

Bound Tariffs, TRQ Tariffs, and Applied Tariffs: What’s the Difference?

The levels of tariff protection profiled in this report refer to Most Favored Nation (MFN) bound tariffs. Tariff rates on trade under regional or preferential trade provisions, such as North American Free Trade Agreement (NAFTA) or Generalized System of Preferences (GSP), are not considered.

Bound MFN tariffs are tariff commitments scheduled by WTO members and are generally considered the maximum allowable tariffs that a member may levy on imports. The establishment of bound tariff rates on agricultural trade among WTO members was a major accomplishment of the Uruguay Round. Under WTO rules, application of tariffs above bound rates generally requires that compensation be offered to trading partners adversely affected by an increase in tariffs above bound levels. Bound MFN tariffs are the rate against which regional tariff preferences or other import reductions are referenced. Bound rates have typically been the rate used as the basis for tariff reductions in multilateral trade negotiations. The tariff schedules of most WTO members reflect the tariff rates established by the Uruguay Round. Tariff schedules of members who joined the WTO since 1995 were developed through accession negotiations. In general, these bindings reflect the rate effective for 2000 and beyond for developed countries and 2004 and beyond for developing countries, although all ceiling bindings took effect in 1995.

Some tariffs take the form of *tariff-rate quotas (TRQs)*. TRQs specify that a limited quantity of a

good may be imported at a low tariff, the “in-quota” tariff. Once the quota level has been reached, unlimited imports of the same good may be imported at a higher “over-quota” tariff. Prior to the Uruguay Round, many WTO members applied a wide range of nontariff barriers (NTBs) on imports of agricultural products. The Uruguay Round replaced NTBs with tariff-rate quotas; a process also known as tariffication. The tariffication process provided for two types of TRQs: minimum access and current access. The minimum access level is the quantity allowed to be imported at the lower tariff. It was set at 3 percent of consumption in 1986-88 in the base period, to be increased to 5 percent of base consumption by 2000 (2004 for developing countries). Current access was to be provided for products subject to tariffication with imports exceeding 5 percent of domestic consumption in the base period.

Although all WTO members established bound tariffs in the Uruguay Round, the actual *applied tariff* that a country imposes may be lower than the tariff binding. Unlike bound tariffs, applied tariffs may be raised above published levels (up to bound rates) without notice or compensation to affected trade partners. A comprehensive database of applied tariff data across WTO members is not readily available. However, a subset of applied tariff data for several developing countries from the AMAD and UNCTAD TRAINS databases was collected for this report. The data are used to illustrate the differences that may be observed between bound and applied rates in some countries.

Tariff Profiles by Region and Commodity

This section compares bound tariffs (see box, *Bound Tariffs, TRQ Tariffs, and Applied Tariffs: What's the Difference?* for information on different types of tariffs) on agricultural commodities across regional and commodity groupings. The tariff means and medians presented in this report are useful measures to compare the potential levels of protection built into countries' tariff schedules. However, differences between bound and applied tariffs, market conditions, and other policies also influence the actual barrier to market access.⁸

Tariffs by Region

Against a high global average tariff rate of 62 percent, considerable variation exists in tariff levels across regions. Average tariffs for WTO members by region range from an ad valorem tariff equivalent of 25 percent to 113 percent (figure 2). By region, average tariffs in agriculture are over 100 percent in two

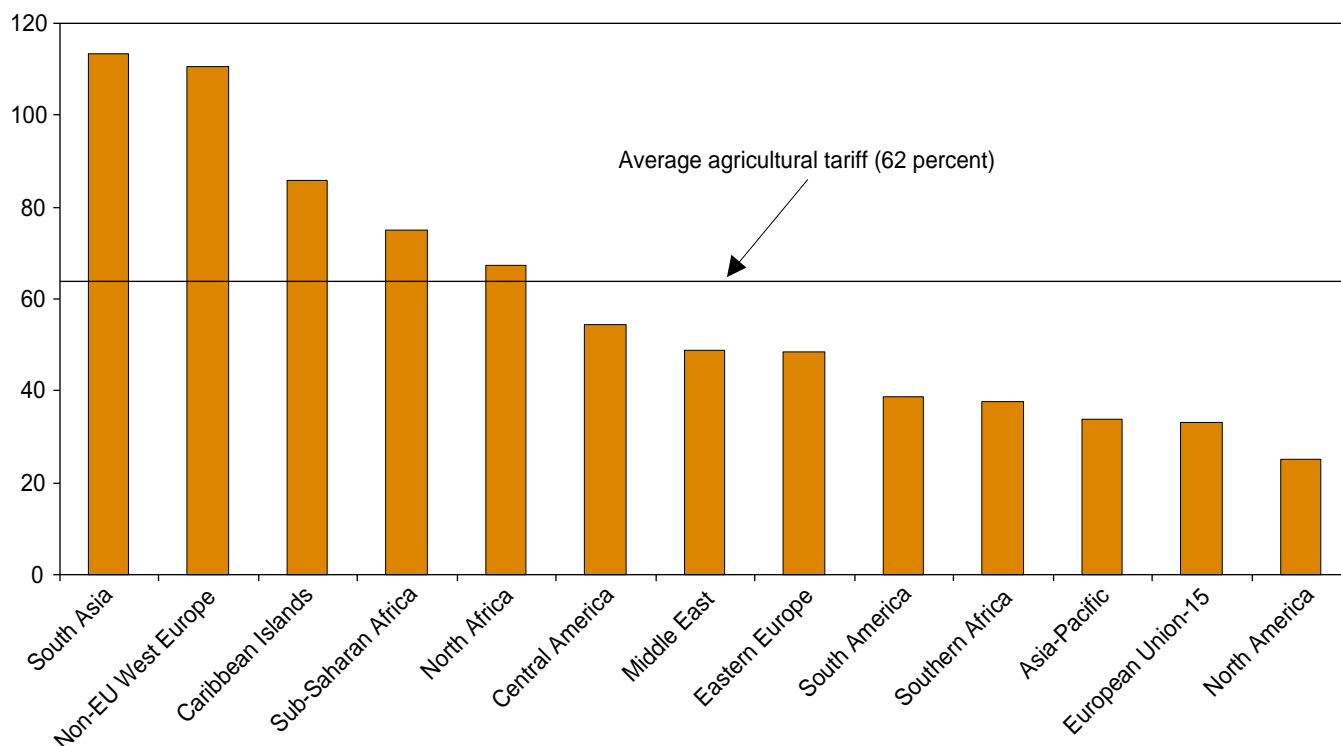
regions: South Asia (113 percent) and the non-EU countries of Western Europe (104 percent). At 25 percent, North America registered the lowest regional tariff average.

Table 2 displays mean and median tariffs, by regional grouping, for each of the commodity aggregates. For most of the developed country groupings, the regional tariff aggregates are among the lowest regional averages. The main exceptions to this trend are the non-EU countries of Western Europe, which include Norway, Switzerland, and Iceland. Each of these has relatively high average tariffs, at 142, 120, and 113 percent, respectively. Like North America, the EU-15 also registers a relatively low average regional tariff, at 30 percent.

⁸ The issue of “water in the tariff,” or the condition where a country's domestic price is below the import price plus the tariff, is an example of how market conditions help determine the actual level of protection. State trading enterprises and sanitary and phytosanitary (SPS) measures are examples of policies that can raise the actual level of import protection.

Figure 2
World agricultural tariff averages, by region¹

Percent



¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

Table 2—Mean and median tariffs, by region and commodity group¹

Commodity	Southern Africa		Asia-Pacific		South Asia		Sub-Saharan Africa		North Africa		Middle East	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
All commodities	39	37	34	25	113	100	75	80	71	34	48	35
Grains	37	33	60	25	103	100	75	80	84	34	40	15
Grain products	54	41	54	25	117	100	75	80	82	34	45	35
Feed	43	43	22	15	110	100	75	80	32	34	34	15
Starches	9	9	64	30	113	100	75	80	53	34	41	34
Oilseeds	34	40	33	25	110	100	75	80	53	69	36	23
Oilcake	33	33	22	10	112	100	75	80	78	69	39	25
Vegetable oils	81	81	24	23	134	100	75	80	106	34	38	28
Fats & oils	24	20	23	16	128	100	75	80	68	34	36	26
Live animals	0	0	30	21	111	100	75	80	93	34	43	16
Meat: fresh, or frozen other meat	75	75	27	25	111	100	75	80	111	80	50	35
Meat: fresh beef, pork, or poultry	9	76	32	30	113	100	75	80	94	68	62	35
Meat: frozen beef, pork, or poultry	68	69	31	30	110	100	75	80	85	60	62	35
Meat: prepared	44	37	35	25	122	100	75	80	58	34	67	35
Skins & hides	20	20	20	10	101	100	75	80	50	34	39	15
Dairy	37	22	73	30	104	100	75	80	74	87	65	35
Eggs	19	19	28	27	119	100	75	80	36	34	53	35
Fruit: fresh	22	30	30	30	108	100	75	80	36	34	65	35
Fruit: frozen	26	26	30	25	120	100	75	80	34	34	54	53
Fruit: dried & fresh (coconuts, dates & figs)	4	0	26	28	112	100	75	80	34	34	70	35
Fruit: dried (raisins)	23	23	25	25	107	100	75	80	34	34	101	35
Fruit: preparations	37	37	28	28	117	100	75	80	34	34	50	35
Fruit juice	26	26	28	24	107	100	75	80	34	34	59	35
Vegetables: fresh	31	33	31	25	110	100	75	80	30	34	60	35
Vegetables: frozen	37	37	24	19	111	100	75	80	34	34	70	47
Vegetables: frozen or prepared (other)	34	37	38	27	114	100	75	80	35	34	55	35
Vegetables: dried & fresh roots & tubers	7	0	74	25	115	100	75	80	31	34	44	19
Vegetables: dried	36	35	54	25	108	100	75	80	52	34	56	35
Vegetables: preparations	43	43	28	24	109	100	75	80	35	34	59	39
Vegetable juice: tomato	26	26	32	30	107	100	75	80	34	34	98	68
Nuts	18	0	31	25	113	100	75	80	58	34	47	35
Nuts & fruit: dried, fresh, & prepared	38	37	30	25	117	100	75	80	34	34	55	38
Horticulture: live	0	0	23	25	91	100	75	80	34	34	51	20
Horticulture: cut flowers & foliage	49	49	29	30	120	100	75	80	34	34	66	35
Sugar beet	26	26	22	18	110	100	75	80	33	34	38	23
Sugar cane	26	26	24	25	110	100	75	80	32	32	38	23
Sweeteners	22	22	38	30	121	100	75	80	143	168	42	15
Tobacco: unmanufactured	44	44	206	40	110	100	75	80	98	55	58	35
Tobacco: products	54	54	32	30	119	100	75	80	59	35	79	100
Fiber	13	9	21	10	104	100	75	80	43	34	37	15
Food preparations	53	37	33	23	117	100	75	80	63	34	50	35
Coffee	119	119	29	30	118	100	75	80	30	34	33	15
Coffee: other	78	78	32	28	118	100	75	80	33	34	39	35
Tea & tea extracts	51	51	41	30	130	150	75	80	35	34	35	15
Cocoa beans & products	10	17	25	25	115	100	75	80	34	34	37	17
Spices	7	0	24	20	114	100	75	80	34	34	37	21
Essential oils	22	22	22	16	120	100	75	80	100	100	44	35

See footnote at end of table

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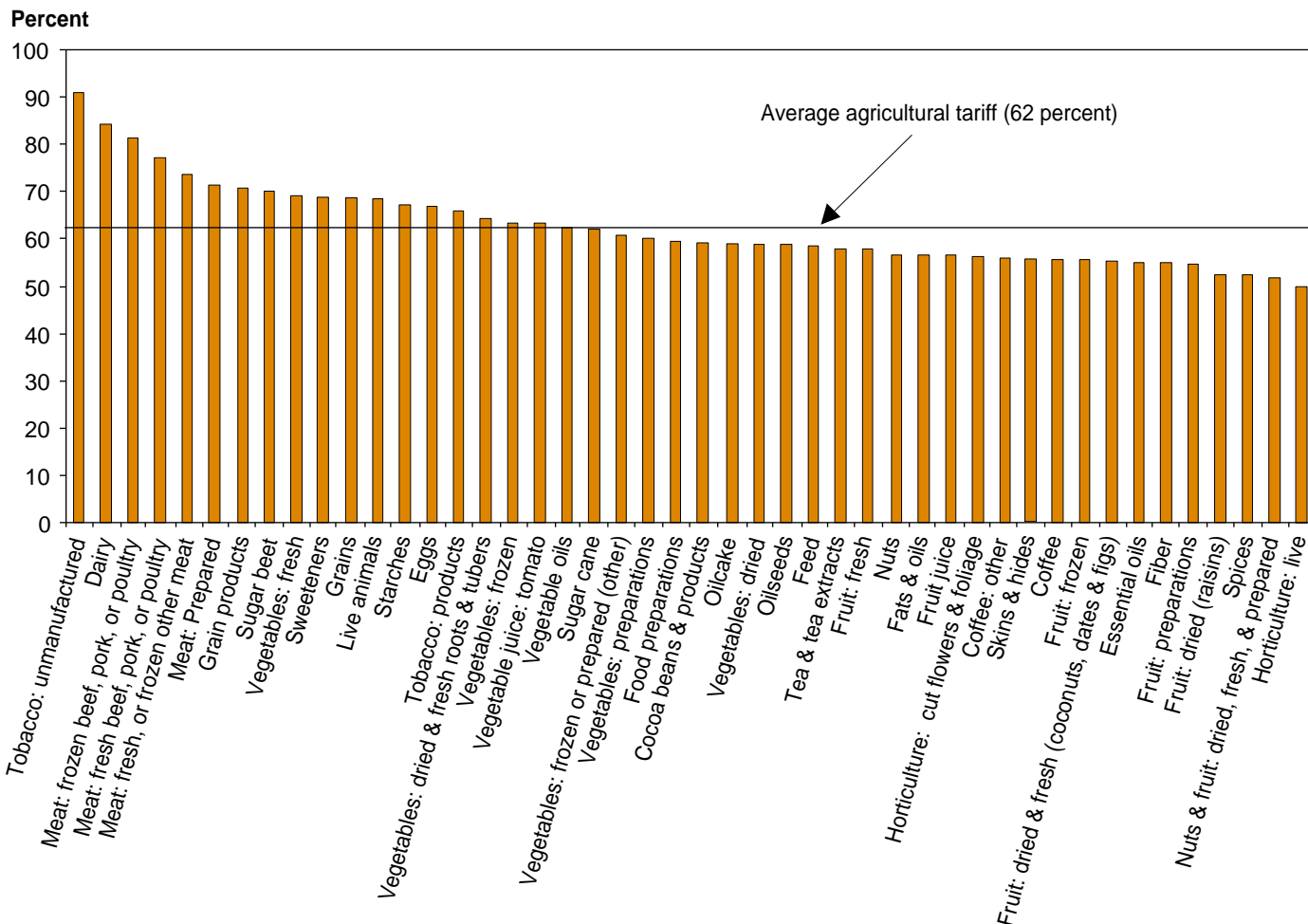
Table 2—Mean and median tariffs, by region and commodity group (con't)

Commodity	Eastern Europe		Non-EU West Europe		European Union-15		South America		Central America		Caribbean Islands		North America	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
All commodities	49	20	104	45	30	13	39	35	54	45	86	100	25	6
Grains	47	20	100	50	53	63	46	35	55	45	86	100	25	3
Grain products	65	35	122	53	48	45	40	35	50	40	86	100	19	5
Feed	17	2	131	50	47	11	39	35	50	40	86	100	23	3
Starches	49	35	93	45	24	20	38	35	53	40	86	100	14	7
Oilseeds	14	2	90	50	0	0	37	35	42	40	86	100	18	0
Oilcake	9	0	81	45	3	0	40	35	45	35	86	100	13	3
Vegetable oils	34	9	95	88	13	6	39	35	72	60	79	100	17	8
Fats & oils	33	13	85	50	10	3	38	35	53	43	81	100	28	8
Live animals	65	29	233	70	30	22	34	30	48	40	88	100	21	2
Meat: fresh, or frozen other meat	69	17	206	177	70	74	38	35	53	40	86	100	10	1
Meat: fresh beef, pork, or poultry	90	39	274	50	41	27	43	35	68	60	91	100	49	26
Meat: frozen beef, pork, or poultry	82	43	309	310	66	38	43	35	86	60	90	100	80	27
Meat: prepared	74	39	282	219	43	26	41	35	55	45	90	100	41	6
Skins & hides	45	1	22	10	0	0	37	35	59	50	86	100	6	0
Dairy	85	51	230	93	87	70	43	35	68	60	87	100	85	45
Eggs	49	26	189	61	22	24	38	35	51	40	86	100	60	38
Fruit: fresh	39	15	51	20	21	12	40	35	52	40	86	100	10	2
Fruit: frozen	39	17	34	40	20	21	40	35	52	40	86	100	17	10
Fruit: dried & fresh (coconuts, dates & figs)	14	18	21	20	4	6	41	35	55	45	86	100	15	5
Fruit: dried (raisins)	16	2	19	10	2	2	38	35	49	40	86	100	7	2
Fruit: preparations	49	20	48	45	21	21	39	35	52	40	86	100	12	7
Fruit juice	66	20	49	22	37	22	37	35	48	45	86	100	12	3
Vegetables: fresh	28	13	175	50	16	10	41	35	54	45	86	100	11	3
Vegetables: frozen	47	19	146	51	14	15	39	35	45	40	86	100	17	10
Vegetables: frozen or prepared (other)	23	9	103	50	18	12	40	35	50	40	86	100	13	10
Vegetables: dried & fresh roots & tubers	32	9	70	45	38	16	39	35	46	40	87	100	11	3
Vegetables: dried	22	18	47	27	2	0	36	30	54	45	86	100	11	3
Vegetables: preparations	47	19	123	50	21	14	38	35	51	40	86	100	12	8
Vegetable juice: tomato	88	26	26	22	16	16	39	35	52	50	86	100	25	25
Nuts	17	8	31	10	5	4	38	35	52	40	86	100	18	4
Nuts & fruit: dried, fresh, & prepared	37	10	49	32	16	17	38	35	51	40	86	100	11	6
Horticulture: live	8	2	67	17	5	7	33	30	47	40	86	100	1	1
Horticulture: cut flowers & foliage	34	17	91	45	5	3	36	35	45	40	86	100	13	7
Sugar beet	49	30	144	48	349	349	38	35	45	38	86	100	12	0
Sugar cane	34	15	99	45	56	56	38	35	45	38	86	100	12	1
Sweeteners	73	60	82	50	59	57	39	35	65	60	86	100	50	10
Tobacco: unmanufactured	42	51	28	30	14	11	38	35	64	74	86	100	28	5
Tobacco: products	64	55	29	23	38	34	38	35	66	74	86	100	112	13
Fiber	40	3	23	3	0	0	37	35	59	45	86	100	12	3
Food preparations	48	30	105	47	15	13	36	35	48	40	85	100	30	11
Coffee	22	13	20	9	6	8	38	35	50	40	86	100	18	0
Coffee: other	25	18	37	22	10	12	38	35	57	45	86	100	19	1
Tea & tea extracts	19	25	23	5	2	0	38	35	54	45	86	100	14	0
Cocoa beans & products	61	13	84	41	17	15	36	35	55	45	86	100	28	18
Spices	14	9	26	40	2	0	38	35	50	40	86	100	8	2
Essential oils	24	9	23	3	3	3	31	20	59	60	86	100	14	4

¹ Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA.

Figure 3
World agricultural tariff averages, by commodity¹



¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

The average tariff of the Asia-Pacific region of 34 percent conceals a wide range of country averages. Average tariffs of 10 percent or less are registered for Singapore, Hong Kong, Macau, Australia, and New Zealand. However, tariffs for Japan and Korea average 58 percent and 66 percent, respectively. Most of the remaining countries in the region maintain tariffs of 25 to 45 percent.

With the exception of the high tariff region of non-EU Western Europe, the regional groupings with the highest average tariffs are regions that comprise non-OECD countries. The developing country regions of Africa, the Caribbean, and South Asia, with averages ranging from 71 to 113 percent, are all above the global average rate of 62 percent. The regions of South America, the Middle East, and Central America all have tariff averages ranging from 39 to 54 percent.

Within most regional groups, the tariff means across commodity groupings tend to show a high degree of variation. In the three European regional groupings, as well as in North America, North Africa, and the Asia-Pacific region, there is a high dispersion rate across commodity means. In particular, tariffs greater than the overall average tariff on agriculture of 62 percent are found in the meat, dairy, sugar, and sweetener categories. In addition, in some regions, comparatively high tariffs are recorded for tobacco, oils, and several categories of prepared vegetables.

In a few regions, tariffs tend to be rather uniform, with average rates across commodity groups varying little from the regional averages. The average rate of 75 percent found across all commodities in Sub-Saharan Africa, for example, reflects the fact that each country in the region set a uniform tariff rate across the

entirety of its agricultural tariff schedule. While these uniform rates differ by country, when averaged across commodity groupings, the mean tariffs are identical for each. In South Asia, Central America, and South America, mean tariffs across the commodity groupings are also relatively close to the overall regional averages.

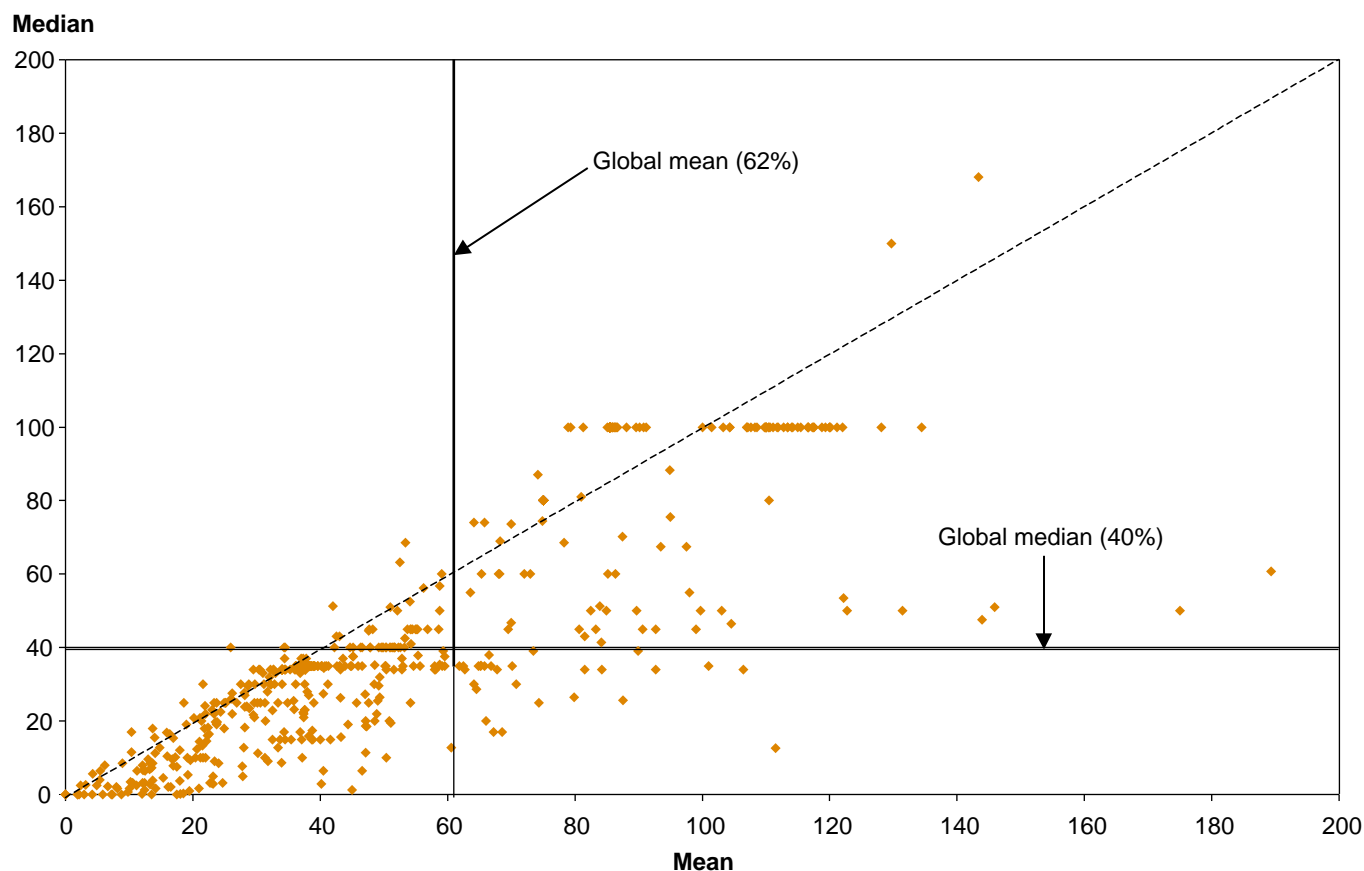
Tariffs by Commodity

Figure 3 compares average tariffs by commodity group for all WTO members reviewed in this report. Of the 46 commodity aggregates listed, average tariffs on 18 of the groups are above the global agricultural tariff rate of 62 percent. These commodity groups are made up of tobacco, dairy, meats, sugar, sweeteners, several categories of vegetables, grains, grain products, and breeding animals. Tariffs on the remaining 28 commodity groups are at or below the 62-percent average

tariff. At rates of more than 50 percent, commodity groups with the lowest tariffs (coffee, fiber, several fruit categories, spices, and live horticulture), are nevertheless all relatively high. These high global tariff rates across all commodity groupings reflect the high tariffs found in many developing countries' WTO schedules.

Table 2 also reveals regional patterns in tariff protection by commodity. For North America and the EU, tariffs on most of the commodity groups are below each region's respective average tariff. Commodities with tariffs below regional means in both the EU and North America include live breeding animals, coffee, fiber, fruit, nuts, oilseeds and oilcake, skins and hides, spices, tea, and vegetables. Unmanufactured tobacco in the Asia-Pacific region and sweeteners in North Africa have the highest tariffs for any commodity category in the respective regions.

Figure 4
High protection evident in global mean, median pairs¹



¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

Means and Medians across Commodities and Regions

Several patterns emerge from comparing means and medians across the regional and commodity averages. Figure 4 plots all the entries in table 2 where the mean falls within 200 percent (this excludes only eight regional-commodity points). The mean is on the horizontal axis and the median is on the vertical axis. The global mean and median are marked with solid lines. They divide the figure into four quadrants that correspond to the categories presented in the methodology section, e.g., low mean/low median in the lower left-hand corner, high mean/high median in the upper

right-hand corner. The dashed line at a 45-degree angle shows where the mean equals the median.

Several observations from figure 4 help characterize the global pattern of protection. First, most tariffs lie below the 45-degree line, indicating that high tariffs on a few specific lines are one cause of high overall averages. This is also reflected in a global median of 40 percent that lies below the global mean of 62 percent. The distance below the 45-degree line is an indicator of the magnitude of the influence of megatariffs on the mean value. For example, the point with a mean of 87 and a median of 70 represents EU dairy and shows that tariffs are high across most specific products. In contrast, the point 88, 26 represents Eastern Europe vegetable

Commodity and Country Snapshots¹

Figure 5a

Low tariffs in North America

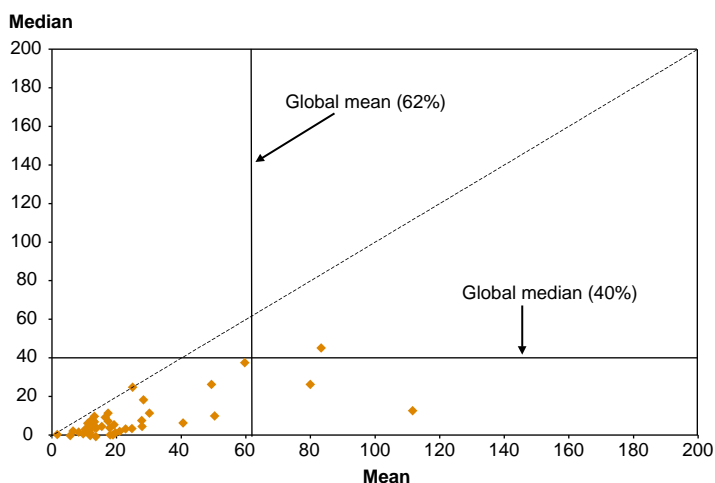


Figure 5c

Megatariffs' importance shown in dairy tariffs

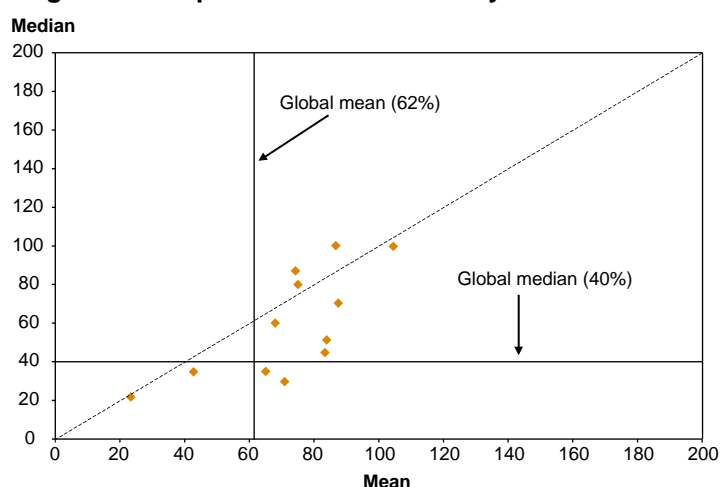


Figure 5b

High tariffs protect traditional sectors in EU

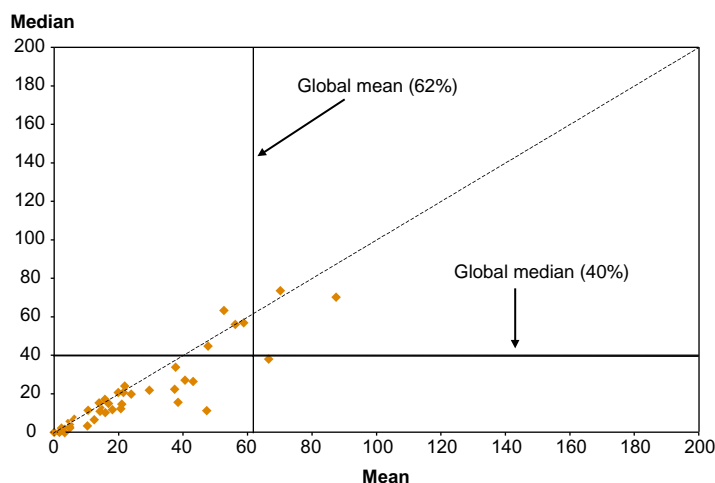
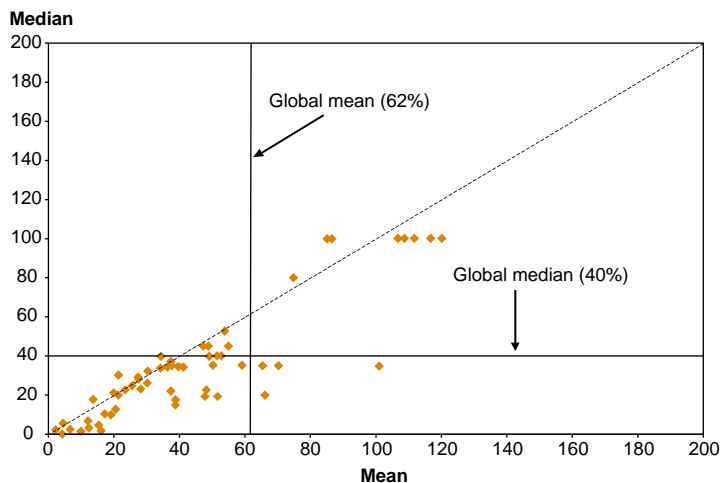


Figure 5d

High tariffs are the exception for fruit



¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

juice (tomato) and indicates that a few, very high tariffs distort the average.

The large number of tariffs in the low mean/low median category indicate that the majority of commodity averages for these regions lie below the global average. A comparison with the global average manufacturing tariff of 5 percent (Hertel and Martin) makes the point that all but a very few regional, commodity pairs lie above this average. Although relatively smaller in number, the scatter plot shows that a significant number of commodity groups across regions have high and likely prohibitive tariffs. Thus, the problem of high tariffs is not isolated in a small number of countries and commodities.

Figures 5a-5d show how scatter plots of means and medians can help uncover patterns of protection for both countries and commodities. Figures 5a and 5b display the commodity mean and median combinations for North America and the EU. Both regions have a small number of commodities with tariffs above the global average: meats, dairy, sugar (EU only), and tobacco products (North America only). EU tariffs on fresh meat and dairy have a higher median value indicating that a larger percentage of the tariff lines have high tariffs. Comparison of the two charts also shows that both countries have a large number of commodity categories with average tariffs of 20 percent or less, although North America has the largest number. Although no charts are included for the Asia-Pacific region, examination of data for this region shows a similar pattern to North America and the EU with the

highest levels of protection applied selectively, within a commodity grouping. A different pattern emerges for Central and South America, where tariff means are clustered in a smaller range. Many countries in the Central and South America region also show tariff medians that are at levels comparable to the means, suggesting that tariffs are not skewed by a large number of megatariffs. In non-EU Western Europe, and in in developing countries, high levels of protection tend to be specified more broadly across commodity groups.

Differences in the profile of tariffs across countries for dairy compared to fruits are shown in figures 5c and 5d. All but two average tariffs for dairy (South America and Southern Africa) are above the global mean. In addition, the median for each region is close to the mean, indicating that high tariffs exist across most lines. The fruits chart (figure 5d) encompasses six commodity categories and contains more observations than dairy (figure 5c), which is a single commodity category. The means and medians show a different pattern of protection where most tariffs are below the global average and median values lie close to the mean. However, the scatter plot detects the presence of high tariffs, including points in the high mean/low median quadrant that indicate megatariffs that likely isolate domestic industries from international competition—for example, juice in Eastern Europe, and fresh and dried fruit in the Middle East. The high tariffs in the high mean/high median quadrant represent ceiling bindings for Sub-Saharan Africa and South Asia.

Tariff Rate Quotas

On the surface, TRQs pose a paradox in that they cover only 6 percent or a small set of tariff-lines and are used by only 35 of 113 countries in this study, but are perceived to play an important role in agricultural protection. TRQs began as an instrument to provide limited market access for sensitive commodities because countries were worried that tariffication in the URAA would lead to extremely high tariffs. The use of TRQs in most regions makes them a factor in trade around the globe. TRQs were scheduled by countries in all regions reviewed in this report except for South Asia and Sub-Saharan Africa. Table 3 lists the countries that use TRQs, and these countries include the largest agricultural importing members of the WTO. Appendix tables 1 and 2 contain average tariffs by region and by chapter

of the harmonized system and show that TRQs exist across all commodity groups.

Some notable differences across TRQs show that while the problem touches most regions and commodities, the role of TRQs varies significantly. Some regions, such as Eastern Europe, scheduled TRQs for products in most commodity groups (see appendix tables 1 and 2). A more common practice was to schedule TRQs for a subset of specific, narrowly defined commodities or sub-commodities. Looking across commodities, in all regions with TRQs, at least one country scheduled TRQs for meats; dairy; cereals; and preparations of vegetables, fruits, nuts, or other parts of plants. The prevalence of TRQs in the sensitive sectors of meats, dairy, and cereals provides at least a partial explanation for their importance in trade policy discussions.

Table 3—Despite small share of total tariff-lines, TRQs affect average tariffs¹

Country	Tariff (all lines)	In-quota tariff (TRQ lines)	Over-quota tariff (TRQ lines)	Tariff-lines without TRQs	Tariff-lines with in-quota tariffs	Tariff-lines with over- quota tariffs	TRQ lines as percentage of total
	Average			Number			Percent
Average for table	49	63	128	--	--	--	23
Total for table	--	--	--	27,447	4,993	4,972	--
Australia	4	10	25	785	11	9	2
Barbados	102	141	114	607	37	109	19
Botswana	39	20	69	296	72	178	46
Brazil	37	7	42	1415	4	4	1
Canada	23	3	139	1020	141	151	22
Colombia	87	132	137	234	75	67	38
Costa Rica	42	44	68	669	73	86	19
Czech Republic	12	28	48	1728	46	246	14
Ecuador	26	30	43	887	18	22	4
El Salvador	41	25	75	670	37	89	16
European Union	30	17	78	1593	333	284	28
Guatemala	49	32	118	699	31	106	16
Hungary	29	26	40	495	86	416	50
Iceland	113	49	181	717	524	417	57
Indonesia	48	65	179	1,318	2	13	1
Israel	75	79	151	877	23	37	6
Japan	58	22	422	1181	188	122	21
Korea, Republic of	66	19	314	1134	195	173	25
Malaysia	25	106	248	1238	73	71	10
Mexico	43	48	148	882	69	68	13
Morocco	65	148	115	1205	30	279	20
New Zealand	7	0	7	979	4	4	1
Nicaragua	61	44	71	671	17	29	6
Norway	142	262	203	722	368	502	55
Panama	43	15	83	181	57	56	38
Philippines	34	40	36	680	15	67	11
Poland	48	31	59	73	169	258	85
Slovak Republic	13	30	42	798	40	177	21
Slovenia	51	17	71	160	33	33	29
South Africa	39	20	69	296	72	178	46
Switzerland	120	75	210	854	236	395	42
Thailand	35	27	91	683	35	54	12
Tunisia	110	26	109	286	14	43	17
United States	12	10	52	1198	190	182	24
Venezuela	52	37	101	216	62	63	37

-- = Not applicable.

¹Tariffs are bound MFN rates based on final URAA implementation

Source: Economic Research Service, USDA.

High Tariffs Characterize TRQs

Many of the high over-quota tariffs for TRQs appear to reflect countries' objectives to protect sensitive agricultural sectors. The average over-quota tariff for TRQ lines is 128 percent (table 3). The average over-quota tariff for 25 of the countries is higher than the 62-percent average for all tariffs. Of this group, the average over-quota tariff of 8 countries is between 100 and 150 percent. Over-quota rates of 6 countries are between 150 and 250 percent, and 2 countries, Japan and Korea, schedule over-quota rates that average above 300 percent.

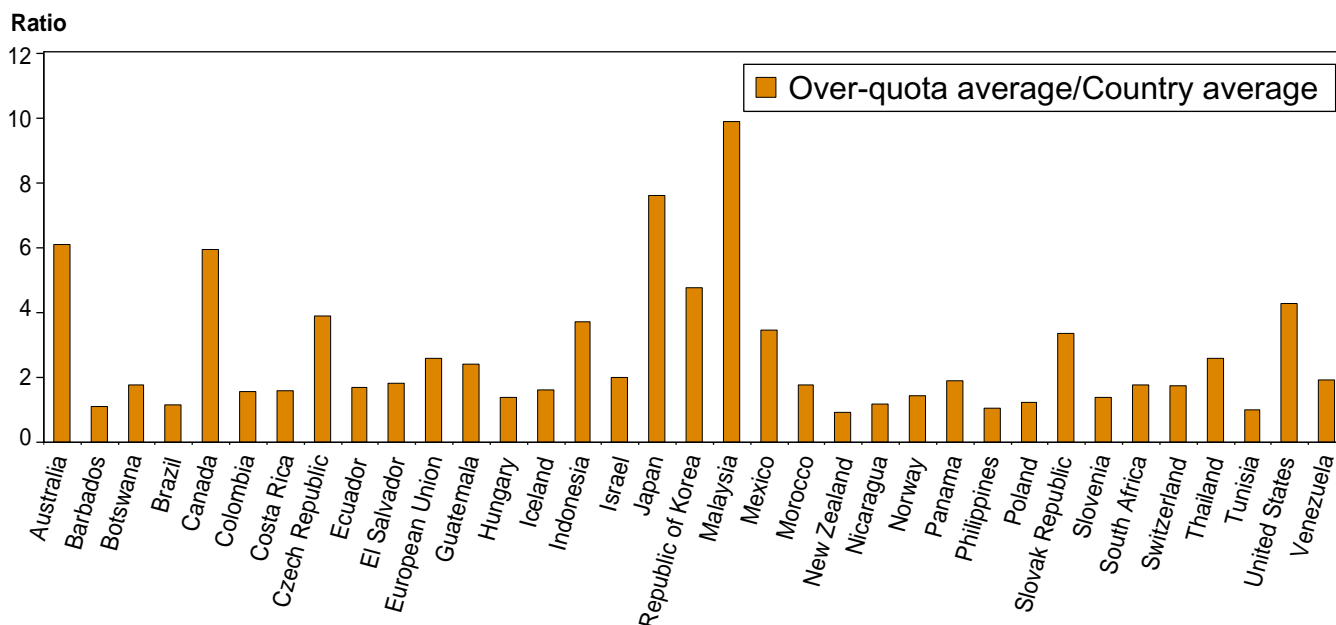
At 63 percent, the average in-quota tariff equals approximately the overall average tariff of 62 percent. In general, WTO members scheduled in-quota tariff rates at less than 50 percent. However, eight WTO members set in-quota tariffs over the global average tariff of 62 percent: Norway, Morocco, Barbados, Colombia, Malaysia, Israel, Switzerland, and Indonesia. Of this group, most scheduled in-quota tariffs between 65-150 percent. Although in-quota tariffs were designed to provide market access for a limited quantity of imports at relatively low tariffs, table 3

shows that, in practice, in-quota tariffs were also scheduled at very high levels.⁹

The ratio of the average tariff for all tariff-lines compared with the average for only the over-quota TRQ lines supports the expectation that TRQs generally protect sensitive sectors. Figure 6 shows the ratio of the average tariff for all lines to the average tariff for over-quota TRQ lines. In 14 countries, the average tariff for the TRQ lines is at least twice that for all lines. Three countries stand out with rates more than six times that of the average for all lines. Australia, with one of the overall lowest tariff averages, has a small number of TRQs that protect the dairy sector. Canada's TRQs protect mainly the dairy and poultry sectors and have an average over-quota tariff of 139 percent, although very low in-quota tariffs. Not surprising, with the highest average over-quota rate at 388 percent, Japan's over-quota rate is seven times higher than its overall average. While potentially posing a barrier to its markets, Japan's in-quota average of 22 percent represents a small fraction of the over-quota rate.

⁹ See analysis in Burfisher et al., for analysis of administration of TRQs and the possible role of in-quota tariffs.

Figure 6
TRQs are associated with high over-quota tariffs¹



¹ Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

Summing Up Tariff Protection: OECD vs. Non-OECD

Indicators of tariff protection for OECD and non-OECD countries in table 4 complement the characterization of tariffs using means and medians. The first four columns show averages for the commodity categories in absolute terms (table 4, columns 1 and 2) and as a percentage of the global mean tariff (table 4, columns 3 and 4). The data reinforce the finding that protection in OECD countries is concentrated in a few sectors: grains, dairy, livestock, sugar, and sweeteners. Non-OECD countries have overall high rates of protection with less variation across commodity groupings. They have high protection on the same commodities as OECD countries, but tobacco stands out with the highest average tariff for non-OECD countries.

The number of countries with tariffs higher than the global average shows the prevalence of high tariffs across countries. As in other cuts of the data, dairy stands out with the highest mean in OECD countries. Dairy also has the largest number of OECD and third largest number of non-OECD countries with high means. Sweeteners and frozen meat also have high means across a large number of countries.

OECD countries use megatariffs in a limited number of commodity groups, but have TRQs in all but two

commodity groups. The concentration of megatariffs among the familiar sensitive sectors is another manifestation of high protection for a few (albeit large) sectors. The number of TRQs notified by OECD countries is also concentrated in a few sectors. However, TRQs are found in at least one region for most commodity groups, indicating that sensitive products exist across the agricultural sector.

Non-OECD countries rely on megatariffs for protection along with more selective application of TRQs. Non-OECD, or developing countries, often apply tariffs far below these high, bound rates. The following section examines the use of applied tariffs in developing countries.

Overall, different patterns of protection between OECD and non-OECD countries emerge. OECD countries have higher rates on “traditional” agricultural sectors, such as dairy, livestock, and sugar, while non-OECD countries have high tariffs across most commodities. Both OECD and non-OECD countries provide extremely high protection to a few commodities. However, as a result of tariffication, OECD countries apply more TRQs than non-OECD countries. Non-OECD countries use megatariffs more than OECD countries. Many of the megatariffs associated with developing countries were not subject to reduction under the Uruguay Round because they were established as ceiling bindings.

Table 4—High tariffs and megatariffs for commodities by OECD, non-OECD¹

Commodity	Tariff		Tariff/global average tariff		Countries where average is > 62		Countries with megatariffs			Countries with TRQs		
	OECD	Non-OECD	OECD	Non-OECD	OECD	Non-OECD	OECD	Non-OECD	Both	OECD	Non-OECD	Both
	-- Average --		-- Ratio --		----- Number -----							
Tobacco: unmanufactured	22	110	0.4	1.8	0	42	0	30	30	3	5	8
Dairy	116	74	1.9	1.2	9	44	5	29	34	12	16	28
Meat: frozen beef, pork, or poultry	106	75	1.7	1.2	6	47	4	31	35	10	17	27
Meat: fresh beef, pork, or poultry	96	73	1.5	1.2	4	45	3	30	33	10	16	26
Meat: prepared	92	68	1.5	1.1	5	38	3	29	32	8	7	15
Meat: fresh, or frozen other meat	82	69	1.3	1.1	4	42	3	25	28	6	10	16
Sugar beet	104	64	1.7	1.0	4	35	3	28	31	2	0	2
Vegetables: fresh	87	64	1.4	1.0	4	37	3	28	31	9	8	17
Grain products	85	67	1.4	1.1	5	36	3	28	31	9	9	18
Sweeteners	64	70	1.0	1.1	6	41	2	31	33	8	12	20
Live animals	82	66	1.3	1.1	4	38	4	30	34	7	6	13
Starches	84	64	1.3	1.0	4	36	3	28	31	7	1	8
Eggs	74	66	1.2	1.1	4	36	4	27	31	8	5	13
Grains	78	66	1.3	1.1	5	40	3	28	31	10	16	26
Tobacco: products	51	69	0.8	1.1	3	41	2	29	31	1	3	4
Vegetables: dried & fresh roots & tubers	75	62	1.2	1.0	3	36	2	27	29	4	1	5
Vegetables: frozen	61	64	1.0	1.0	2	37	1	29	30	4	2	6
Vegetable juice: tomato	21	71	0.3	1.2	0	36	0	28	28	1	0	1
Oilcake	31	64	0.5	1.0	3	35	1	27	28	3	6	9
Sugar cane	52	64	0.8	1.0	2	35	1	28	29	2	0	2
Vegetables: frozen or prepared (other)	52	63	0.8	1.0	4	36	3	28	31	7	2	9
Vegetables: preparations	47	64	0.8	1.0	4	38	2	28	30	6	6	12
Food preparations	53	62	0.8	1.0	3	38	2	27	29	10	7	17
Cocoa beans & products	41	64	0.7	1.0	3	35	1	28	29	7	0	7
Vegetables: dried	47	62	0.8	1.0	3	37	3	28	31	7	7	14
Oilseeds	46	62	0.7	1.0	5	35	2	28	30	6	6	12
Feed	48	61	0.8	1.0	2	34	2	27	29	6	0	6
Tea & tea extracts	30	63	0.5	1.0	1	35	1	27	28	5	1	6
Fruit: Fresh	25	65	0.4	1.1	1	37	0	27	27	8	5	13
Skins & hides	4	65	0.1	1.0	0	35	0	27	27	0	0	0
Nuts	21	63	0.3	1.0	1	36	1	28	29	5	4	9
Fats & oils	36	62	0.6	1.0	3	36	1	26	27	7	5	12
Fruit juice	25	68	0.4	1.1	1	36	0	28	28	6	2	8
Horticulture: cut flowers												
& foliage	33	63	0.5	1.0	2	38	1	28	29	2	0	2
Coffee: other	29	63	0.5	1.0	1	36	0	27	27	4	2	6
Coffee	13	63	0.2	1.0	0	35	0	27	27	1	3	4
Fruit: Frozen	18	64	0.3	1.0	1	37	0	27	27	1	0	1
Fruit: dried & fresh												
(coconuts, dates & figs)	11	62	0.2	1.0	0	36	0	28	28	1	1	2
Essential oils	9	64	0.1	1.0	0	35	0	28	28	0	0	0
Fiber	8	63	0.1	1.0	0	36	0	26	26	3	3	6
Fruit: preparations	19	66	0.3	1.1	1	37	0	28	28	2	3	5
Fruit: dried (raisins)	7	61	0.1	1.0	0	36	0	28	28	1	3	4
Spices	10	61	0.2	1.0	1	34	0	27	27	2	1	3
Nuts & fruit (dried, fresh, & prepared)	22	62	0.4	1.0	3	34	1	28	29	4	4	8
Horticulture: live	31	59	0.5	1.0	3	37	2	27	29	3	0	3
Vegetable oils	39	68	0.6	1.1	3	41	2	28	28	4	10	14

Note: Averages are computed using the commodity average for each country in a particular region.

Source: Economic Research Service, USDA.

Comparison of Bound and Applied Tariffs

As shown in the preceding sections, many WTO members maintain high bound tariffs in their WTO market access schedules. In practice, however, not all countries apply tariffs at the bound rate (see box page 8, *Bound Tariffs, TRQ Tariffs, and Applied Tariffs: What's the Difference?*). Latin American countries present a good example of this, partly because of data availability. Figure 7 compares final WTO bound tariffs with 1998 applied tariffs for 15 countries, 12 of which are in Latin America. The final bound tariff for these countries is the tariff binding to be effective no later than 2004. In all cases, the average 1998 applied tariff is considerably lower than the final 2004 WTO bound rate. The average bound tariff for the 12 countries is 45 percent, while the average applied tariff in 1998 was 13 percent, or less than one-third the level of the average bound tariff. Not only do they tend to be lower, there is also less dispersion across applied tariffs than corresponding bound rates. While the average bound tariffs of these countries range rather widely,

from 26 to 110 percent, the average applied tariff in 1998 fell within a much lower and narrower range of 10 to 43 percent.

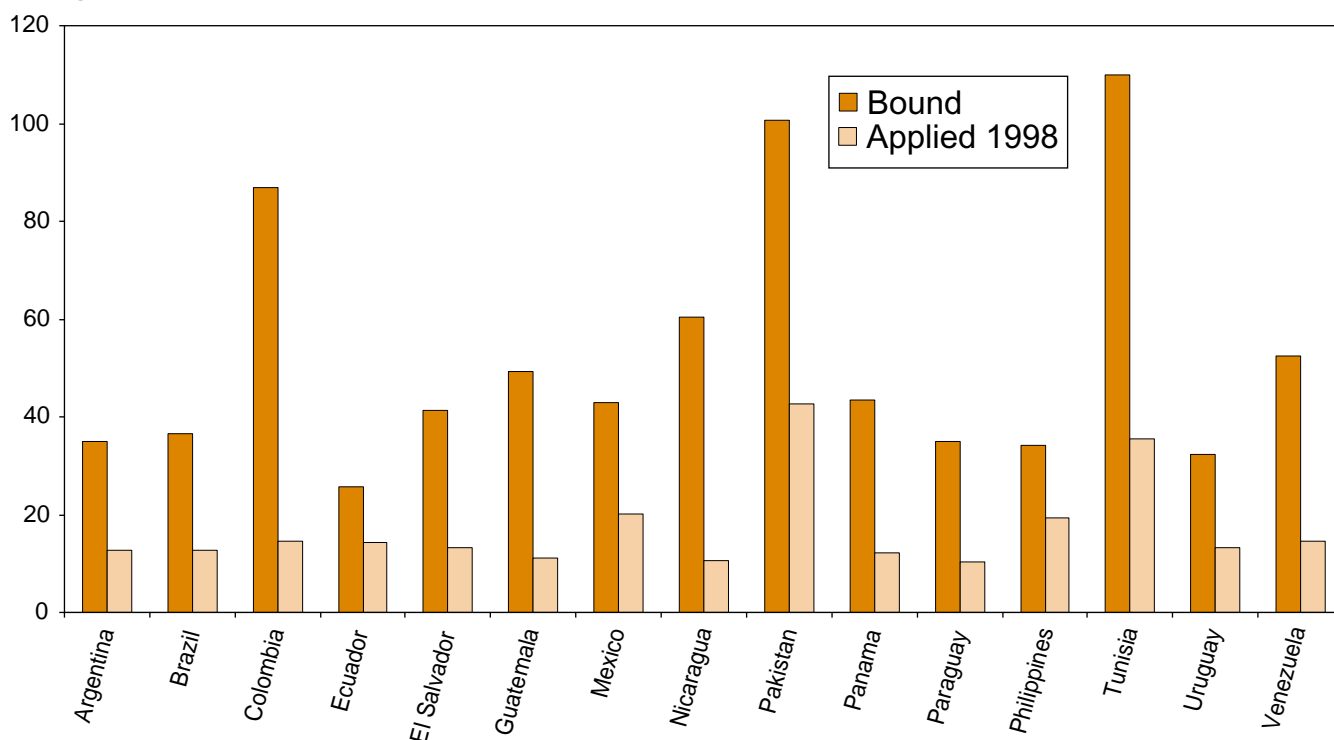
For developing countries in other regions, a more limited set of applied tariff data for one or more of the years 1995-99 was available. Table 5 presents these tariff averages. For 7 of the countries listed, applied tariffs for the various years reported were at levels that averaged from about one-quarter to about three-quarters of the bound rates. India, Pakistan, and Tunisia all scheduled final bound tariffs which average over 100 percent, while the applied tariffs for the years shown were considerably lower, at between 30 and 43 percent. Korea and Morocco, however, set applied tariffs for the years listed at about 75 percent of bound rates.

Although the countries listed above apply tariffs below bound rates, many developing countries and most developed countries tend to apply tariffs at the bound rate. Some countries, such as Thailand and Turkey, appear to be violating their Uruguay Round commitments by applying tariffs at rates higher than their bound rates, but this is explained by the fact that many

Figure 7

The difference between bound and applied tariffs in selected developing countries¹

Average tariff



¹Bound tariffs are MFN rates based on final URAA implementation, and applied tariffs represent annual average.

Source: Economic Research Service, USDA

Table 5—Averages for applied tariffs for selected countries and years¹

Country	Bound	Applied 1995	Applied 1996	Applied 1997	Applied 1998	Applied 1999
Argentina	35	na	na	10	13	na
Brazil	37	10	10	10	13	13
Colombia	87	15	14	14	15	22
Costa Rica	42	14	na	na	na	17
Ecuador	26	15	na	14	14	16
El Salvador	41	14	na	13	13	na
Guatemala	49	14	na	na	11	na
India	114	na	na	30	na	na
Indonesia	48	16	16	na	na	na
Korea, Republic of	66	17	50	na	na	na
Mexico	43	14	na	20	20	na
Morocco	65	na	na	49	na	na
Nicaragua	61	14	na	na	11	na
Pakistan	101	na	na	na	43	na
Panama	43	na	na	na	12	na
Paraguay	35	na	na	11	10	na
Philippines	34	26	na	na	19	na
Thailand	35	37	na	na	na	na
Trinidad & Tobago	100	na	na	na	na	na
Tunisia	110	34	na	na	35	na
Turkey	39	na	na	45	na	na
Uruguay	32	na	na	10	13	na
Venezuela	52	15	na	15	15	15

na = Not available.

¹Bound tariffs are MFN rates based on final URAA implementation, and applied tariffs represent annual average.

Source: Economic Research Service, USDA.

of their bound tariffs are not scheduled to become effective until 2004. The applied rates, on the other hand, reflect the tariff schedule published for Thailand in 1995 and Turkey in 1997, well before full implementation of all tariff reductions.

The differences between bound and applied rates reflect a conflicting set of interests of importers and governments. The lower tariffs provided by applied rates in the examples shown in figure 7 may be preferable for importers seeking to import and sell foreign goods. However, given the ability of governments to raise applied rates without penalty, the tariff applied on a shipment when it clears customs may not be the tariff

published in the country's applied tariff schedule. This uncertainty can have a dampening effect on the level of additional trade one might expect to occur at the lower applied rate. On the other hand, from the government's perspective, the lower applied rates give the country the ability to raise tariffs quickly in order to insulate its domestic market from fluctuations in world prices and thus minimize harm to the national economy. Unfortunately, when countries utilize high bound tariffs as an umbrella under which they vary their applied tariffs, they can eliminate much of the advantage that stable, bound tariffs have over nontariff barriers and can contribute toward greater instability in world prices.

Tariff Escalation

Tariff escalation refers to the situation where tariffs are zero or low on primary products and then increase, or escalate, as the product undergoes additional processing. Further, when tariffs on products escalate with the stage of processing, the effective rate of protection, or the tariff expressed as fractions of value-added after deducting intermediate inputs from product value, also increases. Thus, tariff escalation potentially signals high rates of protection for value-added or processed products, and can inhibit international trade in these goods. For a few countries, however, the opposite may occur, with higher tariffs on bulk commodities raising raw material costs, thus placing a country's processed exports at a competitive disadvantage to other countries, a situation known as tariff de-escalation.

The commodity breakouts presented in table 2 identify a number of primary and processed commodity stages, albeit at a somewhat aggregate level. To give some indication of the extent to which tariffs escalate in the agricultural sector, table 6 shows various processing stages for a number of commodity groupings and gives the mean tariff by region.

A number of important points emerge from table 6. First, although there is evidence of tariff escalation in a number of commodities across both developed and developing regions, there are also many regions and commodities in which tariff escalation does not appear to be a problem. In 7 of the 13 regions, tariffs on processed products exceed those on the raw material in more than half of the cited examples. Tariff escalation is most evident in the schedules of Eastern Europe and the Middle East, followed by North America, South Asia, and the EU. In Eastern Europe, tariffs tend to escalate by at least 10 percentage points in all but three processing chains. The largest example of escalation, however, is for sweeteners in North Africa, where the mean tariff increases by over 100 percentage points over those on sugar beets and sugarcane.

Processed products in which escalation is most pronounced include meats, sweeteners, and vegetable oils. Tariffs increase with processing in 10 regions within the meats and sweeteners sectors and in 9 regions within the vegetable oils sector. In some cases (meat in Southern Africa and Other Western Europe and vegetable oils and sweeteners in North Africa), the average spread between primary and processed commodity tariffs is over 50 percentage points. Other examples of spreads exceeding 50 percentage points include vegetable juice in Eastern Europe and tobacco products in North America.

Tariffs in some processing chains do not increase and may even decline with additional processing. The countries of Sub-Saharan Africa and the Caribbean tend to have uniform tariffs across all agricultural products and account for the bulk of the cases where no change occurs across the processing chain. The hides and skins sector provides the best example of tariff de-escalation, or tariff protection declining with processing. In 9 of the 13 regions, the average tariff on hides and skins declines compared with the average on live animals. Other studies of tariff escalation suggest that tariff de-escalation is particularly common in the case of multiple outputs (Lindland). Thus, while tariffs on hides and skins are lower than those on live animals, the tariff on meat, the main output in this multiple processing relationship, tends to be much higher. A pattern of tariff de-escalation can also result when the processed import is at the first stage of processing. In this case, tariffs on the finished product (in our example, leather goods) would then escalate. In agriculture, a pattern of tariff de-escalation might be tied to the level of support provided by farm programs, which, to be effective, might require high border protection on primary products. In some of these cases, however, products at a higher level of processing may receive protection in forms other than tariffs, such as higher transport costs or the ability of domestic firms to exercise monopoly power (Yeats).

Table 6—Average tariffs by region and level of processing¹

	North America	Central America	Caribbean Islands	South America	EU-15	Other W. Europe	Eastern Europe	Middle East	North Africa	Sub-Saharan Africa	Southern Africa	Asia- Pacific	South Asia	All regions
Grains	25	55	86	46	53	100	47	40	84	75	37	60	103	69
Grain products	19	50	86	40	48	122	65	45	82	75	54	54	117	70
Oil seeds	18	42	86	37	0	90	14	36	53	75	34	33	110	59
Oilcake	13	45	86	40	3	81	9	39	78	75	33	22	112	57
Vegetable oils	17	72	79	39	13	95	34	38	106	75	81	24	134	62
Live animals	21	48	88	34	30	233	65	43	93	75	0	30	111	69
Hides & skins	6	59	86	37	0	22	45	39	50	75	20	20	101	57
Fresh & frozen meat	65	77	90	43	54	291	86	62	89	75	82	32	111	74
Prepared meat	41	55	90	41	43	282	74	67	58	75	44	35	122	74
Fruit, fresh	10	52	86	40	21	51	39	65	36	75	22	30	108	58
Fruit preparations	12	52	86	39	21	48	49	50	34	75	37	28	117	55
Fruit juice	12	48	86	37	37	49	66	59	34	75	26	28	107	57
Vegetables: fresh	11	54	86	41	16	175	28	60	30	75	31	31	110	69
Vegetable preparations	12	51	86	38	21	123	47	59	35	75	43	28	109	60
Vegetable juice	25	52	86	39	16	26	88	98	34	75	26	32	107	63
Sugar beet	12	45	86	38	349	144	49	38	33	75	26	22	110	70
Sugar cane	12	45	86	38	56	99	34	38	32	75	26	24	110	62
Sweeteners	50	65	86	39	59	82	73	42	143	75	22	38	121	69
Tobacco (unmanufactured)	28	64	86	38	14	28	42	58	98	75	44	206	110	89
Tobacco (products)	112	66	86	38	38	29	64	79	59	75	54	32	119	66

¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA.

Agricultural Tariff Schedules of the United States, European Union, and Japan

This section presents a more detailed examination of the agricultural tariff schedules for three of the world's largest importers of agricultural goods, the United States, the EU, and Japan. These schedules are among the most complex in the world, consisting of a mix of tariffs and TRQs, with a combination of ad valorem and non-ad valorem rates. Some of the rates vary over the course of the year. Some are set on the basis of a complex technical relationship, while others are a combination of ad valorem and specific rates, set up so that either component can be binding. This section provides a detailed picture, on a commodity basis, of where bound tariffs in each country's schedule remain high and where they are already low or zero.

Measuring the Impact of High Tariffs

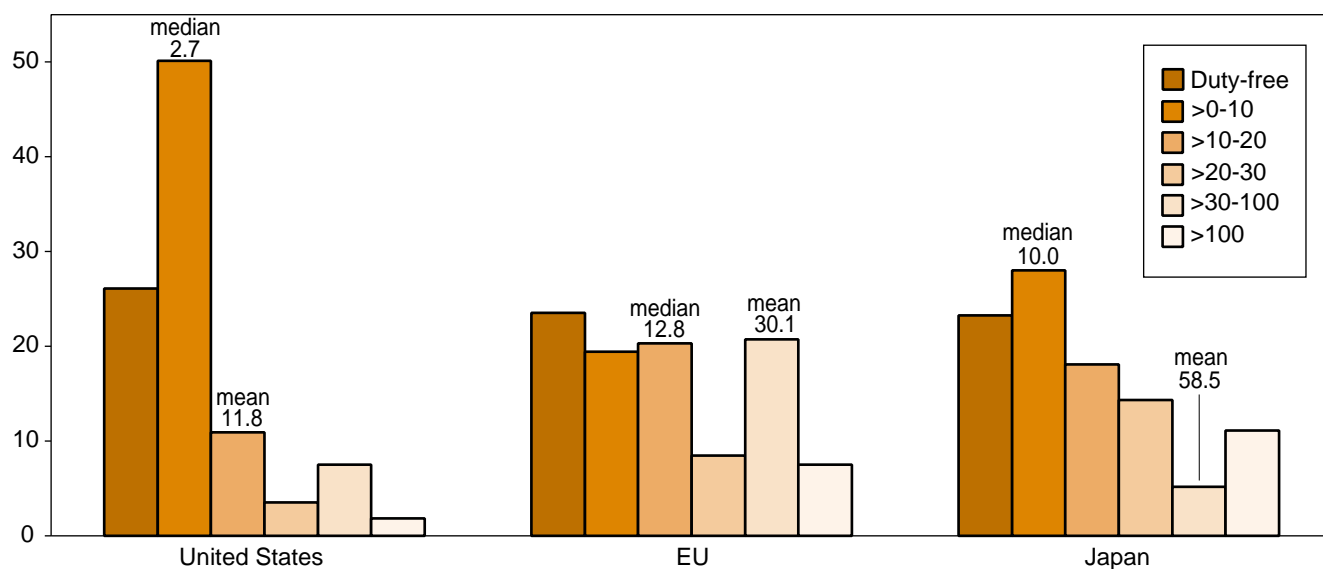
Figure 8 consists of three histograms containing the proportion of each country's tariff-lines falling in 6 categories ranging from zero (duty-free) tariffs to tariffs greater than 100 percent. This breakout illustrates that there are both widespread differences in the distribution of agricultural tariffs across the three countries and that none of the countries' tariff schedules are dis-

tributed symmetrically around the tariff mean. Distributions such as these are described as being highly skewed to the right, meaning that the tariffs continue much farther to the right of the mean than to the left. This is somewhat obscured by the fact that, in figure 8, all tariffs above 100 percent are lumped into one interval on the far right of each distribution. About 2 percent (24 tariff-lines) of the U.S. schedule consists of tariffs above 100 percent, with the highest rate equaling 350 percent. For the EU the figures are 8 percent (141 lines) with a high rate of over 500 percent, while 11 percent (142 lines) of Japan's schedule is made up of megatariffs, with the highest rate exceeding 2,000 percent.

As shown in figure 8, the means for each of these countries are clearly inflated by the presence of a relatively small number of very high rates. As discussed previously, for skewed distributions, the mean alone is not sufficient to characterize the overall level of tariffs. Medians provide a useful complement since they are robust to outliers. In each case, the tariff medians are considerably lower than the tariff means. In contrast to the median, which defines the center of the distribution in each country's tariff schedule, only 12 percent of Japan's agricultural tariffs are larger than its tariff mean. Only 21 percent of U.S. tariffs are greater than the mean, while in the EU's schedule only 28 percent of all tariffs exceed the mean.

Figure 8
Relative frequency distributions of agricultural tariffs for the United States, EU, and Japan¹

Percent



¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

The mean, median, and frequency of distribution give a more complete picture of each country's agricultural tariff schedule as well as additional information useful when comparing tariff schedules across countries. Judging from these measures, the overall level of tariff protection in the EU and Japan is considerably higher than in the United States. But the picture is not as

clear when comparing the EU and Japan, since the relative size of their tariff means and medians differs, with the EU having a lower mean but a higher median. What is clear, though, is the extent to which each country's tariff mean is inflated by the presence of megatariffs in each schedule.

Table 7—Mean, median, and number of megatariffs of the United States, the EU, and Japan¹

	United States			EU			Japan		
	Mean	Median	Megatariffs	Mean	Median	Megatariffs	Mean	Median	Megatariffs
All commodities	12	3	24	30	13	141	58	10	142
Grains	2	1	--	53	63	2	191	3	7
Grain products	8	2	--	48	45	2	162	24	26
Feed	15	0	2	47	11	9	9	0	--
Starches	1	1	--	24	20	--	126	53	3
Oilseeds	17	0	2	0	0	--	72	0	2
Oilcake	2	2	--	3	0	--	1	0	--
Vegetable oils	4	2	--	13	6	1	10	9	--
Fats & oils	3	2	--	10	3	1	4	4	--
Live animals	1	0	--	30	22	--	107	0	5
Meat: fresh, or frozen other meat	1	0	--	70	74	29	39	0	2
Meat: fresh beef, pork, or poultry	12	1	--	41	27	6	45	7	3
Meat: frozen beef, pork, or poultry	9	5	--	66	38	24	38	9	3
Meat: prepared	2	2	--	43	26	7	79	20	7
Skins & hides	0	0	--	0	0	--	1	0	--
Dairy	43	38	7	87	70	41	322	227	48
Eggs	9	8	--	22	24	--	18	21	--
Fruit: Fresh	4	1	--	21	12	1	10	6	--
Fruit: Frozen	8	9	--	20	21	--	9	10	--
Fruit: dried & fresh (coconuts, dates & figs)	8	4	--	4	6	--	3	3	--
Fruit: dried (raisins)	2	2	--	2	2	--	1	1	--
Fruit: preparations	6	4	--	21	21	--	18	17	--
Fruit juice	0	0	--	37	22	3	22	23	--
Vegetables: fresh	7	4	--	16	10	2	3	3	--
Vegetables: frozen	9	8	--	14	15	--	10	10	--
Vegetables: frozen or prepared (other)	6	5	--	18	12	1	110	9	1
Vegetables: dried & fresh roots & tubers	6	5	--	38	16	--	7	7	--
Vegetables: dried	3	2	--	2	0	--	197	6	6
Vegetables: preparations	6	5	--	21	14	2	13	13	--
Vegetable juice: tomato	--	--	--	16	16	--	26	26	--
Nuts	17	3	3	5	4	--	8	8	--
Nuts & fruit: dried, fresh, & prepared	6	4	--	16	17	--	13	12	--
Horticulture: live	10	1	--	5	7	--	0	0	--
Horticulture: cut flowers & foliage	4	4	--	5	3	--	2	3	--
Sugar beet	0	0	--	349	349	2	0	0	--
Sugar cane	1	1	--	56	56	--	--	--	--
Sweeteners	46	51	5	59	57	8	82	55	13
Tobacco: unmanufactured	83	5	3	14	11	--	0	0	--
Tobacco: products	102	9	1	38	34	--	9	3	--
Fiber	3	0	--	0	0	--	21	0	2
Food preparations	17	10	--	15	13	--	52	21	10
Coffee	0	0	--	6	8	--	6	6	--
Coffee: other	5	1	--	10	12	--	37	17	2
Tea & tea extracts	7	3	--	2	0	--	57	17	2
Cocoa beans & products	18	18	--	17	15	--	16	14	--
Spices	1	0	--	2	0	--	2	0	--
Essential oils	1	0	--	3	3	--	2	2	--

-- = not applicable.

¹ Tariffs are bound MFN rates based on final URAA implementations.

Source: Economic Research Service, USDA.

Finding Megatariffs by Commodity Groupings

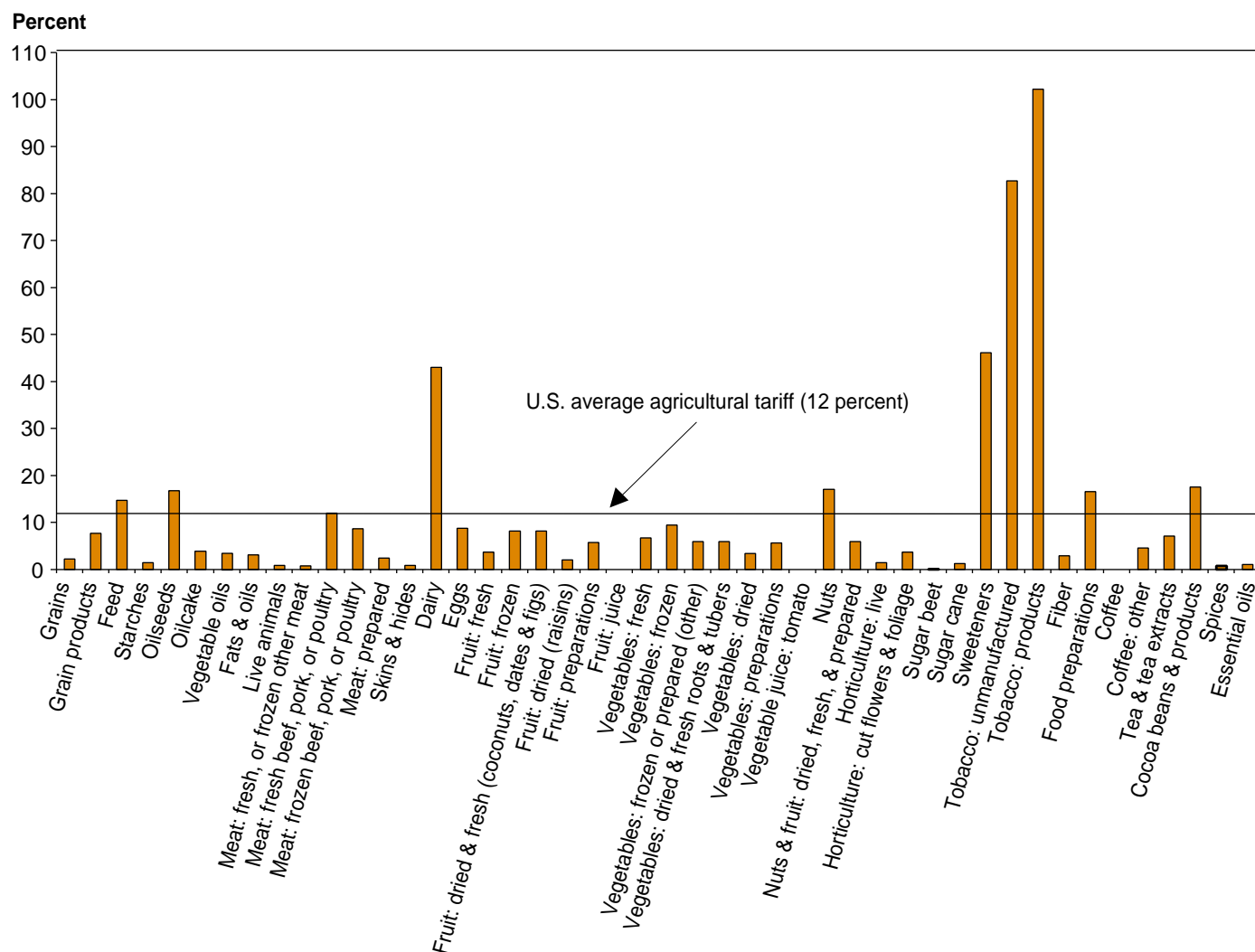
This section focuses on how agricultural tariffs differ across commodity sectors and identifies which products are subject to high tariffs that might preclude profitable trade from taking place. Figures 9-11 display the tariff means for the same 46 commodity groupings used in the previous section, comparing these means with the overall tariff mean for each country.¹⁰ The individual commodity means exceed the country's overall mean in only between 10 (U.S.) and 14 (EU) of the 46 product categories in each country. In seven of the commodity

¹⁰ Recall that these groupings represent a subset of all the agriculture tariffs in the countries' schedules. Some of the missing lines represent sectors where tariff equivalents cannot be calculated, e.g., alcoholic beverages.

sectors in Japan and in one each in the United States and the EU the means are greater than or equal to 100 percent.

In addition to containing the means found in figures 9-11, table 7 gives the tariff medians for these commodity groups and identifies the extent to which megatariffs are being applied in each group. Large differences between the mean and median tariffs indicate that a few, extremely high rates distort the mean. Megatariffs are found in between 7 (U.S.) and 17 (EU and Japan) of the 46 product categories in each country. It is interesting to note where the differences and similarities lie in the levels of tariff protection each country accords its agricultural and agri-food producers and how these compare with the overall level of tariff protection.

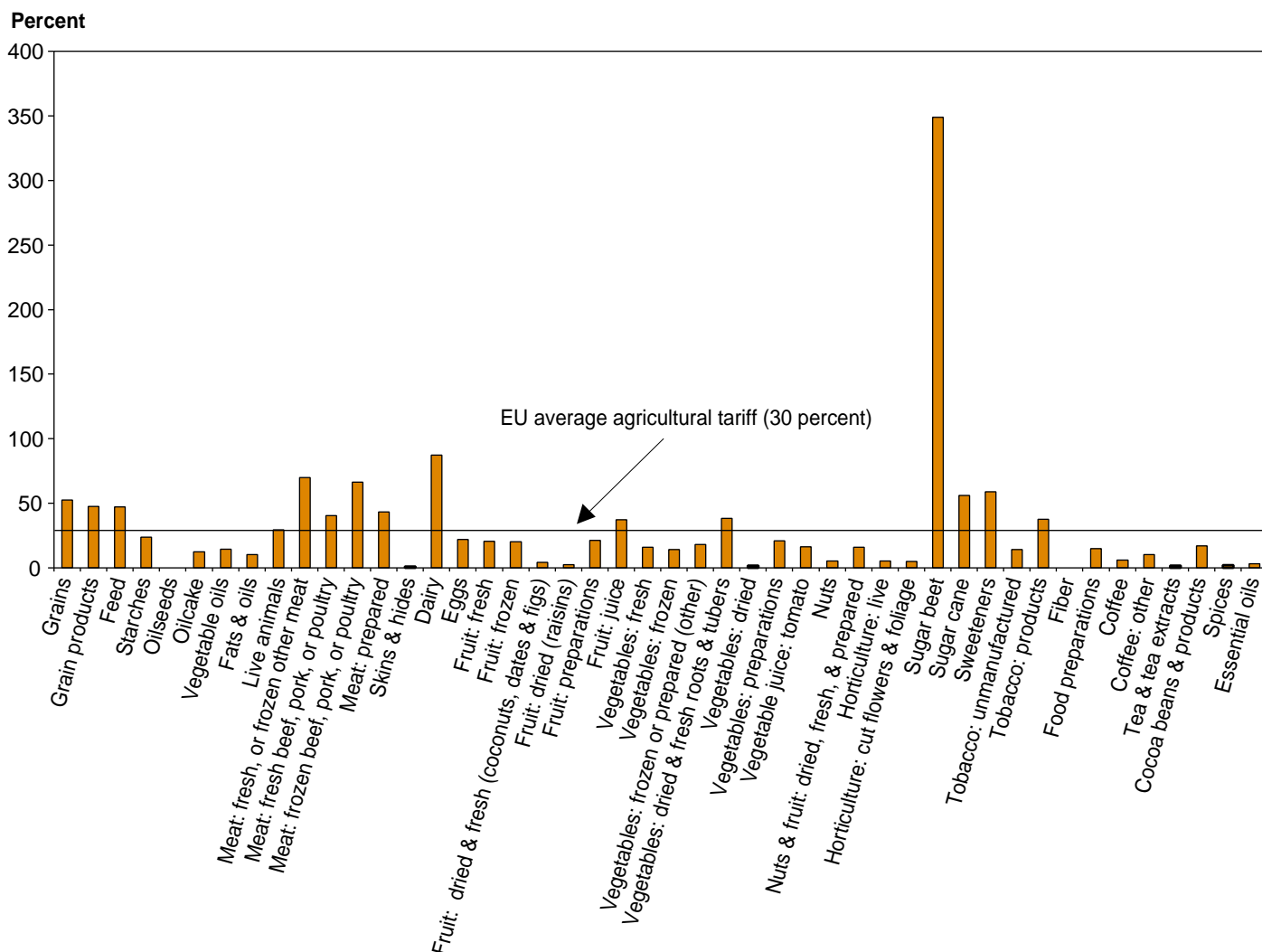
Figure 9
United States averages by commodity group¹



¹ Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

Figure 10

EU averages, by commodity group¹

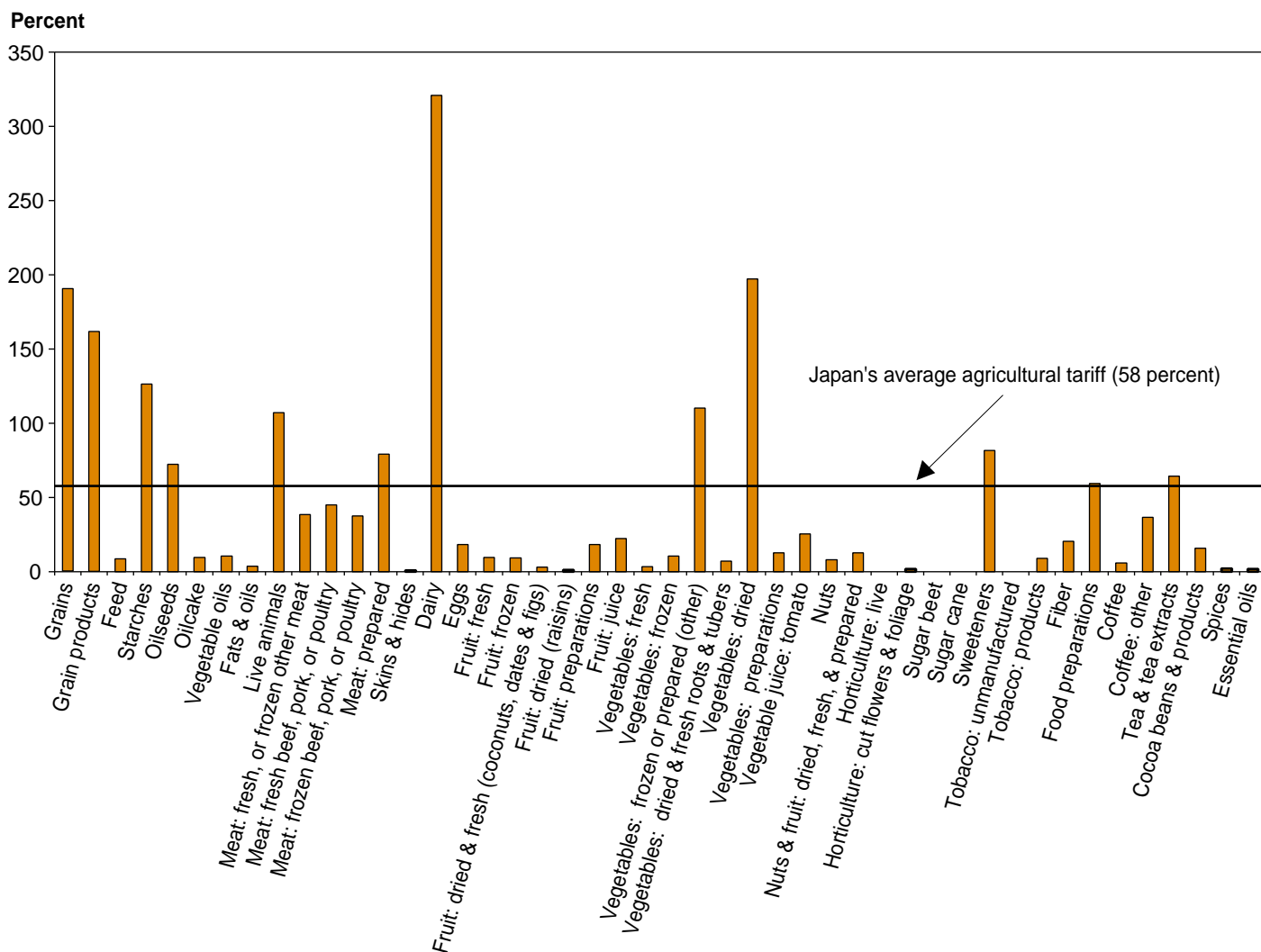
¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

The highest mean tariffs in the United States are the result of some very high duties levied on imports of tobacco products and unmanufactured tobacco. Even though most of the tariffs in these categories are below 10 percent, the means are inflated by the presence of seven megatariffs (all equal to 350 percent), each of which is an over-quota rate in a TRQ. The mean tariff on products in the sweeteners category is also high. While it contains only two megatariffs (on glucose and fructose imports), a large proportion of the duties in this category exceed 50 percent. All of these high tariffs form the over-quota rates of a TRQ. A high mean and median, as well as the largest number of megatariffs, are found in the dairy sector. The seven megatariffs in this category apply to the imports of dairy

products other than cheese or butter (including milk and cream, yogurt, and sour cream). Similar to sweeteners, the high median indicates that most of the other rates in the dairy group are also fairly high (over 65 percent of all dairy tariffs are above 30 percent). All of these high dairy tariffs are the over-quota rates of a TRQ. Other commodity groups with means above the overall average include cocoa beans and products, feeds (oilmeals, pellets, and other feeding residues), food preparations (including sauces, soups, and condiments), oilseeds, and tree nuts. The oilseeds category contains two of the highest tariffs in the U.S. schedule, on shelled and unshelled peanuts, but generally low tariffs across all other oilseeds, and thus has a mean of only 17 percent. All 24 of the megatariffs in the U.S.

Figure 11
Japan averages, by commodity group¹



¹Tariffs are bound MFN rates based on final URAA implementation.
Source: Economic Research Service, USDA

schedule form the over-quota tariff in a TRQ, so some market access is being provided at the lower in-quota rates.

The EU's highest tariff rates affect mainly products in the dairy and meat sectors. Of the EU's 141 megatariffs, 70 percent are found in these product categories. In the dairy sector, megatariffs are applied on almost all items with the exception of cheeses, while most of the meat megatariffs apply to the imports of beef, lamb/mutton, and goat meat. While the means are somewhat inflated by the presence of these high rates, overall the tariffs in both sectors tend to be high, with 78 percent of dairy tariffs and 57 percent of meat tariffs bound above 30 percent. Most of the meat megatariffs form the over-quota portion of a tariff-rate

quota (TRQ), so there might be some possibility of market access at the lower in-quota rate. However, with the exception of some TRQs for butter, the high dairy tariffs are not associated with a TRQ, thus these tariffs would apply on all imports. Other commodity sectors with high mean tariffs include sugar beet, sugar cane, sweeteners, grains, grain products, and prepared feeds. Most of these categories also have high median tariffs, since a large proportion of the tariffs in these categories are quite high. The maximum EU tariff is 540 percent, applied to imports of dried or powdered sugar beets (which contributes to the high average for sugar beets in figure 10). Some other product lines affected by megatariffs include grape juice, prepared or preserved mushrooms, and bananas.

Among Japan's 142 tariff-lines subject to rates in excess of 100 percent are 49 of the 50 highest bound tariffs found within the three countries. The highest commodity tariff mean is that for dairy products, with an average of 322 percent. Megatariffs account for 63 percent of all tariff-lines in the dairy sector, with 20 of these rates exceeding 500 percent. The median tariff of 227 indicates how high the bulk of tariffs are in this sector. As with the EU, all dairy imports, with the exception of cheese, are protected by megatariffs. Unlike the EU, however, most of these rates form the over-quota tariff of a TRQ. Imports of dried legumes are also subject to TRQs with very high over-quota rates and are the reason why the mean on dried vegetables of 197 is so high. The means on the grains, 191, and grain products, 162, are also very high, largely a result of Japan's having recently tariffed its protection on the imports of rice and rice products. Tariffs on individual tariff lines in these three groups include 43 megatariffs, nine of which range from 710 percent to 1,364 percent on various categories of rice. The production of starches is also a highly protected industry in Japan, with tariffs averaging 126 percent. The live animals category has a very high average tariff, but a zero median tariff. Imports of certain breeds of horses, buffalo, and swine are subject to megatariffs, while imports of all other animals in this category are permitted duty-free entry. A large number of megatariffs are also applied on imports of meats and sweeteners. The highest Japanese tariff, of over 2,000 percent, is applied to imports of konnyaku (konjac) tubers, a product found in the other vegetables category.

Existing Low or Zero Tariffs

While high tariff rates affect several products in the United States, EU, and Japan, some product groups face zero or very low tariffs. In particular, skins and hides, certain fibers (cotton, wool, flax, and hemp), a wide range of horticultural products, dried fruit, coffee, tea, and essential oils tend to enter each country duty-free or at a very low duty.

If low tariff rates are defined as those below 10 percent (single digits), then the corresponding proportion of low agricultural tariff-lines is equal to 76 percent in the U.S. schedule, 50 percent in Japan, and 43 percent in the EU. Thirty-four of the 46 commodity groupings in the U.S. tariff schedule have average tariffs at or

below 10 percent, while 18 in Japan and 14 in the EU fall into this category. In many cases, these low tariffs are applied to raw materials, with the corresponding processed products subject to higher rates. Grains and oilseeds are generally subject to lower tariff rates than their products in the United States and Japan; the tariffs on live animals are less than those on meats in the United States and the EU, and raw tobacco faces lower tariffs than tobacco products in all three countries. This suggests that there are a number of incidences of tariff escalation in these countries, although the evidence should be interpreted with caution, given the aggregate level of the analysis.

Summing Up United States, EU, and Japan Comparisons

Prohibitive tariffs block trade in many agricultural products, particularly in Japan and the EU. The existence of triple-digit tariffs alongside zero tariffs illustrates the extremes that characterize the distribution. The analysis identifies product categories with megatariffs that could block trade and highlights differences between means and medians that indicate where a few, highly protected products have a distorting effect on the average rate of protection.

Across commodity groupings, broad similarities exist in the level and distribution of tariff protection within countries. The results demonstrate that, while the tariffs most critical for protection of the domestic agricultural sector might differ somewhat by country, they generally are only a subset of the country's total agricultural tariff schedule. Dairy and sugar products are highly protected in all three countries, while hides and skins and fibers are almost free of protection. On the other hand, levels of protection vary greatly among some commodities in all three countries for various reasons. Japan applies high tariffs on raw silk and silk cocoon imports, while they enter the United States and EU at zero or minimal duties. Because of its proximity to neighboring sugar beet producing countries, the EU applies a high tariff on sugar beet imports, while the United States and Japan allow sugar beets duty-free entry, relying instead on high transport costs to provide protection to producers. The United States imposes its highest tariffs on tobacco and tobacco products, which Japan imports duty-free and the EU at relatively low duties.

Tariffs on Commodities of Export Interest to the United States

In 1999, U.S. agricultural exports totalled almost \$53 billion, spread across more than 130 countries. The existence of import tariffs in these countries was one of several factors affecting the size of this trade. Tariffs alter the relative prices of imported and domestically produced goods and thus alter the volume of imports. How much greater would U.S. agricultural exports be if global agricultural tariffs were eliminated or substantially reduced? This is a question not easily answered, as it is subject to a host of factors, including producer and consumer responses to price changes, market structures, and time lags in the adjustment process. While the answer is beyond the scope of this study, some insight can be gained by identifying those markets in which U.S. agricultural exports continue to face high tariffs.

Main Agricultural Products Exported by the United States

The top 30 categories of U.S. agricultural exports are shown in table 8. For the countries reviewed in this report, these items earned \$32.7 billion, or about 62 percent of total U.S. agricultural export revenue in 1999. Of these, the top 10 each accounted for at least \$1 billion in revenue and include the traditional bulk commodities: corn, soybeans, wheat, and tobacco, as well as intermediate goods such as beef (fresh/chilled and frozen), frozen chicken cuts, and soymeal. Also included in the top 10 are two consumer-oriented categories: cigarettes and miscellaneous food preparations.

The top 30 destinations for these U.S. agricultural exports are also shown in table 8. The countries listed are a subset of the countries reviewed in this report, which accounted for 86 percent of the \$32.7 billion U.S. exports attributed to these 30 categories.¹¹ The top 30 countries alone accounted for \$26.4 billion, or 81 percent. Japan was by far the most important destination for the U.S. commodities making up these 30 categories, with imports of over \$7.6 billion. The EU, Mexico, Korea, and Canada represented billion dollar markets for these commodities. In terms of both commodities and countries, there is a high degree of con-

centration at the top. The top ten commodity groupings account for 71 percent of the \$32.7 billion subtotal, while the top ten destinations for this trade account for 68 percent.

Also contained in table 8 are the top 30 markets for the top 30 U.S. agricultural exports. In 1999, the United States registered exports worth \$14.8 billion to these markets. A large share of the markets for these U.S. exports is found in Japan and the EU. The single most lucrative export destination for U.S. agriculture is associated with import demand for cigarettes by Japan. Other billion dollar markets for U.S. exporters in 1999 resulted from import demand for corn in Japan and soybeans in the EU. Rounding out the top five were the Japanese markets for soybeans and fresh and chilled beef. The sixth largest market for U.S. exporters (soybeans to Mexico) was one of eight NAFTA markets listed in table 8. U.S. exports of soybeans, wheat, corn, sorghum, fresh and chilled beef, and cotton to Mexico and bread, pastries, etc., and miscellaneous food preparations to Canada were among our top 30 export markets in 1999 (for the top 30 categories).

It is informative to compare the level of tariffs in those markets that imported U.S. products with those that did not. While most U.S. exports to Mexico and Canada would have been subject to preferential, and in some cases, zero tariffs, U.S. exports to some other markets were constrained by very high tariffs, in some cases high enough to preclude any trade from taking place.

Exports Subject to Megatariffs

Figure 12 displays the mean and upper bound tariffs facing U.S. exporters, for each of the top 30 U.S. agricultural exports.¹² To better illustrate the means, the upper bounds have been cut off at 500 percent. The simple means range from 47 percent for mixed feeds to 98 percent for frozen beef. Also shown is the global tariff mean of 62 percent. As might be expected, these means are inflated by a few very high tariffs in some countries. Note, in particular, that ten of the categories (corn, sorghum, rice, tobacco, frozen beef, frozen potatoes, apples, wine, whiskey, and miscellaneous food preparations) are subject to at least one tariff in excess of 500 percent. This section focuses on those markets where U.S. exports continue to face tariff

¹¹ Of the remaining trade, two-thirds went to just four of the countries not currently WTO members, and therefore not reviewed in this report: Taiwan, China, Saudi Arabia, and Russia.

¹² Consistent with previous sections, the means are simple averages and do not include the in-quota rates of TRQ's.

Table 8—Top 30 U.S. agricultural exports, ranked and sorted by commodity groupings, countries, and markets

Top 30 U.S. agricultural exports		Top 30 destinations		Top 30 markets		
Category	U.S. Exports	Country	U.S. Exports	Category	Country	U.S. exports
	\$000		\$000			\$000
Corn	4,973,917	Japan	7,623,789	Cigarettes	Japan	1,719,226
Soybeans	4,554,950	EU-15	4,293,349	Corn	Japan	1,426,405
Wheat	3,386,567	Mexico	3,321,848	Soybeans	EU	1,049,384
Cigarettes	3,231,504	Korea	1,978,992	Soybeans	Japan	785,485
Food preparation, NES	1,524,608	Canada	1,962,863	Beef, boneless, fresh/chilled	Japan	705,520
Beef, boneless, fresh/chilled	1,276,390	Egypt	892,566	Soybeans	Mexico	662,716
Poultry cuts, frozen	1,111,902	Hong Kong	635,169	Tobacco, unprocessed	EU	617,020
Tobacco, unprocessed	1,082,396	Philippines	574,739	Beef, boneless, frozen	Japan	579,979
Soymeal	1,069,642	Indonesia	460,420	Corn	Korea	574,936
Beef, boneless, frozen	1,024,026	Turkey	430,166	Corn	Mexico	534,868
Cotton	968,220	Israel	407,776	Wheat	Egypt	479,115
Cattle hides & skins	879,227	Switzerland	387,905	Wheat	Japan	452,771
Dog and cat food	631,738	Colombia	344,001	Residual starch manuf.	EU	410,016
Residual starch manuf.	571,955	Thailand	339,446	Cigarettes	EU	408,046
Sorghum	555,308	Venezuela	284,143	Sorghum	Mexico	385,094
Rice, milled	555,255	Dominican Republic	280,576	Almonds, fresh/dry, shelled	EU	338,218
Almonds, frsh/dry, shelled	540,958	Peru	246,015	Beef, boneless, fresh/chl'd	Mexico	326,365
Mixed feeds, etc.	466,111	Malaysia	236,584	Food preparation, NES	Canada	314,816
Peptones and derivatives	461,943	Australia	171,889	Pork, fresh/chilled	Japan	300,295
Wine	440,284	Morocco	165,872	Cattle hides & skins	Korea	296,603
Beef, sheep, goat fat	377,323	Guatemala	162,177	Cotton	Mexico	285,352
Bread, pastry, etc.	372,421	Niger	160,809	Corn	Egypt	282,625
Pork, fresh/chilled	354,686	Singapore	153,751	Peptones and derivatives	Switzerland	265,054
Potatoes, frozen	353,541	El Salvador	138,041	Wine	EU	256,906
Apples, fresh	347,653	South Africa	137,775	Forage	Japan	252,729
Manufactured tobacco	330,430	Chile	121,715	Beef, boneless, frozen	Korea	240,811
Whiskies	326,998	Costa Rica	114,632	Wheat	Philippines	234,655
Soyoil	320,059	Honduras	111,086	Soybeans	Korea	225,232
Grapes, fresh	308,596	Panama	109,181	Wheat	Mexico	214,625
Forage	295,315	United Arab Emirates	108,404	Bread, pastry, etc.	Canada	211,230
Sub-total	32,693,922	Sub-total	26,355,681	Sub-total		14,836,097
Others	20,203,166	Other	6,338,241	Others		17,857,825
Total	52,897,088	Total	32,693,922	Total		32,693,922

Note: Commodities are grouped at the 6-digit HS level.

Source: Compiled from official statistics of the U.S. Department of Commerce.

peaks, defined here as being synonymous with megatariffs, or tariffs equal to or greater than 100 percent.

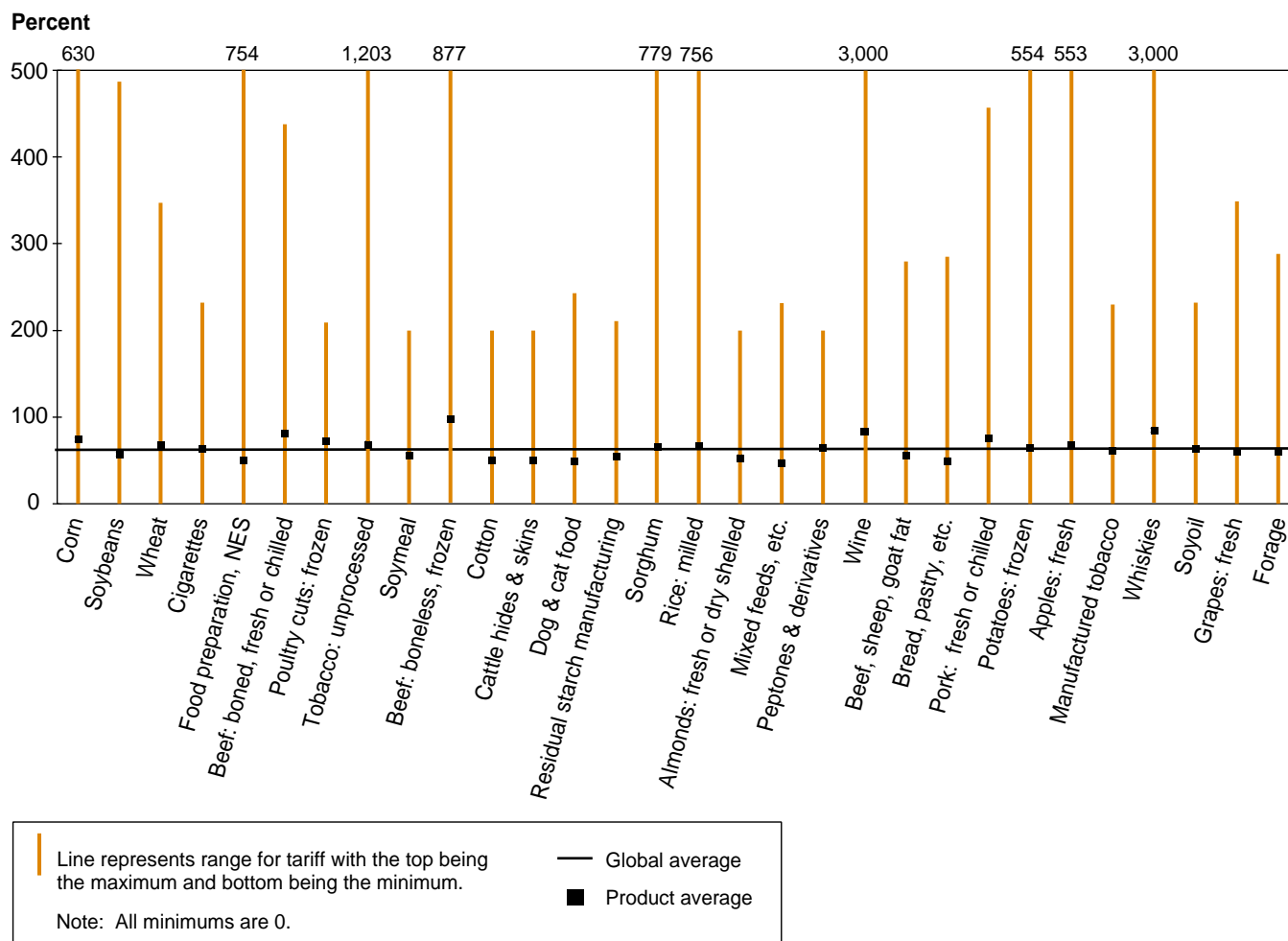
Table 9 summarizes, for each of the top U.S. export categories, selected characteristics of the markets where this trade faces megatariffs.¹³ In these 30 commodity categories, 47 different countries have at least one tariff bound at 100 percent or above. Twenty-five of these countries have bound their entire agricultural schedules at rates equal to or above 100 percent. For the remainder, megatariffs are found in between 1

(India, Malaysia, Morocco, and Thailand) and 17 (Norway) of the 30 commodity categories. Across categories, the two beef groupings, frozen and fresh/chilled boneless beef, top the list, with U.S. exports of these products subject to megatariffs in 36 and 37 countries, respectively.

Eleven of these markets (wine and whiskey exports to Egypt; unprocessed tobacco to Malaysia; frozen beef to Iceland, Norway, and Switzerland; milled rice to Japan; apples to Israel; and corn, sorghum, and miscellaneous food preparations to South Korea) are subject to at least one tariff above 500 percent. In eight of these cases, however, the tariff is the over-quota rate of a TRQ, so there is some opportunity for exports at the lower in-quota rate. In most cases, the within-quota tariff is significantly below the over-quota megatariff,

¹³ Appendix table 3 lists these markets, the tariffs faced by U.S. agricultural exports, and the value of U.S. exports. Not included in this list are those countries that bound tariffs at 100 percent or above, but where available data indicated that they were applying rates at below 100 percent.

Figure 12

Average, maximum, and minimum tariffs faced by top 30 U.S. exports¹

¹Tariffs are bound MFN rates based on final URAA implementation.

Source: Economic Research Service, USDA

and U.S. product is being imported (see appendix table 3).

The value of U.S. exports to markets where megatariffs exist totalled \$3.8 billion in 1999, an average of about \$4.4 million per market. This compares with an average trade flow of \$11.2 million per destination to all other markets in this report for these 30 commodities. The difference between those markets where some access was offered via a TRQ versus those where no TRQ was in effect was dramatic. U.S. exports to TRQ markets totalled \$2.2 billion, an average of \$35.6 million per market. When one excludes markets where a TRQ exists, average U.S. exports drop to under \$2 million per market. This suggests that, in those markets subject to megatariffs, TRQs are offering some market access for U.S. imports,

although one must also keep in mind that most of the TRQs tend to be in the wealthier OECD countries.

Japan, the EU, and Korea represent the three most important non-NAFTA destinations for these 30 U.S. commodities. In 1999, U.S. exports to Japan of the four commodities (wheat, rice, fresh and chilled pork, and miscellaneous food preparations) where megatariffs were levied, averaged \$244 million, versus average exports of \$256 million to the 26 other markets. U.S. exports to the four EU markets subject to megatariffs (frozen boneless beef, rice, mixed feeds, and residues of starch manufacture) averaged \$133 million versus \$145 million to the others. Korea applies megatariffs in five of these markets (corn, sorghum, soybeans, forage, and miscellaneous food preparation). U.S. exports averaged \$173 million to these markets versus \$45 million to the other 25. For these three countries, at

Table 9—Top 30 U.S. agricultural exports face an abundance of megatariffs

Commodity	Importing countries	Megatariffs ¹
-- Number --		
Corn	30	34
Soybeans	29	30
Wheat	31	35
Cigarettes	28	28
Food preparation, NES	31	38
Beef, boned, fresh/chilled	36	38
Poultry cuts, frozen	26	26
Tobacco, unprocessed	28	29
Soymeal	27	27
Beef, boneless, frozen	37	54
Cotton	25	25
Cattle hides & skins	26	26
Dog and cat food	26	26
Residual starch manufactured	28	28
Sorghum	29	31
Rice, milled	31	47
Almonds, fresh/dry, shelled	26	26
Mixed feeds, etc.	29	42
Peptones and derivatives	25	25
Wine	28	41
Beef, sheep, goat fat	29	33
Bread, pastry, etc.	28	37
Pork, fresh/chilled	30	35
Potatoes, frozen	28	34
Apples, fresh	29	41
Manufactured tobacco	29	32
Whiskies	34	41
Soyoil	31	33
Grapes, fresh	28	32
Forage	29	31

Note: For detailed breakout, see Appendix table 3.

¹Count of all over-quota and non-TRQ megatariffs based on bound, MFN tariffs as of final URAA implementation.

Source: Economic Research Service, USDA.

least, the presence of megatariffs in a market did not result in U.S. exports being significantly less than in markets where megatariffs were not being applied. There are several explanations for this situation. In most of the markets where megatariffs are found in these countries, we also find TRQs being applied. With the exception of the Japanese rice TRQ, all have fairly low in-quota rates, and the minimum access amounts in most of these markets are being filled or close to being filled.

Another explanation has to do with the fact that these exports are for all products within these 6-digit categories. In many cases, megatariffs might be applied on some of the sub-categories of these products while other sub-categories are subject to zero or very low tariffs. One example might be a low tariff on corn used as seed, but a high tariff on corn destined for use as food or feed. In the case of some perishable products, tariffs vary over the course of the year, with high tariffs when the product is in season and low ones during the rest of the year. The value of imports may be very high during the time the tariff is low and drop to zero when the megatariffs are in effect. The result is that it can be difficult to have a clear vision of the effect that high tariffs are having on trade, particularly if tariffs and trade are not compared at the same HS level. One thing that is evident, however, is that the wide range in tariffs levied on individual commodities within a number of these 6-digit commodity markets (see appendix table 3) indicates the extent to which countries have strategically tailored their tariff schedules to provide protection for very specific products.

Conclusions

While this report has focused on relative relationships among tariffs across countries and commodities, in each slice of the data a story of high tariffs emerged. With the global average tariff estimated at 62 percent, it is not surprising that high tariffs characterize most countries' agricultural schedules. Only in a very few cases was a country's agricultural tariff average close to the industrial country 5-percent average for tariffs on imports of manufactures (e.g., the average agricultural tariff for Australia). Given the high level of protection that high tariffs allow, current (Burfisher et al.) analysis shows that tariffs contribute the largest share of the cost of current agricultural protection and, thus, should be a priority for the next round of trade negotiations.

Across regions and countries, a few stand out with high average levels of protection. Mean agricultural tariffs are over 100 percent in South Asia (113 percent) and the non-EU countries of Western Europe (104 percent). In Africa, average tariffs for the Sub-Saharan and northern regions range from 71 to 75 percent. The average rate in Central America is about 54 percent, followed by Eastern Europe, where the average tariff is 49 percent. Tariffs in the EU, Asia-Pacific, and South America range between 30 and 39 percent. At 25 percent, North America registered the lowest regional tariff average. The large differences in average tariffs across countries indicate the potential for farmers in one country to benefit from protection while reducing prices and incomes of farmers in other countries.

Across commodities, tobacco, meat, dairy, sugar, and sweetener products generally have the highest tariffs. For other commodities, high protection may exist in selective countries. For example, in some regions, such as Asia-Pacific, Europe, and the Middle East, comparatively high tariffs within each respective region are recorded for several categories of prepared vegetables. For these commodities, the global profile of tariffs indicates that producers in some countries benefit from high levels of protection at the expense of producers of those commodities in other countries.

Megatariffs contribute to, but do not explain, the high overall tariff averages. Comparisons of means and medians across countries and commodities uncover cases where megatariffs largely explain the high mean or average tariffs for a specific commodity. However, in many cases similar values of means and medians

indicate uniformly high tariff levels. The overall picture is one of high tariffs across a large number of regions, countries, and commodities.

As might be expected from their relationship with products previously protected by nontariff barriers, TRQs are associated with high tariffs and sensitive sectors. The average over-quota tariff of 128 percent is slightly more than two times the overall average. This is a product of the Uruguay Round tariffication process, which accommodated the conversion of some base period NTBs into very high tariff equivalents. These new tariffs were set at such high levels that no imports, other than those provided by the minimum access amount, are likely to enter. Both surprising and contrary to the principle that TRQs should provide market access is the estimated average in-quota tariff of 63 percent—slightly above the average of 62 percent for all other tariffs. A number of countries have bound their in-quota rates at extremely high levels, even though the process of tariffication called for minimum access to be provided “on the basis of a tariff quota at a low or minimal rate.” While it is true that no numerical rule defined “low or minimal,” these rates would seem to contradict the spirit of the agreement.

Both developing and developed countries have high average tariffs, but tariffs for developed countries show more variation across commodities. Developed countries' high tariffs are concentrated in dairy, meats, sugar, and sweeteners while developing countries provide more uniform tariffs across commodities. The method of providing extremely high protection varies as megatariffs in developed countries often form the over-quota tariff in a TRQ, while those in developing countries do not. This suggests that in developed countries, at least, some market access may be provided at the generally lower in-quota tariff in those markets affected by megatariffs. At the same time, we found that many developing countries levy applied tariffs that are considerably below the bound rates.

The role of developing countries in future WTO negotiations is likely to increase significantly. A major contribution of this study is the breadth of developing country coverage, a feature that has generally been lacking in previous studies of agricultural market access. While the variation in tariff protection across developing countries is considerable, our results indicate that bound agricultural tariffs in developing coun-

tries are considerably higher, on average, than in developed countries. This is, in part, a reflection of the special and differential treatment provided to these countries, particularly the flexibility provided on ceiling bindings and the lower reduction commitments.

These results are important for several reasons. First, they contradict assertions that the Uruguay Round did not provide reciprocity for developing countries; specifically, that the mutual concessions agreed to in agriculture benefitted developed countries at the expense of developing countries. This assertion is often accompanied by claims that Uruguay Round market access concessions have damaged the agricultural sectors in these countries. This view also does not appear to be supported by the evidence. On the contrary, the comparisons between bound and applied rates, where data on applied tariffs is available, suggest that much of the market access being provided for agricultural imports by developing countries is taking place at rates that are well below their WTO bindings.

Second, while developing countries continue to face tariff peaks and tariff escalation in developed country markets, they also face these problems in trade between themselves, even perhaps to a greater extent. As results for the United States, the EU, and Japan indicate, one-quarter of all tariff-lines in these countries are duty-free, involving a large number of products of export interest to developing countries. In addition, the actual tariff rates these countries apply to imports from individual developing countries are often lower than the MFN rate would indicate, due to the existence of the Generalized System of Preferences which provides for lower rates for selected countries and commodities, and to other concessions afforded through various preferential trading arrangements.

No matter how one views tariff data across countries and commodities, high average tariffs create barriers to

markets for U.S. and other farmers. The height of the average tariff signals the need for large cuts to expand market access broadly in agriculture. In addition, the presence of megatariffs, particularly those that form the in-quota rate of a TRQ, points to the need to aggressively cut tariffs in some sectors if any additional market access is to be provided.

Finally, our findings have uncovered a number of other market access issues, beyond simply the high level of tariffs, which deserve consideration. As already mentioned, the complexity of many country tariff schedules makes it very difficult to compare tariffs across countries and commodities. In particular, matching tariffs and imports is a laborious and cumbersome process. If tariffs and imports were matched, it would be easier to approximate ad valorem equivalents for non-ad valorem tariffs as well as use import weights to calculate mean tariffs. The former is especially important because of the lack of transparency associated with non-ad valorem tariffs. As already noted, the non-ad valorem equivalents of these tariffs tend to be higher than their ad valorem cousins. One of the reasons for this almost certainly derives from their lack of transparency, which serves to hide the actual level of protection being provided. The difficulties associated with deciphering TRQs also bears mentioning. Some countries scheduled TRQs in ways that require careful interpretation of each line, and in some cases TRQs appear to cover a number of overlapping tariff lines. While these are problems that confront researchers attempting to unravel the accomplishments of the Uruguay Round, they must surely have also hindered negotiators attempting to assess or quantify the extent or importance of other countries' tariff concessions. As such, there would appear to be considerable merit in establishing certain rules for imposing consistency and transparency across tariff schedules.

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Appendix: Technical Details of AVE Calculations

In their WTO schedules, members used a variety of formats and levels of precision to specify individual tariff commitments. In most cases, members specified tariffs in ad valorem terms, as a simple percentage of the value of the imported product. However, some countries elected to specify some or all tariffs in specific or other non-ad valorem terms. *Tariff Formats Conceal High Levels of Protection* (page 5), presents two examples of common forms of non-ad valorem tariffs. Before comparing tariff protection across countries and commodities, detailed tariff bindings must be converted into a common format. Calculating ad valorem equivalents (AVEs) of specific or other non-ad valorem tariffs allows aggregation of tariffs across the widest group of commodities and countries.

Commodity coverage in this report is based on the definition of agriculture as specified in Annex 1 of the WTO Agreement on Agriculture (see appendix box, *Product Coverage of the WTO Agreement on Agriculture*). This definition includes all items from chapters 1-24 of the Harmonized System (HS), minus chapter 3 (fish and crustaceans). Also included are selected agricultural products from other chapters, such as selected chemicals, fibers, and other substances. The HS provides a nomenclature for classifying internationally traded goods. Each of the chapters listed in Appendix table 1 is classified at a 2-digit level in the HS. Successive levels of disaggregation, found at the 4-, 6-, 8- or 10-digit levels, define products in narrower and narrower terms, or levels of specificity.

Countries in Dataset and Regional Groupings

North America:

Canada, Mexico, United States

Central America:

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama

South America:

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela

Caribbean Islands:

Antigua & Barbuda, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts & Nevis, Saint Lucia, Saint Vincent & The Grenadines, Trinidad & Tobago

EU-15:

European Union

Non-EU West Europe:

Cyprus, Iceland, Malta, Norway, Switzerland

Eastern Europe:

Czech Republic, Hungary, Poland, Romania, Slovak Republic, Slovenia

Middle East:

Bahrain, Israel, Kuwait, Qatar, Turkey, United Arab Emirates

North Africa:

Egypt, Morocco, Tunisia

Sub-Saharan Africa:

Angola, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Cote d'Ivoire, Djibouti, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Togo, Uganda, Zaire, Zambia, Zimbabwe

South Asia:

Bangladesh, Bhutan, India, Pakistan, Sri Lanka

Asia-Pacific:

Australia, Brunei, Fiji, Hong Kong, Indonesia, Japan, Korea, Macau, Malaysia, Maldives, New Zealand, Papua New Guinea, Philippines, Singapore, Solomon Islands, Thailand

Southern Africa:

Botswana, Lesotho, Namibia, South Africa, Swaziland

For example, at the 2-digit, or the HS chapter level, we find the aggregate category, *Meat and Edible Meat Offal* (chapter 2). Chapter 2 is disaggregated into 10 categories at the 4-digit level, ranging from 0201, *Meat of Bovine Animals, Fresh or Chilled*, to 0210, *Meat and Edible Meat Offal, Salted, In Brine, Dried or Smoked; Edible Flours and Meals of Meat or Meat Offal*. Within each 4-digit grouping, a further level of disaggregation would be at the 6-digit level, for example, 020110, *Carcasses and Half-carcasses*, and 020120, *Other Cuts with Bone-in*. Up to the 6-digit level, tariff schedules across countries use the same categories for breaking out successive commodity disaggregation. Therefore, a 6-digit commodity definition for a given commodity in one country that uses the HS would correspond to the same items in another country using the HS. The definitions of HS commodity groupings up to the 6-digit level are established regularly by the World Customs Organization.

Tariff schedules of WTO members were specified at various levels of commodity detail. Thus, some countries' schedules have as little as a few hundred individual tariff-lines, with some of these specified at the 2- or 4- digit level.¹ Other countries specified tariffs at a 10-digit level, which resulted in schedules containing nearly 2,000 tariff-lines. At 8-digit and higher levels of disaggregation, commodity definitions vary from country to country, therefore specific comparisons across countries are increasingly difficult at that level of detail.

When a country uses non-ad valorem tariffs, the ability to compare levels of protection across countries and commodities is further complicated. A recent paper by the WTO secretariat, *Ad valorem, Specific, and Other Tariffs*, discusses issues raised in the calculation of AVEs of non-ad valorem tariffs. In order to calculate AVEs, it is necessary to divide the specific tariff by an import price. Given the lack of detailed data available on import prices at the HS level, AVEs were calculated using world import unit values as a proxy for country-specific import prices. The world import unit values were defined at the 6-digit HS level, which, as noted above, is the most disaggregate level at which tariff nomenclatures are internationally comparable. Import unit values were calculated for available world imports from all sources (minus EU-intra-trade), in value and

¹ Some developing countries' schedules contain a single uniform tariff rate (such as 100 percent) across all commodities. In such cases, a 6-digit tariff schedule for the country was constructed using the uniform rate across all tariff lines.

Product Coverage of the WTO Agreement on Agriculture (HS96)

HS Chapters 1 to 24 less fish and fish products, plus¹--

HS Code	2905.43	(mannitol) ⁷
HS Code	2905.44	(sorbitol)
HS Code	2905.45	(glycerol other than crude)
HS Heading	33.01	(essential oils)
HS Code (ex)	Ex 3302.10	(preparations based on odoriferous substances, of a kind used in the manufacture of beverage)
HS Headings	35.01 to 35.05	(albuminoidal substances, modified starches, glues)
HS Code	3809.10	(fishing agents)
HS Heading	3823	(oleochemicals)
HS Code	3824.60	(sorbitol n.e.p.)
HS Headings	41.01 to 41.03	(hides and skins)
HS Heading	43.01	(raw furskins)
HS Headings	50.01 to 50.03	(raw silk and silk waste)
HS Headings	51.01 to 51.03	(wool and animal hair)
HS Headings	52.01 to 52.03	(raw cotton, waste and cotton carded or combed)
HS Heading	53.01	(raw flax)
HS Heading	53.02	(raw hemp)

¹The product descriptions in round brackets are not necessarily exhaustive.

Source: WTO Agreement on Agriculture, annex 1.

volume terms, using global trade data from the United Nations Trade Data System (COMTRADE). The import unit values used were for the period 1995-97, the most recent period available, and were obtained from the Agricultural Market Access Database. The world import unit values expressed, where available, the unit value in U.S. dollars for each 6-digit category, in kilograms or pieces. For countries that did not schedule their tariff bindings in U.S. dollars, a final step prior to calculating the AVEs was to convert the import unit values, for each year, into national currencies, and then calculate average import unit values for 1995-97, in national currencies.

Tariff schedules of 129 WTO members were reviewed in this report, yielding a total of about 91,000 individual tariff lines. Calculations of AVEs were needed for about 5,600 non-ad valorem tariff lines. Of this total, AVEs could not be calculated for 387 of the tariff-

lines. The majority (198) of the tariff lines for which AVEs were not calculated were in chapter 22 of the HS, which covers beverages, spirits, and vinegar. Duties on many items in this chapter are specified in terms of the percentage of alcohol. In these cases, the tariffs could not be matched to the world import unit values and, thus, AVEs were not calculated. The next largest number (95) of the remaining items for which AVE calculations were not possible pertained to many of the complex tariffs scheduled by Malaysia on products outside of chapter 22.

AVEs were calculated at the tariff-line level, whether it be the 2-, 4-, 6-, 8-, or 10-digit level, but using import unit values at the 6-digit level. When a tariff was scheduled at a more disaggregated level, using the world unit import value could have led to underestimating the AVE for some of these tariffs while overestimating it for others. When a tariff was scheduled at the more aggregate 4-digit level, the price used was a simple average of all 6-digit import unit values within each given 4-digit tariff.

Tariffs used throughout this report, including the AVE calculations, are the final bound MFN tariffs scheduled by WTO members. The final tariff bindings reflect the rate effective after phased implementation of Uruguay

Round tariff cuts. As a general rule, developed countries phased in their tariff reductions during the period 1995 to 2000. Developing countries began phasing in their tariff reductions in 1995 as well; however, they have until 2004 to complete implementation. In cases where developing countries applied tariffs that were unbound, they had the flexibility to offer ceiling bindings on these products. These ceiling bindings were exempt from the reduction commitments; therefore, the final bound tariff would take effect in 1995.

Tariff averages are calculated to reflect average MFN bound tariff rates. These averages are calculated in one of two ways, depending on whether or not the country scheduled TRQs. If the country did not schedule TRQs, all tariff lines in the schedule were used to calculate average tariffs. If the country did schedule TRQs, the over-quota TRQ rates and all non-TRQ rates were used to calculate average tariffs. An alternative in the second case would have been to first compute tariff averages for each TRQ by simply averaging the in-quota and over-quota rates. The in-quota rates are not included in this report's tariff averages since, as some have argued, using the over-quota rate alone is more appropriate, because it represents the marginal, binding constraint on additional trade (Laird).

Appendix table 1—Average over-quota tariff rates, by region and HS chapter

		Southern Africa	Asia Pacific	North Africa	Middle East	Eastern Europe	Non-EU West Europe	EU- 15	South America	Central America	Caribbean Islands	North America
01	Live animals	--	32	121	86	46	416	75	--	--	184	210
02	Meat and edible meat offal	73	62	158	169	50	375	89	112	98	184	164
04	Dairy produce; birds eggs; natural honey; edible products of animal origin, nesoi	75	274	126	162	53	276	74	107	77	140	121
05	Products of animal origin, nesoi	--	22	--	--	19	88	--	--	--	--	--
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	--	18	--	--	35	217	--	--	--	--	--
07	Edible vegetables and certain roots and tubers	35	374	65		48	201	56	178	75	142	185
08	Edible fruit and nuts; peel of citrus fruit or melons	42	244	60	92	37	83	42	29	96	147	--
09	Coffee, tea, mate and spices	145	151			34			--	--	--	72
10	Cereals	39	321	113	128	47	127	72	100	67	--	80
11	Products of the milling industry; malt; starches; inulin; wheat gluten	65	433	--	--	55	153	55	105	72	103	15
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruits; industrial or medicinal plants; straw and fodder	45	485	49	--	35	170	--	124	53	--	148
13	Lac; gums, resins and other vegetable saps and extracts	--	754	--	--	86	--	--	--	--	--	--
14	Vegetable plaiting materials; vegetable products nesoi	--	--	--	--		--	--	--	--	--	--
15	Animal or vegetable fats and oils and their cleavage products prepared edible fats; animal or vegetable waxes	--	178	117	85	35	97	--	108	117	158	160
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	--	--	--	170	69	393	55	--	94	184	205
17	Sugars and sugar confectionery	80	61	154	--	65	103	114	92	84	122	109
18	cocoa and cocoa preparations	--	--	--	--	29	95	--	--	--	--	44
19	Preparations of cereals, flour, starch or milk; bakers' wares	81	208	--	--	33	233	--	116	--	--	44
20	Preparations of vegetables, fruit, nuts or other parts of plants	36	56	100	123	35	249	105	137	81	139	132
21	Miscellaneous edible preparations	49	292	--	--	42	135	--	90	95	--	70
22	Beverages, spirits and vinegar	169	87	--	--	57	191	1	--	--	123	117
23	Residues and waste from the food industries; prepared animal feed	36	49	63	--	31	205	31	106	40	--	99
24	Tobacco and manufactured tobacco substitutes	44	1,037	--	--	83	--	--	--	74	--	--
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparation	--	--	--	--	19	--	--	--	--	--	--
35	Albuminoidal substances; modified starches; glues; enzymes	--	307	--	--	37	--	24	132	--	--	84
38	Miscellaneous chemical products	--	--	--	--	27	--	--	--	--	--	--
41	Raw hides and skins (other than furskins) and leather	--	--	--	--	22	--	--	--	--	--	--
50	Silk	--	156	--	--	--	--	--	--	--	--	--
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	--	--	--	--	19	--	--	--	--	--	--
52	Cotton	60	--	--	--	--	--	--	99	--	--	15
53	Other vegetable textile fibers; paper yarn and woven fabric of paper yarn	--	--	--	--	26	--	--	--	--	--	--

-- = not applicable.

Source: Economic Research Service, USDA.

Appendix table 2—Average in-quota tariff rates, by region and HS chapter

		Southern Africa	Asia Pacific	North Africa	Middle East	Eastern Europe	Non-EU West Europe	EU- 15	South America	Central America	Caribbean Islands	North America
01	Live animals	--	18	27	33	21	105	14	--	--	184	1
02	Meat and edible meat offal	20	60	56	88	22	110	14	113	34	184	17
04	Dairy produce; birds eggs; natural honey; edible products of animal origin, nesoi	20	29	44	175	37	232	30	76	28	139	11
05	Products of animal origin, nesoi	--	7	--	--	15	0	--	--	--	--	--
06	Live trees and other plants; bulbs, roots and the like, cut flowers and ornamental foliage	--	8	--	--	28	38	--	--	--	--	--
07	Edible vegetables and certain roots and tubers	20	24	25		28	100	5	129	32	144	50
08	Edible fruit and nuts; peel of citrus fruit or melons	20	35	43	16	25	63	6	14	33	125	--
09	Coffee, tea, mate and spices	20	33	--	--	20	--	--	--	--	--	50
10	Cereals	20	12	97	85	15	572	16	58	30	--	25
11	Products of the milling industry; malt; starches; inulin; wheat gluten	20	16	--	--	34	174	46	65	20	103	3
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruits; industrial or medicinal plants; straw and fodder	20	19	116	--	17	197	--	86	30	--	10
13	Lac; gums, resins and other vegetable saps and extracts	--	20	--	--	45	--	--	--	--	--	--
14	Vegetable plaiting materials; vegetable products nesoi	--		--	--	--	--	--	--	--	--	--
15	Animal or vegetable fats and oils and their cleavage products prepared edible fats; animal or vegetable waxes	20	23	215	12	21	87	--	88	27	0	26
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	--	--		120	34	71	28	--	36	184	3
17	Sugars and sugar confectionery	20	27	92	--	66	24	6	65	46	122	28
18	Cocoa and cocoa preparations	--	13	--	--	30	21	--	--	--	--	13
19	Preparations of cereals, flour, starch or milk; bakers' wares	20	21	--	--	23	158	--	40	--	--	8
20	Preparations of vegetables, fruit, nuts or other parts of plants	20	48	43	25	30	357	28	137	15	138	3
21	Miscellaneous edible preparations	20	23	--	--	30	53	--	40	55	--	19
22	Beverages, spirits and vinegar	20	25	--	--	50	51	--	--	--	123	31
23	Residues and waste from the food industries; prepared animal feed	20	7	63	--	15	311	20	71	10	--	3
24	Tobacco and manufactured tobacco substitutes	20	378	--	--	78	--	--	--	37	--	--
29	Organic chemicals	--	--	--	--	15	--	--	--	--	--	--
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparation	--	--	--	--	15	--	--	--	--	--	--
35	Albuminoidal substances; modified starches; glues; enzymes	--	8	--	--	30	6	12	92	--	--	5
38	Miscellaneous chemical products	--	--	--	--	22	--	--	--	--	--	--
41	Raw hides and skins (other than furskins) and leather	--	--	--	--	23	--	--	--	--	--	--
43	Furskins and artificial fur; manufactures thereof	--	--	--	--		--	--	--	--	--	--
50	Silk	--	10	--	--		--	--	--	--	--	--
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	--	--	--	--	30	--	--	--	--	--	--
52	Cotton	20	--	--	--		--	--	90	--	--	2
53	Other vegetable textile fibers; paper yarn and woven fabric of paper yarn	--	--	--	--	10	--	--	--	45	--	--

-- = not applicable.

Source: Economic Research Service, USDA.

Appendix table 3—Top 30 U.S. agricultural exports face an abundance of megatariffs

Commodity	Importing country	In-quota tariff	Non-TRQ or over-quota tariff ¹	U.S. exports
Corn	Korea, Rep of	1.8 to 3	328 to 630	574,936
	Iceland	180	0 to 175	2,419
	Romania	--	240	1,373
	Norway	166	0 to 343	843
	Switzerland	--	0 to 220	536
Soybeans	Korea, Rep of	5	487	225,232
	Switzerland	--	13 to 128	2,527
	Iceland	0	0 to 175	0
	Norway	207	0 to 207	0
Wheat	Japan	0 to 20	256	452,771
	Israel	85	128	83,226
	Switzerland	137	113 to 297	1,712
	Norway	347	347	1,640
	Iceland	180	0 to 175	862
Cigarettes	Romania	--	45 to 240	0
	Israel	--	125	99,685
	Poland	90	173	1,629
	Romania	--	232	1,594
Food preparation, NES	Canada	5.4 to 7.4	27 to 275	314,816
	Japan	12 to 25	15 to 307	187,035
	Korea, Rep of	20	754	47,645
	Israel	--	15 to 120	12,098
	Norway	--	1 to 439	6,537
	Iceland	--	0 to 125	581
Beef, boned, fresh/chilled	Switzerland	35	376	6,016
	Poland	30	157	95
	Israel	120	190	20
	South Africa	20	160	19
	Botswana	20	160	0
	Iceland	32	438	0
	Morocco	83	239	0
	Namibia	--	160	0
	Norway	--	392	0
	Romania	--	288	0
	Swaziland	--	160	0
	Barbados	184	184	915
Poultry cuts, frozen	Pakistan	--	100	0
	Malaysia	404	1203	39,187
	Israel	--	125	2,752
Tobacco, unprocessed.	Poland	55	105	0
	Iceland	180	0 to 175	712
	Norway	172	0 to 172	0
Soymeal	European Union	20	132 to 177	4,215
	Norway	296	785	3,830
	Switzerland	71	698	1,914
	Poland	30	206	535
	Israel	120	128	154
	Botswana	20	160	0
	Iceland	32	877	0
	Namibia	--	160	0
	Romania	--	315	0
	South Africa	20	160	0
	Swaziland	--	160	0
	Tunisia	27	100	0
	Romania	--	175	0
	Iceland	180	243	543
Residual starch manuf.	European Union	--	0 to 186	410,016
	Norway	211	0 to 211	3,693
	Iceland	--	0 to 175	0
Sorghum	Korea, Rep of	3	779	211
	Switzerland	170	1 to 184	37
	Iceland	--	0 to 175	0

See footnotes at end of table.

continued--

Appendix table 3—Top 30 U.S. agricultural exports face an abundance of megatariffs (con't)

Commodity	Importing Country	In-quota tariff	Non-TRQ or over-quota tariff ¹	U.S. exports
Rice, milled	European Union	0 to 31.13	123	66,356
	Norway	--	1 to 318	1,159
	Iceland	0	0 to 175	210
	Poland	15	157	56
	Romania	--	120	0
	Japan	648	756	36,136
Almonds, fresh/dry,shelled	Israel	--	51 to 102	7,397
Mixed feeds, etc.	Canada	0 to 2.2	0 to 206	124,684
	European Union	--	4 to 231	49,409
	Norway	--	0 to 156	827
	Iceland	180	175	25
Wine	Israel	--	148	267
	Egypt	--	3000	184
	Romania	--	315	23
	Iceland	40	119	0
Beef, sheep, goat fat	Norway	170	.3 to 170	0
	Romania	--	120	0
	Switzerland	--	125 to 279	0
	Israel	--	43 to 112	1,808
Bread, pastry, etc.	Norway	--	99 to 285	902
	Romania	--	200	0
	Japan	--	0 to 101	300,295
	Barbados	184	184	31
Pork, fresh/chilled	Iceland	32	457	0
	Norway	--	363	0
	Romania	--	333	0
	Tunisia	--	120	0
	Israel	--	170	95
	Norway	476	476	0
Potatoes, frozen	Romania	--	128	0
	Israel	--	553	4,834
	Norway	1	.7 to 188	275
	Romania	--	200	0
Manufactured tobacco	Switzerland	4.71 to 8.24	4.7 to 180	0
	Turkey	--	130 to 146	66,622
	Poland	120	230	35,123
	Israel	--	125	0
Whiskies	Romania	--	120	0
	South Africa	20	67 to 121	2,402
	Israel	--	148	722
	Poland	105	268	645
	Egypt	--	3000	142
	Romania	--	220	115
Soyoil	India	--	150	67
	Botswana	20	67 to 121	0
	Namibia	--	67 to 121	0
	Swaziland	--	67 to 121	0
	Iceland	7	107	0
	Norway	176	1.3 to 176	0
Grapes, fresh	Pakistan	--	100	0
	Romania	--	160	0
	Switzerland	--	93 to 188	0
	Thailand	20	146	0
Forage	Israel	--	349	0
	Romania	--	200	0
	Switzerland	--	6 to 162	0
All commodities ²	Korea, Rep of	5	101	18,294
	Iceland	--	0 to 175	0
	Norway	0 to 288	252 to 288	0
	Barbados	--	100	24,219
	Bangladesh	--	200	95,052
	Lesotho	--	200	0

See footnotes at end of table.

continued--

Appendix table 3—Top 30 U.S. agricultural exports face an abundance of megatariffs (*con't*)

Commodity	Importing Country	In-quota tariff	Non-TRQ or over quota tariff ¹	U.S. exports
All commodities ² (<i>con't</i>)	Nigeria	--	150	160,809
	Zimbabwe	--	150	7,284
	St. Vincent & Grenada	--	130	9,718
	Malawi	--	125	29
	Zambia	--	125	61
	Mauritius	--	122	317
	Tanzania	--	120	16,452
	Gambia	--	110	2,019
	Antigua & Barbados.	--	100	7,550
	Belize	--	100	9,480
	Burkina Faso	--	100	900
	Burundi	--	100	0
	Dominica	--	100	4,416
	Grenada	--	100	6,574
	Guyana	--	100	15,744
	Jamaica	--	100	108,185
	Kenya	--	100	16,586
	Kuwait	--	100	66,564
	Mozambique	--	100	10,469
	St. Kitts & Nevis	--	100	2,165
	St. Lucia	--	100	4,886
	Trinidad & Tobago.	--	100	63,005
	Total			3,810,014

Note: Tariff ranges reflect tariff bindings made on more detailed sub-commodities within the listed groups.

-- = Not applicable

¹The rates in this column are over-quotas if the preceding column has data in it, otherwise the commodity is not subject to a TRQ.

²The tariffs corresponding to the commodity group "all commodities" are the tariff bindings of 25 WTO members that bound their entire tariff schedules at rates equal to or above 100 percent. These WTO members are principally developing or least-developed countries.

Source: Economic Research Service, USDA.