AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

United States
Department of
Agriculture

USDA

Economic
Research
Service

Economic
Research
Report 115

April 2011

Selected Trade Agreements and Implications for U.S. Agriculture

John Wainio, Mark Gehlhar, and John Dyck

Visit Our Website To Learn More!

For more ERS research and analysis, see:

www.ers.usda.gov/

Recommended citation format for this publication:

Wainio, John, Mark Gehlhar, and John Dyck. *Selected Trade Agreements and Implications for U.S. Agriculture.* ERR-115, U.S. Department of Agriculture, Economic Research Service. April 2011.

Use of commercial and trade names does not imply approval or constitute endorsement by USDA.

Cover photo credit: Shutterstock.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and, where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

United States Department of Agriculture

Economic Research Report Number 115

April 2011

A Report from the Economic Research Service

www.ers.usda.gov

Selected Trade Agreements and Implications for U.S. Agriculture

John Wainio, jwainio@ers.usda.gov

Mark Gehlhar, mgehlhar@ers.usda.gov

John Dyck, jdyck@ers.usda.gov

Abstract

Since 2001, the United States has concluded negotiations with 13 countries, resulting in 8 trade agreements (TAs). Three additional agreements have been negotiated but not yet ratified by Congress, as of March 2011. Other countries have become increasingly active in negotiating their own trade pacts. This proliferation of TAs between key U.S. trading partners and competitors may have raised concerns among U.S. exporters, whose share in established markets could be eroded by such deals. In this study, ERS examines how recently concluded TAs between ASEAN (Southeast Asia) countries and China and Australia/New Zealand, as well as pending TAs between the United States and Korea, Colombia, and Panama, will likely affect U.S. agricultural trade. Model results suggest that TAs between ASEAN countries and China and ASEAN countries and Australia/New Zealand would result in moderate losses to U.S. agricultural exports of about $350 million to those countries, but losses would be partially offset by gains in other markets. U.S. agricultural exports to Korea would expand by an estimated $1.9 billion per year if the U.S. TA with Korea were implemented. The U.S.-Colombia TA would result in an estimated $370 million in additional U.S. exports per year. U.S. exports would realize smaller gains of about $50 million per year under the pact with Panama. Empirical results confirm theoretical findings that trade created under TAs exceeds trade diverted, but that results depend on the specific circumstances of each agreement.

Keywords: market access, free trade agreements, tariffs, trade agreements, trade creation, trade diversion, trade promotion agreements, GTAP model.

Acknowledgments

The authors thank Jason Carver, Dylan Daniels, and Olya Lutchyn of USDA's Foreign Agricultural Service; Carol Goodloe of USDA's Office of the Chief Economist; Suchada Langley, Mary Anne Normile, Daniel Pick, and Sally Thompson of USDA's Economic Research Service (ERS); and four anonymous reviewers for their reviews and valuable comments. We also thank John Weber and Cynthia A. Ray of ERS for editorial and design services.

Contents

Abbreviations and Acronyms iii

Summary iv

Introduction 1

Model, Data, and Assumptions 5

The ASEAN FTAs With China and Australia/New Zealand 7
Potential impact on U.S. agricultural exports 9
Changes in U.S. agricultural exports to the FTA members 12
Identifying U.S. exports most vulnerable to increased competition 15

The Pending U.S. TAs With Korea, Colombia, and Panama 23

The U.S.-Korea Trade Agreement (KORUS) 24
Structure of agricultural trade 24
Agricultural provisions of KORUS 26
Potential impact on U.S. agricultural exports 27

The U.S.-Colombia Trade Promotion Agreement (CTPA) 32
Structure of agricultural trade 32
Agricultural provisions of CTPA 33
Potential impact on U.S. agricultural exports 35

The U.S.-Panama Trade Promotion Agreement (PTPA) 38
Structure of agricultural trade 38
Agricultural provisions of PTPA 38
Potential impact on U.S. agricultural exports 39

Conclusions 40

References 41

Appendix 1—Projecting a 2014 Benchmark 43

Appendix 2—Tables 46

Also see the recently released ERS report *Reciprocal Trade Agreements: Impacts on Bilateral Trade Expansion and Trade Contraction in the World Agricultural Marketplace*, by Thomas L. Vollrath and Charles B. Hallahan (www.ers.usda.gov/publications/err113). This study (ERR-113) uses panel data from all types of reciprocal bilateral and regional free trade agreements in operation during 1975-2005 and a gravity modeling framework to identify the influence of these trade agreements on bilateral trade in the agricultural marketplace. Empirical results show that these agreements increase agricultural trade between member countries but decrease trade between member and nonmember countries. The study presented here (ERR-115) uses a very different analytical framework, the Global Trade Analysis Project model, to analyze the impacts of five trade agreements on U.S. agricultural exports.

Abbreviations and Acronyms

AANZFTA	ASEAN-Australia and New Zealand Free Trade Agreement
ASEAN	Association of Southeast Asian Nations
ATPA	Andean Trade Preference Act
BSE	bovine spongiform encephalopathy
CBERA	Caribbean Basin Economic Recovery Act
CDE	constant difference elasticity
CTPA	U.S.-Colombia Trade Promotion Agreement
CRS	constant returns to scale
EFTA	European Free Trade Association
EHP	early harvest program
ERS	Economic Research Service (USDA)
EU	European Union
FTA	free trade agreement
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GSP	Generalized System of Preferences
GTAP	Global Trade Analysis Project
HS	Harmonized System
IDB	WTO integrated database
KORUS	U.S.-Korea Trade Agreement
MERCOSUR	Mercado Común del Sur (Southern Common Market)
MFN	most-favored-nation
NAFTA	North American Free Trade Agreement
NTM	nontariff measure
PTPA	U.S.-Panama Trade Promotion Agreement
SPS	sanitary and phytosanitary
TA	trade agreement
TRQ	tariff-rate quota
USDA	U.S. Department of Agriculture
USITC	U.S. International Trade Commission
USTR	U.S. Trade Representative
WTO	World Trade Organization

Summary

What Is the Issue?

Regional and bilateral free trade agreements (FTAs) have taken on greater significance amidst an evolving international trading environment. Member countries in FTAs agree to eliminate trade barriers on all or most goods and services traded among them. Uncertainties associated with global negotiations under the World Trade Organization (WTO) Doha Development Agenda, along with other factors, have contributed to an upsurge in bilateral and regional trade agreements. In this context, major traders have been pursuing FTAs; the United States has concluded negotiations with 16 countries since 2001, resulting in 8 trade agreements (TAs) with 13 countries. Three additional trade pacts with the Republic of Korea (South Korea, henceforth Korea), Colombia, and Panama have been signed but not yet ratified by the U.S. Congress as of March 2011.

Countries other than the United States are actively negotiating their own trade pacts. Trade agreements between key U.S trading partners and/or competitors may have raised concerns among U.S. exporters, whose ability to maintain share in established markets could be eroded by such agreements, particularly in countries where U.S. competitors have gained preferential access for their products. Korea, Colombia, and the 10 ASEAN (Association of Southeast Asian Nations) countries have been particularly aggressive in negotiating TAs.

In this study, we estimate the possible impacts on U.S. agricultural trade of two recently implemented FTAs in which the United States is not a partner: the FTAs between the ASEAN countries and China and between the ASEAN countries and Australia/New Zealand. We also examine the potential effects on U.S. agricultural exporters of pending bilateral TAs between the United States and Korea, Colombia, and Panama.

What Did the Study Find?

The effect on U.S. agricultural exports resulting from FTAs that exclude the United States depends mainly on the current structure of trade and tariffs in the FTA market and the extent to which tariffs or other barriers are decreased as a result of the FTA. In markets where tariffs levied on U.S. exports will be significantly higher than those levied on FTA members, and where U.S. exporters compete directly with FTA members, the FTA can result in declining U.S. market share. In some cases, however, these losses can be made up by increases in U.S. exports to other markets.

- Model results suggest that U.S. agricultural exports to the ASEAN region would be moderately affected by tariff cuts negotiated under the ASEAN FTAs with China and with Australia/New Zealand. Demand for U.S. exports of bulk commodities, such as wheat, oilseeds, and cotton, would be sustained because these commodities already face low tariffs in the region.
- Although most-favored-nation applied tariffs for ASEAN countries are low in general, pockets of high tariffs remain. Eliminating these could divert ASEAN country trade with non-FTA members toward the FTA partners.

- Overall, U.S. agricultural exports to the ASEAN region are estimated to fall about $350 million per year as a result of the FTAs, equal to about 6 percent of U.S. exports to this region. Much of the decrease would be in processed products, reflecting competition the United States faces from China, Australia, and New Zealand in the ASEAN market. Some U.S. exports may be diverted to other markets, offsetting some of the decrease in trade with ASEAN countries. As a result, global U.S. agricultural exports are estimated to decline by only 0.1 percent, or about $173 million per year.

Pending bilateral TAs between the United States and Korea, Colombia, and Panama have potential mutual benefits.

- U.S. agriculture will benefit from pending TAs between the United States and Korea, Colombia, and Panama, largely because U.S. exports to these markets currently face significantly higher tariffs than exports from these countries face in the U.S. market.
- Of the three pending U.S. TAs, the U.S.-Korea Trade Agreement (KORUS) would offer the largest gains for U.S. agriculture. Total U.S. agricultural export gains in the Korean market are estimated at over $1.9 billion annually, an increase of about 40 percent. The U.S.-Colombia Trade Promotion Agreement (CTPA) is estimated to generate an increase of 44 percent in U.S. exports, or an additional $370 million per year. Though Panama represents a relatively small market, the U.S.-Panama Trade Promotion Agreement (PTPA) is expected to provide U.S. exporters with opportunities for an additional $46 million in annual sales of rice, corn, meats, dairy, and processed foods.
- Each pending U.S. TA partner would have additional access to the U.S. market for those agricultural commodities that now face U.S. tariff-rate quotas. The U.S. sugar sector would face competition from increased imports of sugar from Colombia and Panama. Ethnic foods, such as biscuits, savory snack foods, ramen noodles, and seaweed products, would account for the bulk of the small increase in additional imports from Korea as a result of KORUS. Other imports from the three countries could be accommodated by the large U.S. market with little effect on domestic prices or production.

How Was the Study Conducted?

The analysis of FTAs in this report uses the most current and comprehensive WTO tariff submissions. Applied tariffs were matched to trade flow values from official country customs data to provide a preliminary assessment of the extent to which the United States would face greater competition from competing exporters in selected markets. Measures of tariff protection estimated for both the United States and its trading partners and for the ASEAN countries and their new FTA partners were based on the actual negotiated reductions in tariffs for each FTA and used to quantify the impacts of each free trade agreement. The study employed a well-known global modeling framework (Global Trade Analysis Project) to assess the impacts on agricultural trade.

Introduction

In March 2001, Robert Zoellick, then U.S. Trade Representative, unveiled the Bush administration's trade strategy of negotiating multilateral, regional, and bilateral trade agreements, placing the United States at the heart of a network of initiatives to open markets (Blustein, 2009).[1] The strategy was grounded in two fundamental ideas: (1) trade liberalization is beneficial to the U.S. economy, and (2) each venue for trade liberalization offers unique opportunities (Burfisher and Zahniser, 2003). The U.S. strategy resulted in the initiation of bilateral and regional trade negotiations with over 40 countries, resulting in 8 trade agreements (TAs) with 13 countries.[2] Three additional trade agreements with the Republic of Korea (South Korea, henceforth Korea), Colombia, and Panama were signed by each country but not yet ratified by the U.S. Congress as of March 2011.[3] For many reasons, the World Trade Organization (WTO) Doha round of multilateral trade negotiations has not yielded timely results. Instead, the uncertainties associated with these talks, and other factors, have motivated countries to negotiate their own bilateral and regional pacts.

The lack of progress by the WTO and the rush to sign free trade agreements (FTAs) may actually have become mutually supporting, with one feeding off the other. Certainly, FTAs are now the most prominent and rapidly expanding feature of the multilateral trading system. The number of FTAs, as well as the share of world trade that takes place among FTA partners, has steadily increased—from fewer than 25 FTAs in 1990 to 290 in 2010—a trend likely to be strengthened by the many FTAs currently under negotiation. In 2009, trade between FTA partners accounted for an estimated 45 percent of global nonagricultural trade and 54 percent of global agricultural trade. For the United States, these proportions were 33 percent and 41 percent, respectively, which demonstrates that, despite early U.S. efforts to negotiate TAs with trading partners, these agreements still account for a smaller portion of U.S. trade than for world trade as a whole.[4]

The popularity of FTAs is largely tied to their potential for expanding trade between members as consumers respond to the availability of lower priced imports. At the same time, these agreements are by definition discriminatory, which can lead to trade being diverted from nonmembers to members. U.S. agricultural exporters' ability to maintain market share in numerous countries that have recently signed FTAs with U.S. competitors is in question. Given the significance of overseas markets to U.S. agriculture, coupled with the rapid expansion of "third-country" FTAs, it is important that U.S. exporters understand how these agreements may affect their ability to compete in the future.

At the center of the debate surrounding third-country FTAs is the potential for trade diversion. Trade diversion refers to the diversion of trade from relatively efficient nonmembers to relatively inefficient members. In contrast, trade creation is the result of factors such as lower consumer prices and greater choices and can involve a shift of production from inefficient domestic providers to more efficient FTA partners. The broad picture that emerges in both the theoretical and empirical literature on FTAs is that trade creation tends to be the rule, trade diversion the exception (Freund and Ornelas, 2010). This may be related to the fact that most countries tend to

[1]The term "free trade agreement" (FTA) is used generically in this publication to describe nearly all bilateral and regional trade agreements, including customs unions. The term "trade agreement" (TA) is used when referring to the U.S.-Korea Trade Agreement (KORUS). The correct term for the U.S.-Colombia and U.S.-Panama agreements is "Trade Promotion Agreement" (TPA). As with KORUS, we sometimes refer to them as "TAs." To our knowledge, there are no discernable differences between FTAs, TAs, and TPAs. Use of the three terms is simply to be consistent with the actual name given to an individual agreement.

[2]These include, by date of entry into force, Singapore (2004), Chile (2004), Australia (2005), Morocco (2006), El Salvador (2006), Honduras (2006), Nicaragua (2006), Guatemala (2006), Bahrain (2006), Dominican Republic (2007), Costa Rica (2009), Oman (2009), and Peru (2009).

[3]In the case of the U.S.-Korea TA, the Korean National Assembly also had not yet ratified the agreement as of March 2011.

[4]Percentages estimated by authors using the United Nations Commodity Trade Statistics Database (UN COMTRADE).

form their first FTAs with "natural trading partners,"—neighboring countries or countries in their region—with which they already have an established trading relationship.[5] Krugman (1991) demonstrated that where FTAs are formed by natural partners with low trade costs, the gains from freeing intra-regional trade are large and trade creation dominates over trade diversion. Trade agreements exhibiting these characteristics include the EU, NAFTA, MERCOSUR, ASEAN, and EFTA (see abbreviations and acronyms, p. iii). These regional pacts have also been among the most studied FTAs, and although the results from these studies are not necessarily applicable to all FTAs, the trade creation and trade diversion outcomes from these large agreements dominate the results from studies that measure trade effects across all FTAs. The salient point is that, while overall trade diversion does not appear to be a major concern in the economic literature, in some agreements and sectors it can be significant.

In recent years, countries that have exhausted regional prospects have begun looking further afield for preferential partners. It is entirely plausible that these FTAs will result in a higher level of trade diversion.

In this study, we use a global trade model to estimate the possible effects of two recently implemented third-country FTAs on U.S. agricultural trade:

- The FTA between ASEAN countries and China
- The FTA between ASEAN countries and Australia/New Zealand[6]

The ASEAN countries have been a growing market for U.S. agricultural exports; hence, there is strong interest in determining how these two FTAs might affect the United States. To shed light on which individual U.S. products might be vulnerable to trade diversion, we also take a more detailed look at trade flows and the margins of preference between the United States and FTA members, measured as the difference between the tariff that U.S. exports will face after the FTAs have been fully implemented and the tariff the FTA members receive within the FTAs.

Despite pressure to protect the interests of U.S. producers of import-sensitive commodities (see box, "Key Agricultural Issues in FTAs"), U.S. agricultural organizations and food industry associations tend to view FTAs as a way to create opportunities to increase agricultural exports by lowering and possibly eliminating tariffs. Increasing exports is viewed as vital to improving farm income and business profitability. As mentioned, the United States negotiated three TAs that have yet to be implemented as of March 2011. The United States and Colombia formally signed the Colombia Trade Promotion Agreement (CTPA) on November 22, 2006. A month later, on December 19, 2006, U.S. and Panamanian negotiators reached agreement on a comprehensive trade agreement, the Panama Trade Promotion Agreement (PTPA). The following year, on June 30, 2007, the United States and Korea signed the U.S.-Korea TA (commonly referred to as KORUS). Before each of these TAs can take effect, Congress must approve the implementing legislation submitted by the President.

[5]It is for this reason that free trade agreements are still commonly referred to as regional trade agreements, or RTAs. They are also referred to as trade promotion agreements (TPAs) and reciprocal trade agreements (also RTAs).

[6]The 10 members of the Association of Southeast Asian Nations (ASEAN) are Brunei, Cambodia, Indonesia, Laos, Malaysia, Burma (Myanmar), the Philippines, Singapore, Thailand, and Vietnam.

Key Agricultural Issues in FTAs

The coverage of agriculture in free trade agreements (FTAs) often reflects the situation prevailing at the multilateral level, with the same products resistant to liberalization at the multilateral level also excluded from liberalization within FTAs. The coverage of nonagricultural products in FTAs, when measured as a share of tariff lines, is substantially higher for most agreements than coverage of agricultural products, confirming that liberalizing agricultural trade is no easier for countries at the regional level than it is at the multilateral level (WTO, 2009).

Most countries, including the United States, have some agricultural products that benefit from high levels of border protection. In many cases, it has proved difficult for partner countries to reduce barriers for these import-sensitive products within an FTA. Trade agreements (TAs) negotiated by the United States have generally been comprehensive in scope, sometimes to the point of including unfettered market access for sensitive agricultural products. The sections dealing with the agricultural provisions in pending U.S. TAs with Korea, Colombia, and Panama provide details on treatment of sensitive products under each agreement.

As they are included within legally binding agreements, FTA tariff commitments not only provide for the reduction and elimination of tariffs but also provide assurance that these tariffs will not be subsequently increased. These FTA bindings are particularly valuable in agriculture, where World Trade Organization (WTO) bound tariffs can be extremely high on some products, even though the most-favored-nation (MFN) applied tariffs are much lower.[1] Because multilateral tariff negotiations are done on the basis of a country's bound, or maximum allowable, tariffs, increases in market access as a result of negotiated tariff reductions only occur when the new bound tariff drops below the applied tariff. In the case of tariff cuts negotiated under FTAs, however, the first tariff cut is often made off a recent applied rate rather than the bound one. As a result, FTAs can have very immediate trade impacts.

In addition to addressing agricultural tariffs, countries often seek to address nontariff barriers in FTAs, particularly sanitary and phytosanitary (SPS) measures applied in the food safety and animal/plant health areas. Although the United States has not normally used TAs as a mechanism to address the substance of SPS issues in the past, sanitary issues related to U.S. beef exports were particularly important in the negotiation of the Korea, Colombia, and Panama TAs (Jurenas, 2009). The Colombia TA contains an SPS side letter addressing the terms of access under which U.S. beef and beef products would be allowed to enter Colombia. In the case of the Panama TA, both governments have signed an agreement detailing how SPS measures and technical standards will be applied to bilateral agricultural trade. Panama agreed to accept the U.S. meat and poultry inspection system "as equivalent to its own" and provide access for all U.S. beef and poultry on the basis of accepted international standards. In the Korea TA, the terms of access for U.S. beef were particularly contentious. At the time the negotiations were concluded, all differences had not been resolved both to increase market access for U.S. beef and to address Korea's human health concerns. Subsequent negotiations led to the announcement of a "voluntary private sector arrangement" on June 21, 2008, that limits sales to U.S. beef only from cattle less than 30 months old. While both countries are said to view this as a transitional step intended to improve Korean consumer confidence in U.S. beef, the issue remains politically sensitive in both countries. U.S. efforts to persuade Korea to accept U.S. beef from cattle of all ages remain unresolved as of this report's release.

[1]WTO bound tariffs are ceiling commitments made by members to hold duties beneath an agreed level. Once a tariff is bound under the WTO, it may not be raised above the bound level without compensating the affected parties. In practice, the actual tariff a country applies on imports may be at or below the bound rate. These are called most-favored-nation (MFN) applied rates. Each WTO member must grant this rate to all other WTO members under the GATT's (General Agreement on Tariffs and Trade) MFN rule. MFN treatment is aimed at preventing WTO members from discriminating between trading partners. In some cases, however, the WTO allows a country to charge some of its trading partners a rate below the MFN applied tariff. These rates, called preferential tariffs, include the tariffs negotiated under FTAs.

Shortly after each TA was negotiated, the U.S. International Trade Commission (USITC) published assessments of the likely effect of each agreement on the U.S. economy as a whole and on specific industry sectors, including agriculture. Since these reports were released, there have been significant changes in the global economy and in international relations. Colombia, in particular, has been active in negotiating additional FTAs with some key U.S. competitors. One of these FTAs—with the four members of MERCOSUR (Argentina, Brazil, Paraguay, and Uruguay)—has already had visible effects on U.S. agricultural exports and market shares in the Colombian market. The U.S. market position in the Colombian market may soon be further eroded if the Canada-Colombia FTA and the EU-Colombia FTA enter into force and competing exports from these countries receive duty-free treatment. Likewise, Korea is negotiating FTAs with the EU, MERCOSUR, and Australia. All of these countries are major competitors with the United States in the Korean market. To maintain and improve their competitive position relative to that of third countries, U.S. producers will also need duty-free access to these markets. We use the GTAP global trade model to explore the significance to U.S. agricultural exporters of implementing the pending U.S. TAs with Korea and Colombia. Differences between ERS GTAP model results and those of the USITC reflect the use of different model assumptions and base years. We also analyze U.S-Panama trade flows and tariff commitments under the pending U.S. TA with Panama to identify agricultural products that may benefit from duty-free treatment and report the gains from implementing the TA calculated by the USITC.

Model, Data, and Assumptions

In this study, we employ a multiregion computable general equilibrium model known as GTAP (Global Trade Analysis Project). The primary advantage of GTAP is that it incorporates explicit bilateral trade flows, which allows for the analysis of free trade agreements (see box, "The GTAP Framework"). Each TA, except the U.S.-Panama TA, was analyzed separately to measure the long-term effects of a one-time, full implementation of individual agreements.

The FTA final tariffs and tariff-rate quotas (TRQ) used in the GTAP model were obtained from the final texts of each of the FTAs. The applied MFN tariffs were obtained from the WTO's Integrated Database (IDB). The margins of preference were calculated as the difference between the applied MFN tariffs on U.S. exports and the tariffs to be levied on the exports of FTA partners after the FTAs are fully implemented. The U.S. export and import data were obtained from USITC's Dataweb. Trade data for other countries were obtained through the Global Trade Information Service's World Trade Atlas database.

The GTAP simulations were implemented by applying the reductions or eliminations of the import tariff rates that were agreed upon in each FTA. A few assumptions deserve note. The GTAP database reflects the applied tariff rates in 2004, including applied tariffs on trade between ASEAN members. It was assumed that ASEAN members would attain duty-free access to each other's markets by 2009, with the exception of trade in rice. To update tariffs, it was necessary to eliminate those tariffs on trade between ASEAN members prior to extending the FTA with nonmembers of ASEAN. In the case of pending TAs, it is uncertain as to when these agreements would be implemented. It was assumed that implementation of the agreements would begin by 2014.

FTAs often allow for long implementation periods in the reduction of tariff rates, in some cases as long as 20 years. In this study, the transition periods are ignored, and the reductions in protection simply assume the full change in tariffs after the transition period. While this will yield effects that reflect fully implemented tariff cuts, this approach does not provide a time path of the effects of these FTAs into the future. Rather, the results were obtained using a comparative static framework and are an attempt to simulate trade flows in the base period under a new set of tariffs. We know, however, that economic growth could arise from trade liberalization over time. The static nature of the model we used does not generate results that reflect the dynamic gains of trade liberalization. These are effects that could accrue through increased savings and investment, increasing returns to scale, or improvements in factor productivity through technological spillovers or through freeing up the importation of intermediate and capital goods. All of these additional channels of economic growth can magnify the static effects of trade liberalization.

The GTAP Framework

The Global Trade Analysis Project (GTAP) framework consists of a publically documented model and global database (Hertel and Tsigas, 1997; Narayanan and Walmsley, 2008). The model links national income accounts of all countries through trade and investment flows. The framework provides comprehensive coverage of production, consumption, and trade of all goods and services. Aspects of the model include a global banking sector, which intermediates between global savings and consumption. Domestic products and imports are consumed by firms, governments, and households. The model imposes both theoretical and basic accounting consistency conditions at the national and global level. For example, income by households is derived from returns to factors and is used for either consumption or savings. In this study, we adopt standard assumptions for the model. The model uses a constant difference elasticity (CDE) demand system for representing private household preferences. The model assumes that consumers maximize utility subject to a budget constraint and that producers maximize profits by combining intermediate inputs and primary factors at least possible cost. Within each region, firms produce output by employing labor and capital and intermediate inputs. Land, however, is employed only in agricultural sectors. Constant returns to scale (CRS) is assumed for all production sectors. Firm output is purchased by consumers, governments, other firms, and by other countries as exports. It is assumed that capital and labor are fully mobile within regions. Product markets are assumed to be perfectly competitive, implying zero economic profit for the firm. Imports are assumed as imperfect substitutes for domestic products and differentiated by origin using an Armington-type specification. The standard model is used to perform comparative static analysis where it is assumed that sufficient time is allowed for all markets to adjust to a new equilibrium. Capital accumulation is allowed based upon a Baldwin-type specification as described by Francois et al. (1996). The model is solved as a system of equations using the GEMPACK software (Harrison and Pearson, 1996). The most recent publically available release of the GTAP data (Version 7) is benchmarked to the year 2004. Ideally, the benchmark year should coincide with the period in which implementation takes place. In this study, the GTAP benchmark year for pending free trade agreements (TAs) was updated to 2014 (see app. 1).

As with all models, the GTAP framework has some limitations. Being a comparative static model, it does not capture many of the dynamic effects from increased trade or increased foreign investment. In addition, it provides no explicit time dimension for estimating when effects from an FTA may arise. The impacts reflect what the model's base year might have looked like under a different set of policies. We know, however, that the effects of trade liberalization take time to unfold. Dynamic models capture these long-term gains of trade liberalization by accounting for increased savings and investment and improvements in factor productivity from better resource allocation, deepening specialization, and technology spillovers. All of these additional channels of economic growth can magnify the static gains of trade liberalization.

The model structure also does not allow for potentially new trade flows, or extensive margin trade, where trade in the base year is zero. Nor does it account for nontariff measures (NTMs), such as sanitary and phytosanitary measures or technical barriers to trade. In some cases, zero trade in the base year is a function of NTMs, so cutting tariffs would not necessarily result in new trade flows. Some of these FTAs address some of these measures through the creation of a Standing Committee on Sanitary and Phytosanitary Matters in an effort to avoid or resolve trade problems generated by these measures. To the extent that an FTA results in reducing NTMs through the harmonization of technical barriers such as labeling, recognizing equivalence in each other's food safety regimes, or mutually agreeing to suspend antidumping laws, these reductions would not be captured in our analysis. Finally, the model data are historical, which can misrepresent current trade patterns. In the analysis of the pending U.S. TAs with Korea and Colombia, the model values were projected to 2014, when the TAs are assumed to have taken effect, based on current economic trends as described in appendix 1.

The ASEAN FTAs With China and Australia/ New Zealand

The FTAs implemented in recent years between ASEAN and China and ASEAN and Australia and New Zealand (henceforth, Oceania) reduce trade barriers among major agricultural trading nations that have strong agricultural trade ties to the United States. The trade profiles of the three entities (ASEAN, China, Oceania) have some overlaps but also strong differences; the three regions specialize in different kinds of agricultural trade. Summaries of the entities follow.

- *ASEAN* is a net exporting region for agricultural trade, but its agricultural imports are large and growing. ASEAN is also a net agricultural exporter to the United States, with U.S. imports from ASEAN exceeding exports by over $1 billion in each year during 2005-08. ASEAN exports to the world (and to the United States) span a wide range of products, including rubber, palm and coconut oil, rice, cocoa, pineapples, bananas, coffee, cashews, and spices. In most cases, these products do not compete with U.S. agricultural products; rice and vegetable oils are the chief exceptions. ASEAN imports wheat, corn, soybeans, soymeal, distillers' dried grains, dairy products, fruits, and processed agricultural products in large quantities.
- *China* is a net agricultural importing country. In 2009, it had agricultural imports of about $45 billion and agricultural exports of about $25 billion. Vegetables and fruits (often processed) and other processed food products dominate China's exports, which are often relatively labor-intensive products. Exports to the United States include processed vegetables (such as mushrooms, water chestnuts, garlic, and soy products); processed fruits (led by tangerines); apple juice; pet food; and sausage casings. U.S. exports to China are considerably larger than U.S. imports from China: $13 billion versus $3 billion in 2009. At a value of over $9 billion per year, U.S. soybean exports dominate agricultural trade between the two countries. Cotton, poultry products, and distillers' dried grains are among the other large U.S. exports to China.
- *Australia and New Zealand (Oceania)* are large net exporters, together exporting $33 billion in agricultural products and importing $9 billion in 2009. Australia exports wheat, barley, cotton, and other crops. Both countries export large amounts of pasture-based animal products: beef, lamb, and mutton; dairy products; and wool. Wine exports are also important. U.S. imports from Oceania (beef, lamb, dairy products, and wine), at $2.5 billion, are considerably larger than U.S. exports to the region ($1.1 billion in 2009), which are led by pork, pet food, and grapes.

As an agricultural exporter, the United States competes in all three markets (ASEAN, China, Oceania). When U.S competitors in these markets receive lower tariffs on their exports, U.S. exports will be affected to some extent. For example, under an initial agreement between ASEAN and China that was signed in 2002 and took effect on January 1, 2004, ASEAN tariffs declined on apples from China. U.S. apple exports to ASEAN have since decreased whereas China's apple exports have increased (see box, "The Early Harvest Between ASEAN and China").

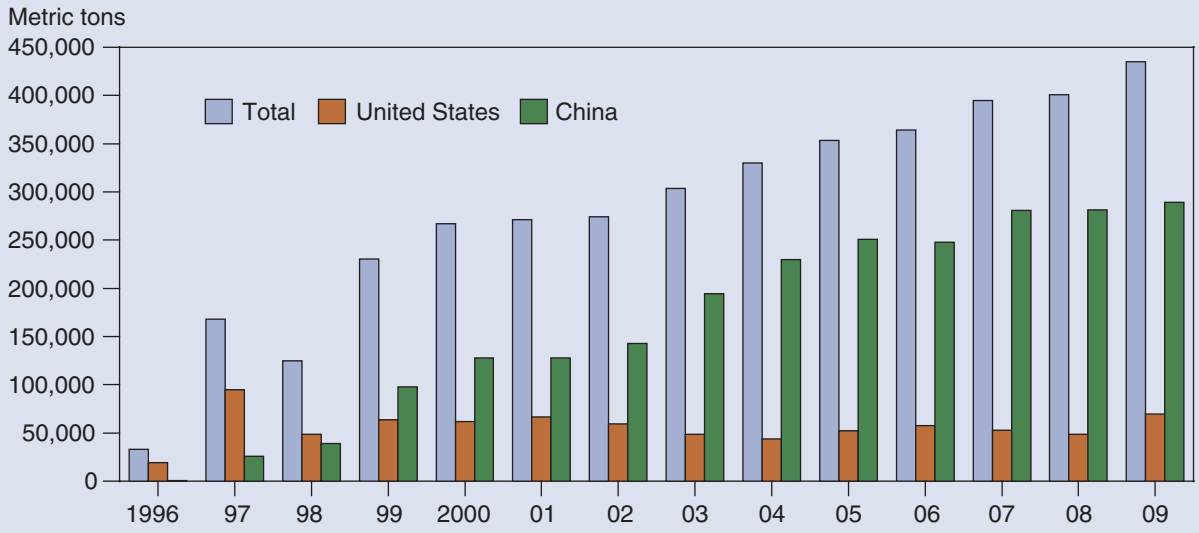
The Early Harvest Between ASEAN and China

China and the ASEAN (Association of Southeast Nations) countries agreed in Brunei in 2001 to establish a free trade area within 10 years. In a subsequent meeting in Phnom Penh, Cambodia, in 2002, the parties set up an Early Harvest program that would eliminate tariffs on goods in the first eight chapters of the Harmonized System by 2010 among members of the new FTA. These chapters cover live animals, meat and edible meat offal, fish, dairy products and eggs, other animal products, live plants, vegetables, and fruits.

Tariffs on products within these chapters were to be reduced or brought to zero for trade between China and a wealthier group within ASEAN, comprising Singapore, Brunei, Indonesia, Thailand, the Philippines, and Malaysia (ASEAN 6). Countries could choose to exclude a limited number of specific commodities from the Early Harvest and could substantially reduce tariffs, rather than completely eliminate them. The other ASEAN countries agreed to more limited trade liberalization. Most of the tariff reductions appear to have been carried out.

U.S. fruit exports may have been seriously affected by the tariff reductions granted to China's fruit exports in the Early Harvest. In 1997, U.S. apple exports to Southeast Asia peaked at 150,000 tons, just as the Asian financial crisis struck. The crisis led to sharp devaluations of Southeast Asian currencies that raised the prices of imported apples and income losses that further discouraged apple buying, triggering a dramatic decrease in U.S. apple exports to the region. However, when incomes rebounded in the mid-2000s and Southeast Asian currencies were stronger, U.S. exports failed to increase. Increased apple imports by the region were largely captured by exports from China (see figure). Tariff reductions granted on imports of Chinese apples under the Early Harvest likely contributed to the shift to exports from China. Tariffs levied on imports of U.S. apples are now higher than those on Chinese apples everywhere in the region, except in Singapore and Brunei. In the most important markets, the difference in tariffs is 5-10 percent. Thai imports of apples from China doubled in the first year (2003) in which 10-percent tariffs previously facing China were removed. Grapes, another leading U.S. export to the region, have also lost market share. Tariffs on grape imports from the United States are as high as 30 percent, while tariffs on imports from China are now zero in all the ASEAN countries.

Apple imports by Southeast Asia



Note: Southeast Asia data are for Indonesia, Malaysia, Philippines, Singapore, and Thailand.

Source: USDA, Economic Research Service using official import data in the Global Trade Atlas.

The ASEAN-China free trade area took full effect on January 1, 2010. The final agreement removes tariffs on about 90 percent of goods traded between China and the six founding members of ASEAN (Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand). The agreement with China is scheduled to extend to the other four ASEAN nations—Cambodia, Laos, Burma (Myanmar), and Vietnam—by 2015 (see app. 2, table 1 for information on the agricultural tariff commitments in each agreement). Tariffs for products designated as "sensitive" are to be phased out over a longer term through 2018, while tariffs on "highly sensitive" products will be reduced but not phased out (app. 2, table 2). Under the terms of the FTA, highly sensitive products cannot make up more than 40 percent of the sensitive lines or 100 items at the Harmonized System (HS) six-digit level, whichever is lower.[7] Vietnam and Cambodia were given special extended tariff phase-out provisions for a select group of products.

Australia and New Zealand began jointly negotiating a free trade agreement (AANZFTA) with the ASEAN countries in 2004; the agreement was signed in 2009 and entered into force in April 2010. Australia and New Zealand will benefit from the eventual elimination of tariffs on 99 percent of their exports to the ASEAN countries. Some tariffs were eliminated immediately, with the majority of the remaining tariffs reaching zero at various stages between 2011 and 2020 (app. 2, table 2). A few tariffs will not reach zero until 2025. About 5 percent of the ASEAN countries' tariffs will not be cut to zero. The ASEAN countries, on the other hand, will be granted duty-free access in Australia and New Zealand for all agricultural goods by 2020.

ASEAN's regional free trade agreements are complex:

- The FTAs with China and Oceania do not provide uniform treatment across all ASEAN members. Each ASEAN country has its own schedule of reductions on import barriers.
- The FTAs also vary widely across the commodity spectrum. Some products, such as rice, receive no bilateral tariff reduction in some or all of the national-level schedules of reduction. The "level of ambition" of the agreements is not aimed at wholly free bilateral trade in either of these agreements.
- The FTAs are implemented on different schedules for each country, and the phase-in also differs by commodity within each country. Some commodity tariffs go to zero in the first year of implementation, while others are reduced to zero only after more than 20 years. Products with no close domestic substitute tend to see faster reductions.
- Some countries retain TRQs even with the new FTA partners. The concession under the FTA is often to reduce the in-quota tariff over a period of time for the new partner.

Potential impact on U.S. agricultural exports

U.S. agricultural exports to the partners in the new ASEAN-related FTAs were about $20 billion in 2009 (table 1). Of this amount, almost half were soybean exports, of which China alone accounted for $9 billion. Cotton and oilseed products represented another 12 percent of the total. Altogether,

[7]The Harmonized System is a universal product nomenclature used to classify tariffs. Products are categorized by chapters, headings, and subheadings. Each subheading is identified by a unique six-digit code (the first two digits identify the chapter, while the first four digits correspond to the heading).

Table 1
U.S. agricultural exports to ASEAN FTA partners, 2009

	ASEAN	China	Australia-New Zealand	Total
		$ millions		
Wheat	693	87	0	779
Rice	11	1	38	49
Other grains	42	48	0	90
Oilseeds	1,134	9,214	32	10,380
Cotton	619	862	1	1,481
Fruits and vegetables	387	178	211	777
Oilseed products	824	92	97	1,013
Poultry, pork, and offal	238	446	124	808
Beef and offal	201	1	3	205
Dairy products	291	137	27	455
Processed foods	633	267	260	1,160
Other agriculture	1,137	1,779	279	3,196
Total agriculture	6,209	13,112	1,073	20,394

ASEAN = Association of Southeast Asian Nations. FTA = free trade agreement.

Source: USDA, Economic Research Service using USDA's Foreign Agricultural Trade of the United States database.

oilseeds and oilseed products and cotton constituted over 60 percent of total U.S. agricultural exports to the three regions. Import barriers to oilseeds and cotton are low worldwide because these commodities are used as inputs by industries that governments are trying to promote (i.e., meat and textiles). ASEAN, China, and Oceania are no exception; tariffs on oilseeds, oilseed products, and cotton are generally low, and often zero. Hence, much of U.S. agricultural trade going across the Pacific faced low tariffs before the ASEAN FTAs were implemented and, thus, would not be significantly affected by the agreements. Furthermore, U.S. exports of some major commodities, such as soybeans and distillers' dried grains, would face little competition with exports from China (the world's largest importer), ASEAN (major importers), or Oceania (net importers).

This analysis focuses on Indonesia, Thailand, the Philippines, Malaysia, and Vietnam. The rest of ASEAN's members are excluded from much of the analysis because of their small size or lack of data. Singapore has free trade for virtually all its imports. Brunei has a small economy and very small agricultural trade. Multilateral trade data are difficult to obtain for Burma, Cambodia, and Laos.

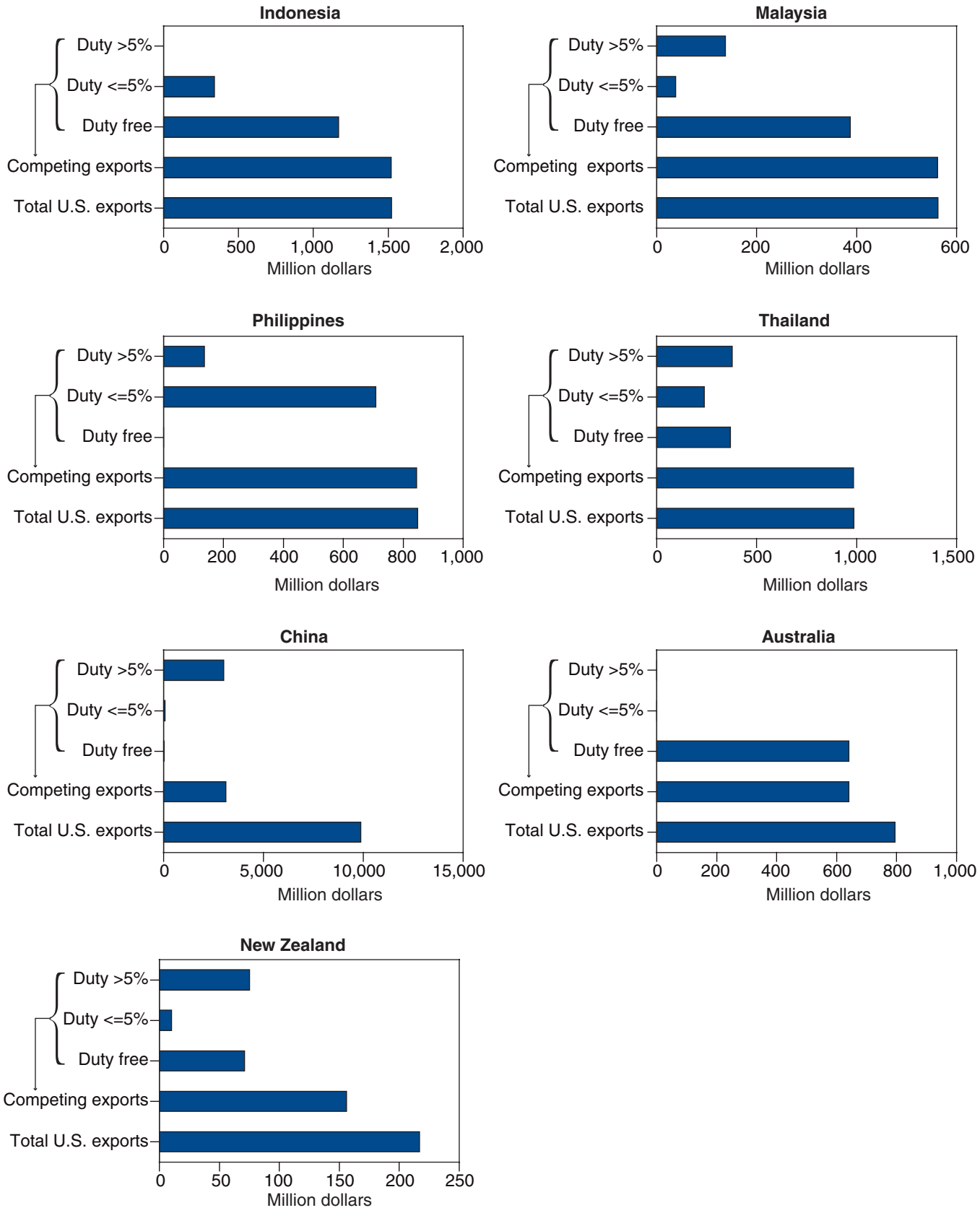
As shown in figure 1, the amount of trade that might be vulnerable to heightened competition as a result of these FTAs would appear to be substantially less than the total. The bar on the bottom of each figure displays the 5-year average value of agricultural goods imported from the United States between 2005 and 2009.[8] The bar above it displays the portion of imports from the United States that competed with exports from at least one of the FTA partners in at least 1 of the 5 years.[9] In the case of the four ASEAN countries depicted, this is the portion of U.S. trade that competed directly with trade from China and Oceania; in the case of China, Australia, and New Zealand,

[8]Unless otherwise indicated, we use the WTO definition of agriculture, which includes goods found in HS chapters 01 to 24, (minus chapter 03 and certain fisheries products) and parts of chapters 29, 33, 35, 38, 40, 41, 50, 51, 52, 53 (all nonfood products of agricultural origin).

[9]The amounts in these figures are based on the import figures reported by each country, which may differ from the amounts the United States reports as exports to these countries.

Figure 1

U.S. agricultural exports by size of tariff faced, 2005-09 average



Source: USDA, Economic Research Service using trade data in the Global Trade Atlas and tariff data in ERS databases.

it represents the portion of U.S. trade that competed with ASEAN exports to these countries. The top three bars in the figures apportion the competing exports by the amount that faced zero tariffs, tariffs of 5 percent or less, and tariffs greater than 5 percent. We used 2006 MFN applied rates for each country except Australia as a proxy for tariffs faced by the United States during the entire period. For Australia, we used the tariffs faced by the United States under the U.S.-Australia FTA.

In the case of the four ASEAN countries, almost all U.S. trade faced some competition from at least one of the countries' new FTA partners (China, Australia, or New Zealand). In the case of Indonesia and Malaysia, however, a large portion of this trade was imported at MFN applied rates that were set at zero. An estimated 77 percent of Indonesia's agricultural imports from the United States and 69 percent of Malaysia's imports from the United States entered duty free. In the case of Thailand, 37 percent of U.S. exports entered duty free; in the Philippines, all U.S. imports were assessed a duty.

The annual average level of dutiable U.S. exports to these countries was $350 million in Indonesia, $175 million in Malaysia, $845 million in the Philippines, and $620 million in Thailand. Focusing only on the portion of U.S. exports subject to duty, we observe that most U.S. exports to Indonesia entered at rates under 5 percent—only 3 percent of dutiable exports from the United States to Indonesia were assessed a tariff of over 5 percent. Although all U.S. agricultural exports to the Philippines were dutiable, only 16 percent were levied a duty above 5 percent. In Malaysia and Thailand, by contrast, the shares were 79 and 61 percent, respectively.

In the case of China, only about a third of U.S. exports faced competition from ASEAN countries, compared with 81 percent in Australia and 72 percent in New Zealand.[10] The majority of U.S. exports to China that competed with exports of ASEAN countries faced tariffs in excess of 5 percent, while U.S. exports to Australia enter duty free under the U.S.-Australia FTA. About 88 percent of the $85 million of dutiable U.S. exports to New Zealand that competed with ASEAN country exports faced tariffs above 5 percent.

Across the seven countries represented in figure 1, U.S. exports averaged $15 billion per year during 2005-09. Of this amount, $7 billion did not compete with exports from the new FTA partners and another $2.66 billion entered duty free, leaving just over $5 billion of dutiable competing exports.

[10]Soybeans accounted for the majority of U.S. agricultural exports to China during this period (an average of over $5.5 billion per year). There was one competing ASEAN country, Burma; because its soybean exports to China totaled $9,200 in just one year, this trade was not counted as being competitive.

Changes in U.S. agricultural exports to the FTA members

With 2009 trade values as a benchmark, GTAP model results suggest that overall U.S. agricultural exports to the ASEAN region would be mildly affected from implementing these tariff cuts, falling by about 6 percent in total, or just under $350 million per year (table 2). However, effects would vary significantly across ASEAN countries and commodities (table 3). These differences largely reflect the level of direct competition the United States would face from China, Australia, and New Zealand as a result of the improved market access for these countries in the ASEAN region. The breakout for the large ASEAN countries indicates that Thailand would

Table 2
Impact on total U.S. agricultural exports from ASEAN FTAs with China, Australia, and New Zealand[1]

	ASEAN	China	Rest of world	Total
		Percent change		
Wheat	-5.9	1.9	0.2	-0.6
Oilseeds	-1.0	0.5	0.2	0.3
Cotton	-0.4	2.3	-0.5	0.2
Fruits and vegetables	-17.4	-13.8	0.1	-0.6
Oilseed products	1.2	-1.5	0.6	0.6
Poultry, pork, and offal	-22.1	-0.0	0.3	-0.4
Beef and offal	-13.9	1.2	0.4	0.3
Dairy	-16.9	2.1	0.5	-1.9
Processed foods	-11.8	-2.6	0.1	-0.6
Other agriculture	-4.5	0.3	0.1	0.0
Total agriculture	-6.2	0.5	0.2	-0.1
	ASEAN	China	Rest of world	Total
		$ millions		
Wheat	-39.8	1.6	7.5	-30.7
Oilseeds	-10.8	47.5	15.5	52.2
Cotton	-2.8	18.8	-9.3	6.8
Fruits and vegetables	-51.7	-29.9	12.1	-69.5
Oilseed products	9.5	-1.7	32.8	40.6
Poultry, pork, and offal	-54.8	-0.3	20.1	-35.0
Beef and offal	-6.3	0.4	15.9	10.0
Dairy	-43.2	2.5	6.6	-34.1
Processed foods	-123.6	-26.1	26.7	-123.0
Other agriculture	-24.2	3.6	30.4	9.8
Total agriculture	-347.7	16.5	158.2	-173.0

ASEAN = Association of Southeast Asian Nations. FTA = free trade agreement.
[1]Model base year is 2004; dollar amounts are from applying model's percent change to 2009 trade.

Source: USDA, Economic Research Service results of Global Trade Analysis Project modeling exercise for this study.

account for over 40 percent of the U.S. export loss. Thai tariffs tend to be the highest among ASEAN's large countries. Indonesia, with generally low tariffs, would see a much smaller per year drop ($21 million) in U.S. exports.

As a result of tariff cuts, total agricultural exports to ASEAN by Australia and New Zealand would increase by about 27 percent, or nearly $1.2 billion per year. However, their agricultural exports to the rest of the world would fall about 1.6 percent, or $490 billion per year. As products from Australia and New Zealand rise in price, they become less competitive in the rest of the world. Overall agricultural exports from Australia and New Zealand to the world would increase by just 2 percent. U.S. agricultural exports to Oceania would be virtually unchanged, but U.S. agricultural imports from the region would fall by about $50 million per year, mainly due to diversion of beef and dairy products to ASEAN markets.

Table 3
Projected impact on U.S. exports to selected ASEAN countries from FTAs with China, Australia, and New Zealand

	Indonesia	Malaysia	Philippines	Thailand	Vietnam	ASEAN
			Percent change			
Wheat	-7.9	3.2	-6.4	-4.3	-17.7	-5.9
Oilseeds	0.7	-1.0	-4.7	-2.2	-12.3	-1.0
Cotton	1.6	1.1	4.3	-8.6	3.8	-0.4
Fruits and vegetables	-4.9	-3.2	-24.0	-32.8	-35.2	-17.4
Oilseed products	1.8	1.4	0.3	-0.6	3.3	1.2
Poultry, pork, and offal	0.5	-0.1	-36.8	-33.9	-17.7	-22.1
Beef and offal	-13.9	1.2	-6.9	-91.4	-52.2	-13.9
Dairy	-10.3	-0.1	-12.0	-23.7	-41.4	-16.9
Processed foods	-2.5	-4.1	-3.5	-35.6	-14.8	-11.8
Other agriculture	-1.1	-8.9	0.5	-7.7	-5.8	-4.5
Total agriculture	-1.2	-2.3	-7.0	-13.9	-9.6	-6.2
	Indonesia	Malaysia	Philippines	Thailand	Vietnam	ASEAN
			$ millions			
Wheat	-12.0	1.2	-20.5	-6.6	-1.9	-39.8
Oilseeds	4.1	-1.6	-1.2	-4.6	-7.5	-10.8
Cotton	3.7	0.4	0.8	-14.3	6.6	-2.8
Fruits and vegetables	-3.8	-2.2	-11.5	-15.4	-18.8	-51.7
Oilseed products	3.2	1.1	1.1	-0.4	4.6	9.5
Poultry, pork, and offal	0.3	-0.0	-39.3	-1.4	-14.4	-54.8
Beef and offal	-0.8	0.0	-2.3	-0.5	-2.7	-6.3
Dairy	-6.8	-0.1	-9.3	-5.6	-21.4	-43.2
Processed foods	-7.2	-8.3	-8.0	-87.6	-12.5	-123.6
Other agriculture	-1.3	-6.2	0.5	-9.9	-7.4	-24.2
Total agriculture	-20.6	-15.7	-89.6	-146.3	-75.5	-347.7

ASEAN = Association of Southeast Asian Nations. FTA = free trade agreement.
[1]Model base year is 2004; dollar amounts are from applying model's percent change to 2009 trade.

Source: USDA, Economic Research Service results of Global Trade Analysis Project modeling exercise for this study.

U.S. agricultural exports to China are expected to increase marginally, by $16.5 million per year. New tariff preferences for ASEAN are likely to reduce U.S. competitiveness and trade in fruits and vegetables and in processed foods. However, China's demand for oilseeds and cotton is expected to increase because of growth in its livestock and textile sectors as a result of the ASEAN FTA, raising demand for more imported inputs.

Under this scenario, U.S. exports to the rest of the world would likely increase; as trade intensifies among the three FTA regions, existing exports to nonparticipating parts of the world by these countries would be in shorter supply and more expensive. U.S. agriculture would gain, marginally, in other markets. With a gain of over $150 million in new trade to balance against the loss in trade to ASEAN, U.S. agricultural exports to the world would drop approximately $173 million after implementation of the FTAs.

Identifying U.S. exports most vulnerable to increased competition

This section takes a more disaggregated look at those U.S. products most vulnerable to increased competition in China, Australia, New Zealand, and ASEAN. We concentrate only on those U.S. products in each country that competed with products from at least one country that was a new FTA partner and that were charged a duty (the trade represented in the top two bars in figure 1). To simplify the analysis, we focus only on tariff lines where U.S. exports during the 2005-09 period averaged over $20,000 per year, and where exports of FTA competitors were somewhat significant—defined as accounting for more than a 5-percent total market share during our study period. For example, if the combined exports from China, Australia, and New Zealand accounted for less than 5 percent of total imports in an ASEAN country, that tariff line was not included in our analysis. Finally, tariff lines where the margin of preference, measured as the difference between the tariff that U.S. exports face and the tariff the FTA partners' exports will face after the FTAs have been fully implemented, is below 3 percent were also not considered to be vulnerable.

Tables 4 and 5 display the trade amounts from the tariff lines that we believe would be the most vulnerable to increased competition as a result of the ASEAN-China and ASEAN-Oceania FTAs. The trade under these tariff lines was aggregated across commodity groupings (the number of tariff lines in each grouping is provided) for ease in analysis. The last three columns in the tables show the simple average margins of preference over these tariff lines as well as the minimum and maximum margin of preference within each commodity aggregate. Only the top 20 commodity groupings are provided in these tables, except in the case of New Zealand, where the identified tariff lines were contained within only 16 commodity groupings. In the six other countries found in tables 4 and 5, the top 20 commodity groupings accounted for at least 90 percent of all U.S. exports identified as most vulnerable.

The first result that stands out is the importance of products in the category labeled "food preparations: composite mixtures." In all seven countries, this category is either first or second in terms of value of U.S. exports. This is a diverse grouping containing a number of tariff lines, but the bulk of U.S. exports are of products in the HS6 category 210690—food preparations not elsewhere specified or included.[11] The second notable result is the overall importance of processed products within these tables. In addition to food preparations, several other processed items account for large amounts of trade, including starches, miscellaneous agricultural products, bakery foods, and crude vegetable material. With certain exceptions (wheat to the Philippines, tobacco to Malaysia and China, corn to China, and cotton to China), few bulk commodities are found in these tables. High-value products such as fresh apples, grapes, certain dairy products, frozen potatoes, fats and oils, cocoa products, and prepared nuts and fruits are also important.

[11]The category includes products such as beverage bases; some snack foods; some fruit juice preparations; coffee whiteners; herbal tea mixes; some gelatin preparations; and many other processed foods, beverages, and food ingredients.

Table 4

Average margins of preference for Australia, New Zealand, and China in ASEAN countries - selected U.S. average exports, 2005-09

Product	United States	Australia	New Zealand	China	ASEAN	Rest of world	Total	No. of tariff lines	Margin of preference - ANZ: Average	Margin of preference - ANZ: Minimum	Margin of preference - ANZ: Maximum	Margin of preference - China: Average	Margin of preference - China: Minimum	Margin of preference - China: Maximum
Indonesia	---------- *$ thousands* ----------													
Dairy: milk & cream, pwdr & cndnsd	83,721	81,217	128,010	79	91,268	74,900	459,195	7	5.7	5.0	10.0	5.7	5.0	10.0
Food prep: composite mixtures	36,983	8,797	15,689	12,347	41,255	82,646	197,716	11	5.2	5.0	7.5	5.2	5.0	7.5
Fruit (frsh): apples	23,946	1,226	2,145	71,405	563	2,340	101,625	1	5.0	5.0	5.0	5.0	5.0	5.0
Fruit (frsh): grapes	20,309	11,579	12	6,115	462	9,276	47,753	1	5.0	5.0	5.0	5.0	5.0	5.0
Dairy: other milk products	11,389	15,230	14,856	17	181	54,998	96,670	6	5.8	5.0	10.0	5.8	5.0	10.0
Starches (nonedible nes)	10,472	2,712	779	9,092	31,990	25,354	80,399	6	5.0	5.0	5.0	5.0	5.0	5.0
Dairy: cheese	6,373	14,425	12,122	18	1,468	2,317	36,723	5	5.0	5.0	5.0	5.0	5.0	5.0
Sweeteners: lactose & lactose syrup	5,447	451	2,561	103	84	6,425	15,071	4	5.0	5.0	5.0	5.0	5.0	5.0
Ag products: misc	4,740	3,165	56	4,641	7,210	21,009	40,820	6	5.8	5.0	10.0	5.8	5.0	10.0
Veg (prep): potatoes	4,502	235	513	489	1,045	2,548	9,332	3	5.0	5.0	5.0	5.0	5.0	5.0
Crude vegetable material	4,220	8		5,380	1,045	15,065	25,718	10	4.5	0.0	5.0	4.5	5.0	5.0
Veg (frzn): potatoes	3,969	167	898	136	463	4,781	10,414	1	5.0	5.0	5.0	5.0	5.0	5.0
Veg (frzn or prep): other	3,925	139	581	238	154	634	5,672	4	5.0	5.0	5.0	5.0	5.0	5.0
Feed: pet food	3,632	1,827	6	23	4,127	773	10,389	3	5.0	5.0	5.0	5.0	5.0	5.0
Meat (frsh or frzn): edible offal	3,007	27,801	22,029		134	1,607	54,578	3	5.0	5.0	5.0	5.0	5.0	5.0
Crude animal material	2,438	146	298	1,355	282	226	4,746	4	5.4	5.0	6.7	5.4	5.0	6.7
Sweeteners: caramel & sugar nes	2,373	7,327	120	2,209	2,529	5,594	20,152	3	5.0	5.0	5.0	5.0	5.0	5.0
Nuts: almonds	2,198	184		5	10	23	2,421	1	5.0	5.0	5.0	5.0	5.0	5.0
Fruit (frsh): oranges	1,574	3,116		6,358	479	5,937	17,464	2	5.0	5.0	5.0	5.0	5.0	5.0
Veg (dried): other	1,535	9	57	2,503	265	371	4,740	2	5.0	5.0	5.0	5.0	5.0	5.0
Top 20	236,751	179,762	200,734	122,514	185,015	316,825	1,241,601	83						
Other	18,820	119,740	57,461	144,130	55,437	177,381	572,969	97						
Total	255,571	299,501	258,195	266,645	240,452	494,206	1,814,570	180						
Top 20 share	93%	60%	78%	46%	77%	64%	68%	46%						
Malaysia														
Food prep: composite mixtures	50,821	5,929	8,934	11,548	7,382	49,051	133,665	8	12.9	5.0	20.0	12.9	5.0	20.0
Tobacco (unmanufactured)	22,401	191		6,900	20,991	41,091	91,574	2	101.2	98.9	103.4	510.8	499.6	522.1
Cocoa products	6,223	6,350	2,050	3,101	1,959	27,829	47,512	5	15.0	15.0	15.0	15.0	15.0	15.0
Fruit (frsh): apples	4,362	247	1,909	13,402	29	12,231	32,179	1	5.0	5.0	5.0	5.0	5.0	5.0
Food prep: sauces	4,330	1,316	60	3,402	12,384	8,308	29,800	2	12.5	5.0	20.0	12.5	5.0	20.0
Fruit (frsh): grapes	3,920	2,573	9	1,191	25	4,351	12,069	1	5.0	5.0	5.0	5.0	5.0	5.0
Tobacco products	3,043	516		17,914	48,811	37,281	107,565	6	123.3	0.0	643.5	395.3	83.5	707.9
Veg (prep): potatoes	2,202	19	1	477	0	789	3,489	1	8.0	8.0	8.0	8.0	8.0	8.0

continued—

Table 4

Average margins of preference for Australia, New Zealand, and China in ASEAN countries - selected U.S. average exports, 2005-09—continued

Product	United States	Australia	New Zealand	China	ASEAN	Rest of world	Total	No. of tariff lines	Margin of preference - ANZ			Margin of preference - China		
									Aver-age	Mini-mum	Maxi-mum	Aver-age	Mini-mum	Maxi-mum
Fruit juice: mixtures	2,180	71	3,653	138	12	1,746	7,801	1	6.0	6.0	6.0	6.0	6.0	6.0
Fruit (dried): raisins	2,144	186	3	150	10	1,884	4,377	1	5.0	5.0	5.0	5.0	5.0	5.0
Beverages: wine	1,967	17,777	678	265	6	12,807	33,500	2	64.6	57.3	71.8	155.0	137.6	172.4
Sweeteners: glucose & glucose syrup	1,957			2,059	551	503	5,070	1	15.0	15.0	15.0	15.0	15.0	15.0
Grain prod: bakery foods	1,777	686	109	5,039	1,449	8,035	17,095	4	6.0	6.0	6.0	6.0	6.0	6.0
Dairy: cheese	1,763	14,190	12,242	12	1,188	3,438	32,832	3	6.7	5.0	10.0	6.7	5.0	10.0
Starches (nonedible nes)	1,232	160		9,405	0	2,113	12,910	3	5.7	5.0	6.0	5.7	5.0	6.0
Nuts: mixed or prepared	931			1,415	60	25	2,432	1	5.0	5.0	5.0	5.0	5.0	5.0
Beverages: nonalcoholic	858	215	8	384	681	428	2,574	3	20.0	20.0	20.0	20.0	20.0	20.0
Oil: peanut	850	632	53	7,019	6,393	2,902	17,850	2	15.0	15.0	15.0	15.0	15.0	15.0
Food prep: candy	850	401	5	192	7	664	2,120	3	5.0	5.0	5.0	5.0	5.0	5.0
Fruit (frsh): stone	737	8		208	434	1,703	3,090	1	5.0	5.0	5.0	5.0	5.0	5.0
Top 20	114,548	51,468	29,716	84,220	102,372	217,180	599,505	51						
Other	4,582	2,961	1,153	50,908	20,587	37,687	117,878	46						
Total	119,130	54,429	30,870	135,128	122,960	254,866	717,383	97						
Top 20 share	96%	95%	96%	62%	83%	85%	84%	53%						
Philippines														
Grain: wheat	347,884	22,603		22,844	215	104,995	498,541	4	4.5	3.0	7.0	4.5	3.0	7.0
Food prep: composite mixtures	23,340	2,407	4,979	8,292	33,937	29,931	102,885	20	6.7	3.0	15.0	6.7	3.0	15.0
Feed: pet food	12,130	2,927	41	1,661	8,420	10,248	35,428	4	14.0	5.0	35.0	2.5	0.0	5.0
Veg (frzn): potatoes	11,384	92	715	112	64	5,318	17,685	1	10.0	10.0	10.0	10.0	10.0	10.0
Meat (frzn): poultry	7,167	2,050	56	25	132	8,348	17,778	5	9.3	8.0	14.4	2.8	0.0	7.0
Fruit (frsh): grapes	6,334	683	16	104	2	1,093	8,232	1	7.0	7.0	7.0	7.0	7.0	7.0
Cocoa products	5,509	2,549	1,051	1,528	6,208	3,731	20,576	11	6.6	3.0	7.0	6.6	3.0	7.0
Tobacco (unmanufactured)	5,049	186	173	21,331	14,083	114,282	155,105	4	7.0	7.0	7.0	7.0	7.0	7.0
Beverages: wine	4,682	2,212	179	43	396	5,493	13,006	6	6.7	5.0	7.0	6.7	5.0	7.0
Veg (prep): tomatoes	4,625	7	367	9,303	177	1,774	16,253	2	9.5	9.0	10.0	9.5	9.0	10.0
Sweeteners: glucose & glucose syrup	4,197	6	1	9,685	2,312	3,015	19,216	4	3.0	3.0	3.0	3.0	3.0	3.0
Veg (dried): beans, peas, & lentils	4,190	506	11	992	2,611	2,988	11,296	6	4.2	3.0	10.0	4.2	3.0	10.0
Starches (nonedible nes)	2,952	55	62	1,761	4,578	5,380	14,788	4	3.0	3.0	3.0	3.0	3.0	3.0
Meat (frzn): beef	2,916	11,357	4,222	140	120	113,641	132,396	2	10.0	10.0	10.0	10.0	10.0	10.0
Dairy: other milk products	2,470	8,743	23,507	176	2,513	6,607	44,015	4	4.0	3.0	7.0	4.0	3.0	7.0
Grain: corn	2,011	1,540		774	30	3,877	8,233	2	11.2	7.0	15.3	7.8	7.0	8.5
Sweeteners: carmel & sugar nes	1,910	127		5,319	1,136	4,825	13,317	4	3.0	3.0	3.0	3.0	3.0	3.0

continued—

Table 4

Average margins of preference for Australia, New Zealand, and China in ASEAN countries - selected U.S. average exports, 2005-09—continued

Product	United States	Australia	New Zealand	China	ASEAN	Rest of world	Total	No. of tariff lines	Margin of preference - ANZ			Margin of preference - China		
									Aver-age	Mini-mum	Maxi-mum	Aver-age	Mini-mum	Maxi-mum
Dairy: cheese	1,872	9,697	21,371	7	469	2,964	36,378	5	5.4	3.0	7.0	5.4	3.0	7.0
Crude vegetable material	1,782	37	18	3,166	597	6,097	11,696	5	3.8	3.0	7.0	3.8	3.0	7.0
Crude animal material	1,619	601	593	1	44	584	3,441	3	3.0	3.0	3.0	3.0	3.0	3.0
Top 20	454,022	68,386	57,364	87,263	78,044	435,190	1,180,268	97						
Other	22,319	23,674	22,921	70,505	70,304	80,642	290,364	128						
Total	476,341	92,059	80,285	157,768	148,347	515,832	1,470,632	225						
Top 20 share	95%	74%	71%	55%	53%	84%	80%	43%						
Thailand														
Food prep: composite mixtures	76,679	11,940	5,617	12,073	60,634	84,641	251,584	18	7.8	5.0	30.0	7.8	5.0	30.0
Feed: pet food	66,502	11,403	46	14,952	10,647	78,582	182,132	8	9.0	9.0	9.0	4.0	4.0	4.0
Skins & hides: bovine	54,987	36,403	3,443	127	7,509	56,669	159,139	5	5.0	5.0	5.0	5.0	5.0	5.0
Dairy: other milk products	31,988	39,030	75,208	1,575	356	44,708	192,865	5	11.3	5.0	30.0	2.3	0.0	11.5
Fruit (frsh): apples	13,807	10,370	23,542	286	147	35,846	83,997	9	20.3	5.0	30.0	20.3	5.0	30.0
Feed: waste & residues nes	11,923			3,271	135	6,869	22,198	4	0.0	0.0	0.0	30.0	30.0	30.0
Fruit (frsh): grapes	11,063	92	4,911	54,340	116	4,958	75,480	1	12.3	12.3	12.3	12.3	12.3	12.3
Veg (frzn): potatoes	10,202			934	14	2,151	13,301	3	6.3	5.0	9.0	6.3	5.0	9.0
Nuts & fruit (dried & frsh) nes	10,113	7,456		14,965	121	4,079	36,735	1	30.0	30.0	30.0	30.0	30.0	30.0
Starches (nonedible nes)	10,106	59	2,213	525	33	3,197	16,133	1	30.0	30.0	30.0	30.0	30.0	30.0
Crude vegetable material	8,304	813	550	7,973	249	15,160	33,048	10	13.8	5.0	27.0	13.8	5.0	27.0
Nuts: almonds	8,206	114	1,022	8,526	6,293	1,597	25,759	8	38.8	30.0	40.0	34.6	23.3	40.0
Live poultry	5,759	321	6	168	0	46	6,300	2	10.1	10.0	10.3	10.1	10.0	10.3
Food prep: margarine	4,216	680	1,259	6,742	8,001	18,115	39,014	7	12.1	0.0	30.0	16.3	5.0	30.0
Fruit (prep): stone	2,720	213			0	225	3,158	1	15.0	15.0	15.0	15.0	15.0	15.0
Cocoa products	2,558	867	112	126	5,253	1,468	10,384	3	28.5	25.4	30.0	28.5	25.4	30.0
Tea extracts	2,483	11		5,634	147	16,055	24,331	3	30.0	30.0	30.0	30.0	30.0	30.0
Nuts & fruit (prepared) nes	2,480	2,251	632	1,685	3,668	8,300	19,016	4	10.0	10.0	10.0	10.0	10.0	10.0
Fruit juice: grapefruit	2,462	1	0	1,446	529	2,107	6,545	3	30.0	30.0	30.0	30.0	30.0	30.0
Food prep: sauces	2,427	399	363	9,153	362		15,075	8	30.0	30.0	30.0	27.5	25.0	30.0
Top 20	338,984	122,423	118,924	144,502	104,213	387,144	1,216,191	104						
Other	36,151	49,721	21,051	130,011	143,448	233,341	613,723	165						
Total	375,135	172,144	139,976	274,514	247,661	620,486	1,829,914	269						
Top 20 share	90%	71%	85%	53%	42%	62%	66%	39%						

ASEAN = Association of Southeast Asian Nations. ANZ = Australia/New Zealand. nes = not elsewhere specified.

Source: USDA, Economic Research Service calculations using 2005-09 trade data in the Global Trade Atlas and tariff data in ERS databases.

Table 5

Average margins of preference for ASEAN countries in China, Australia, and New Zealand - selected U.S. average exports, 2005-09

Product	United States	ASEAN	Rest of world	Total	No. of tariff lines	Margin of preference - ASEAN[1]		
						Average	Minimum	Maximum
China	---------- *$ thousands* ----------							
Food prep: composite mixtures	96,808	33,187	251,590	381,585	3	16.7	10.0	20.0
Starches (nonedible nes)	19,882	60,086	40,263	120,230	2	16.0	12.0	20.0
Ag products: misc	16,153	276,749	110,592	403,495	8	14.3	10.0	16.0
Oil: soybean	10,670	1,422	7,746	19,838	1	10.9	10.9	10.9
Crude vegetable material	8,791	16,877	31,840	57,508	9	13.2	6.0	20.0
Cocoa butter and paste	8,350	4,438	13,032	25,820	1	10.0	10.0	10.0
Fats & oils: animal & veg nes	8,071	16,662	32,907	57,640	2	15.0	10.0	20.0
Essential oils	6,249	9,764	21,981	37,993	3	15.0	15.0	15.0
Food prep: sauces	6,164	25,518	29,122	60,804	1	20.0	20.0	20.0
Grain: corn	4,873	8,786	58,853	72,512	1	21.0	21.0	21.0
Grain prod: bakery foods	3,844	7,387	31,412	42,643	4	7.5	0.0	10.0
Fiber: cotton (carded)	3,712	5,157	185	9,053	1	15.0	15.0	15.0
Grain prod: breakfast cereal	3,509	9,519	62,845	75,872	5	19.0	15.0	25.0
Tobacco (unmanufactured)	2,842	3,482	7,229	13,553	2	27.5	25.0	30.0
Food prep: candy	2,801	2,601	5,082	10,484	1	5.0	5.0	5.0
Nuts & fruit (prepared) nes	2,564	7,937	26,747	37,248	3	17.3	10.0	30.0
Veg (prep): other	2,332	1,870	2,162	6,365	2	15.0	15.0	15.0
Fats & oils: vegetable	2,236	17,722	3,768	23,725	2	12.5	10.0	15.0
Crude animal material	2,041	1,372	1,561	4,974	5	21.0	10.0	25.0
Food prep: pasta (stuffed)	1,947	170,192	7,506	179,645	2	22.5	20.0	25.0
Top 20	213,840	680,729	746,421	1,640,989	58			
Other	22,152	865,847	312,826	1,200,826	66			
Total	235,992	1,546,576	1,059,247	2,841,815	124			
Top 20 share	91%	44%	70%	58%	47%			
Australia								
Food prep: composite mixtures	74,379	42,121	570,999	687,499	2	4.5	4	5
Grain prod: bakery foods	10,662	33,321	147,794	191,777	3	5	5	5
Nuts & fruit (prepared) nes	7,764	7,598	103,864	119,226	2	5	5	5
Fruit juice: mixtures	5,406	5,109	16,650	27,165	4	5	5	5
Beverages: distilled spirits nes	4,982	8,531	16,008	29,521	1	5	5	5
Veg (prep): other	4,412	1,345	18,633	24,390	1	5	5	5
Grain prod: breakfast cereal	1,369	2,053	6,963	10,385	1	5	5	5
Veg (frzn): other	1,213	8,290	34,345	43,847	5	5	5	5
Sweeteners: carmel & sugar nes	1,153	4,098	22,318	27,568	2	4.5	4	5
Nuts & fruit (dried & frsh) nes	1,054	1,267	11,631	13,952	1	5	5	5
Food prep: pasta (stuffed)	1,052	3,034	46,913	51,000	1	5	5	5
Oil: cottonseed	1,014	819	4,512	6,345	1	5	5	5
Food prep: margarine	989	1,106	5,501	7,596	2	5	5	5

continued—

Table 5

Average margins of preference for ASEAN countries in China, Australia, and New Zealand - selected U.S. average exports, 2005-09—continued

Product	United States	ASEAN	Rest of world	Total	No. of tariff lines	Margin of preference - ASEAN[1]		
						Average	Minimum	Maximum
Oil: soybean	923	9,749	5,863	16,535	1	5	5	5
Oil: linseed	827	7,280	23,407	31,513	1	5	5	5
Ag products: misc	640	4,314	2,987	7,941	1	5	5	5
Nuts: mixed or prepared	529	22,295	7,388	30,212	2	5	5	5
Food prep: candy	313	23,113	47,349	70,775	1	5	5	5
Veg (dried & frsh): roots & tubers	199	8,580	5,326	14,105	1	5	5	5
Food prep: soup	198	240	1,142	1,580	1	5	5	5
Top 20	119,078	194,262	1,099,593	1,412,932	34			
Other	570	4,667	9,439	14,676	6			
Total	119,648	198,928	1,109,032	1,427,608	40			
Top 20 share	99.5%	98%	99%	99%	85%			
New Zealand								
Food prep: composite mixtures	28,591	12,208	150,405	191,204	3	6.8	6.5	7.0
Feed: pet food	15,073	3,840	25,234	44,147	2	6.8	6.5	7.0
Food prep: sauces	2,711	4,870	30,418	37,999	1	6.5	6.5	6.5
Nuts & fruit (prepared) nes	761	759	6,075	7,594	1	7.0	7.0	7.0
Nuts & fruit (dried & frsh) nes	411	208	1,754	2,373	1	5.0	5.0	5.0
Sweeteners: carmel & sugar nes	393	60	394	847	1	5.0	5.0	5.0
Veg (frzn): other	375	145	207	726	1	7.0	7.0	7.0
Beverages: nonalcoholic	260	524	6,223	7,007	2	5.8	5.0	6.5
Cocoa products	190	3,127	13,515	16,832	1	6.5	6.5	6.5
Fats & oils: vegetable	142	4,515	986	5,642	1	5.0	5.0	5.0
Dairy: milk & cream, pwdr & cndnsd	85	189	2,822	3,095	1	5.0	5.0	5.0
Cocoa powder	76	220	1,623	1,919	1	6.5	6.5	6.5
Fruit (prep): composite mixtures	68	744	5,345	6,157	1	6.5	6.5	6.5
Veg (frzn or prep): other	41	17	116	175	1	6.5	6.5	6.5
Grain prod: flour (wheat)	29	828	4,958	5,815	1	6.0	6.0	6.0
Grain prod: flour (nonwheat)	26	549	587	1,162	1	5	5	5
Total	49,230	32,803	250,662	332,694	20			

nes = not elsewhere specified.

[1]The free trade agreement (FTA) between the United States and Australia brought most bilateral tariffs to zero. Margins of preference for Australia are the pre-existing Australian tariffs facing ASEAN (Association of Southeast Asian Nations), which disappear as the FTA with ASEAN is implemented.

Source: USDA, Economic Research Service calculations using 2005-09 trade data in the Global Trade Atlas and tariff data in ERS databases.

U.S. exports of products in the "food preparations: composite mixtures" category accounted for a total yearly average of about $190 million to the four ASEAN countries (see table 4). The average margins of preference for goods in this category range from 5.2 percent in Indonesia to 12.9 percent in Malaysia, with the maximum tariffs ranging from 7.5 percent in Indonesia to 30 percent in Thailand. The advantage that China, Australia, and New Zealand exporters will have over U.S. exporters may be fairly significant for some of these exports, so it should be no surprise that in the results of the model-based analysis, U.S. trade in processed foods declines by the largest amount, totaling $123.6 million per year in the ASEAN region.

Other important commodities exported to all four countries include fresh apples, fresh grapes, and frozen potatoes. U.S. exports of these products averaged between $8.6 million per year to Malaysia and $48.2 million to Indonesia, totaling over $100 million per year to the four ASEAN countries. The average margins of preference for these commodities range from 5 to 6 percent for most products in Indonesia to 30 percent or higher for some fruits and nuts in Thailand (see table 4). Model results show U.S. exports of fruits and vegetables to the ASEAN countries decreasing by over $50 million per year.

Products in a number of important tariff lines (in terms of export value) identified as vulnerable are primarily exported by the United States to only one or two countries, including wheat and frozen poultry to the Philippines; powdered and condensed milk to Indonesia; pet food, hides and skins, and dairy products to Thailand; and unmanufactured tobacco and cocoa products to Malaysia. Among these products, model results show that U.S. poultry exports to the Philippines are particularly vulnerable, with projected losses of almost $40 million per year. U.S. wheat exports to the Philippines averaged almost $350 million per year, representing the largest traded item in the list. The modeling analysis projected losses of only $20 million in U.S. wheat exports to the Philippines, largely because the margin of preference is fairly low, averaging 4.5 percent, and the United States is by far the dominant supplier. Of the Philippines' total wheat imports, the United States had an average market share of 70 percent versus only 5 percent each for Australia and China, and the majority of these exports entered at an MFN applied rate of only 3 percent, so the vulnerability of U.S. wheat exports is borderline according to our criteria. U.S. tobacco and tobacco product exports to Malaysia appear vulnerable given the rather large margins of preference provided by the FTAs. As a large competing exporter in both these markets, China could capture market share from the United States. These products would be included in the GTAP model category "Other agriculture," where U.S. exports are projected to drop by $6.2 million per year.

At a total value of $235 million per year, the amount of U.S. exports to China identified as vulnerable is small relative to total U.S. exports to China (see table 5). As stated earlier, the vast majority of U.S. exports to China do not compete directly with exports from ASEAN countries; for most U.S. products that faced some competition, the amount exported by ASEAN countries was extremely low. In addition, many tariffs in HS Chapters 1-8 were reduced to zero under the Early Harvest Program in 2004.

As in some of the ASEAN countries, the largest vulnerable category of U.S. exports in China was "food preparations: composite mixtures" followed by starches (HS Chapter 35), miscellaneous agricultural products (mannitol, sorbitol, glycerol, stearic and oleic acid, etc.), and soybean oil. These four categories accounted for over 60 percent of all identified vulnerable U.S. exports. The average margins of preference for ASEAN exporters tend to be higher, averaging between 11 and 17 percent for these four commodity groupings, partly because China tends to apply tariffs at or near their bound levels.

In Australia, the category "food preparations: composite mixtures" accounted for $74 million per year—over 60 percent of the vulnerable products total—in U.S. exports. Baked goods (e.g., mixes and dough, bread, pastries) were the next highest category. The margins of preference were between 4 and 5 percent across the board for Australia. As stated earlier, the advantage that U.S. exporters already receive over ASEAN exporters under the U.S.-Australia FTA will disappear as a result of the ASEAN-Australia FTA, as will the margins of preference listed in table 5 that favor U.S. exporters. Finally, the amount of U.S. exports to New Zealand identified as vulnerable is very small, although like the product mix exported to the other countries, it tends to consist mainly of processed products.

The Pending U.S. TAs With Korea, Colombia, and Panama

The United States signed successive TAs with Colombia, Panama, and Korea between November 2006 and June 2007. Each agreement, however, still awaits U.S. congressional approval before it can be implemented. All three pending agreements are comprehensive TAs that contain market access provisions of interest to U.S. agriculture. In addition to eventually eliminating tariffs and quotas on most agricultural goods, each agreement has sought to address other nontariff barriers, particularly SPS measures.

As with most FTAs, the agricultural negotiations addressed how to protect producers of imported sensitive commodities. For most commodities, negotiators agreed on long implementation periods, which in some cases delayed the initial tariff cut for several years (app. 2, table 3). In the case of the KORUS, 21 percent of U.S. agricultural tariff lines are already free of duty, compared with only 2 percent for Korea. Of the more than 1,810 U.S. and 1,550 Korean tariff lines, approximately 58 percent of U.S. tariff lines and approximately 38 percent of Korean tariff lines would be free of duty or would become so immediately upon entry into force of the TA. One hundred percent of U.S. tariff lines and 98 percent of Korean tariff lines would have free rates of duty by the end of the implementation period. In the case of the CTPA, 68 percent of U.S. agricultural tariff lines and 78 percent of Colombian agricultural tariff lines are already free of duty or will become so immediately upon implementation of the CTPA. While 21 percent of U.S. tariff lines are already free of duty, none of Colombia's agricultural tariff lines are categorized as already free of duty. Because of this tariff asymmetry, the immediate effects of the TA will be a relatively large improvement in U.S. access to the Colombian market. In the case of the PTPA, 89 percent of U.S. agricultural lines and 68 percent of Panamanian agricultural lines are already free of duty or would become so immediately upon implementation of the TA. U.S. tariff commitments would largely make permanent the duty-free provisions that Colombia receives under the Andean Trade Promotion Act (ATPA) and that Panama receives under the Caribbean Basin Economic Recovery Act (CBERA). In the cases of both the CTPA and the PTPA, and as opposed to KORUS, the United States excluded 47 tariff lines from the agreement. These include over-quota tariffs on items such as sugar and sugar-containing products.

In many cases, the agreements include new, country-specific TRQs to allow some duty-free treatment during the transition period. In addition, the agreements allow for the imposition of safeguards or temporary higher tariffs in the case of import surges. For a few of the most sensitive commodities, import TRQs were created that allow for increased market access over time, but the tariffs on imports in excess of these quotas would not be cut—protection for these commodities would remain at the MFN level. Finally, in the most extreme example, the United States agreed to Korea's request that rice be completely excluded from their TA.

The U.S.-Korea Trade Agreement (KORUS)

Structure of agricultural trade

Korea, a longstanding major market for U.S. agricultural exports, was the fifth largest country market for U.S. agriculture in 2007-09. The United States is the largest supplier of Korea's agricultural imports, with a share over 25 percent in recent years. U.S. imports from Korea averaged $52 million during 2007-09, placing Korea 41st as a supplier of agricultural commodities to the United States. Leading U.S. imports from Korea were specialty food products, ramen noodles, cigarettes, and fresh pears and quinces. The United States runs a positive agricultural trade balance with Korea, averaging almost $3 billion during 2007-09 (table 6).

U.S. agricultural exports to Korea can be divided into supplies that are inputs for Korean industries and products that compete with the outputs of Korean industries for consumer expenditures. Some of the inputs include wheat, corn, soybeans, cotton, and hides used in processing.

These input commodities usually are imported with little or no tariff (see box, "Korean TRQs"). This is because (1) they do not displace domestic Korean production, and (2) the industries that use them need low-cost inputs to compete in the Korean and global marketplaces. On the other hand, products that compete with domestic Korean production are often assessed a tariff that helps the Korean producer maintain higher prices.[12] In the last decade, U.S. agricultural exports to Korea have typically been split between the two categories, with about half of the exports in 2009 filling the input role and paying almost no tariff (fig. 2).

[12]For example, Korea charges a 50-percent tariff on oranges, a 40-percent tariff on beef, and a 25-percent tariff on frozen pork.

Table 6
Composition of U.S. agricultural trade with Korea, 2007-09 averages

	Main U.S. exports			Main U.S. imports	
Product	Value	Share of total	Product	Value	Share of total
	$ millions	*Percent*		*$ millions*	*Percent*
Corn	1,369.9	31.4	Food preparations	53.7	18.5
Wheat	375.5	8.6	Pasta products	34.8	12.0
Cattle hides	279.7	6.4	Nonalcoholic beverages	33.2	11.5
Soybeans	207.5	4.8	Tobacco products	29.2	10.1
Pork: fresh, chilled, frozen	204.8	4.7	Fresh pears and quinces	23.0	7.9
Beef: fresh, chilled, frozen	203.5	4.7	Baked products and pastries	21.2	7.3
Food preparations	174.0	4.0	Nuts and fruit, prepared	14.8	5.1
Hay and other forage products	168.9	3.9	Locust beans, seaweeds and other algae	9.3	3.2
Cotton	111.1	2.5	Ethyl alcohol	8.6	3.0
Nuts	93.6	2.1	Vegetable saps and extracts	6.0	2.1
Subtotal, top 10	3,188.5	73.0	Subtotal, top 10	233.8	80.7
All other agricultural products	1,179.3	27.0	All other agricultural products	55.9	19.3
Total	4,367.8	100.0	Total	289.6	100.0

Source: USDA, Economic Research Service using U.S. International Trade Commission's Dataweb.

Korean TRQs

Korea currently makes widespread use of tariff-rate quotas (TRQs) for agricultural products. TRQs for corn, soybeans, and soymeal are of interest to the United States. These TRQs provide protection for a certain group of Korean farmers or manufacturers. The TRQs have very low within-quota tariff levels and very high over-quota levels (see table). For major commodities, even the within-quota tariff levels are sometimes waived. For example, the over-quota tariff for corn for feeding is 328 percent. The within-quota tariff is 3 percent. However, the actual applied tariff is 0. Korean farmers grow limited quantities of corn and soybeans. If industries in Korea do not purchase the farmers' output at the high prices necessitated by high costs of production, the Korean Government can reduce the TRQ quantities or raise the in-quota tariffs. This has not occurred in the past.

Korea also uses the TRQ method to lower tariffs. For commodities such as soymeal for which there is no WTO-committed TRQ, the Korean Government has chosen to open new voluntary TRQs that offer a lower tariff rate to a limited volume of imports. In the case of soymeal, the TRQ quantity far exceeds the maximum import level of the past. Using this method, Korea has the option of revising tariffs periodically. For instance, a low tariff on a large commodity flow can be reinstituted to raise a substantial amount of Government revenue.

Selected Korean tariff rate quotas (TRQ)

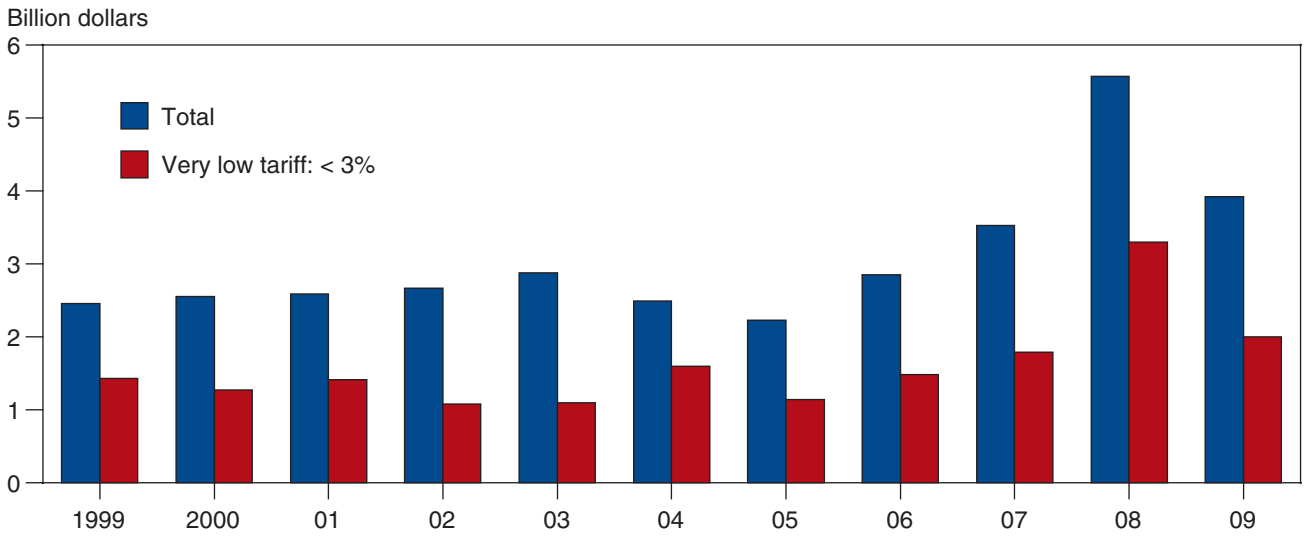
				TRQ quantity	
	Over-quota	In-quota, base	In-quota, adjusted	Base	Voluntary 2010
	Tariff, in percent			*Metric tons*	
Corn for feeding	328	3	0	6,102,100	9,000,000
Corn for starch	328	3	1		1,850,000
Soybeans for crushing[1]	487	3	0	846,365	1,200,000
Soybeans for other uses[1]	487	5	5	185,787	266,800
Soymeal for feed	1.8		1	unlimited	2,700,000

TRQ = tariff-rate quota.
[1]The tariff for soybeans is 487 percent or 956 won/kg, whichever is greater.

Sources: USDA, Economic Research Service using Tariff Schedules of Korea, 2006; USDA, Foreign Agricultural Service reports KS1002 and KS 1013.

In KORUS, U.S. exporters have little to gain from the elimination of very low tariffs on the input commodities. Rather, U.S. interests are more focused on commodities that have higher tariffs. These commodities tend to compete with commodities produced in Korea.

Figure 2
U.S. agricultural exports to Korea



Note: Very low tariff includes wheat, corn, soybeans, cotton, and hides.
Source: USDA, Economic Research Service using USDA's Foreign Agricultural Trade of the United States database.

Agricultural provisions of KORUS

The largest output of Korean agriculture, rice, is not subject to the proposed FTA. For 16 other tariff lines, trade will not be opened to unlimited quantities from the United States at zero tariffs, but TRQs will be set up specifically for limited imports from the United States. These commodities include oranges imported in September-February, powdered and evaporated milk, honey, fresh potatoes not for chipping, and soybeans for food manufacture and sprouting. Initially small, the TRQs will be raised by 3 percent per year, indefinitely.

For all other products, at some point Korea promises to allow all imports from the United States to enter with a zero tariff. The timeframe varies according to the product and can be as long as 17 years from when the TA enters into force.

The products from which the United States could gain the most from KORUS include those where tariffs are substantial, competition with Korean producers and foreign exporters is strong, and/or Korean demand responds strongly to lower prices. Exports from the United States that meet all three criteria are likely to be those that grow the most as the TA is implemented. When tariffs on U.S. products are reduced and eventually eliminated, the price of U.S. products in the Korean market should fall. At lower prices, U.S. products compete more effectively against domestic Korean and other imported products. Lower prices may also lead to increases in purchases of specific products by Korean consumers.

Tariff reductions under the TA will allow U.S. products to be more competitive with those of countries currently benefiting from, or negotiating, reduced tariffs with Korea. Chile already has an FTA with Korea and has seen its pork exports to Korea grow strongly as tariffs facing Chilean pork have

declined. The EU has negotiated an FTA with Korea, but it is not yet ratified or implemented. If the Korea-EU FTA takes effect, EU exports will have a tariff margin of preference over exports from the United States and other countries.

Potential impact on U.S. agricultural exports

Animal products. Model results show that growth in U.S. beef exports to Korea in response to tariff reductions will be the single largest commodity change, with over $550 million per year in new trade, or 29 percent of total U.S. agricultural trade growth (table 7). Beginning in the first year of implementation, tariffs facing U.S. beef would be reduced by about 2.7 percent per year, until they reach zero 15 years after implementation. It is important to note that trade liberalization in this analysis is interpreted as instantaneous removal or reduction of all tariffs. In reality, the pace of export growth may be affected over time by a safeguard mechanism in the agreement to address import surges. If triggered, this safeguard would impose a higher tariff on imports above the trigger level. The trigger level increases each year, and the tariffs imposed on trade above the trigger level decrease over time. It is expected that U.S. beef will become steadily more competitive with beef originating from Korea, Australia, and New Zealand.[13] U.S. beef has proven popular in Korea in the past and accounted for about 10 percent of Korea's beef market in 2007-09 (table 8). The ability of U.S. companies to source the particular cuts that Korean companies find most profitable is unparalleled because of the following factors:

- The U.S. beef herd and slaughter numbers are the second largest in the world; more slaughtered cattle can provide more of the specific cuts wanted in Korea.
- Only countries completely free of foot-and-mouth disease can ship uncooked beef and pork to Korea; this prevents much of Asia, South America, and Europe from shipping to Korea.
- U.S. beef is predominantly grainfed, in contrast to the largely grassfed cattle herds of Oceania. Korean consumers have shown a preference for grainfed beef.
- Cuts desired by Korean companies are often those that sell at a relatively low price in the United States because of taste and culinary differences between the two countries.

Other U.S. meat exports (mainly pork) to Korea are estimated to increase substantially due to lower prices and consumer preferences for the cuts that can be sourced profitably from the United States. Pork bellies and bone-in chicken legs, for example, are more valuable in Korea than in the United States because of differing tastes and cooking techniques. Pork and poultry exports from the United States are expected to rise by over $275 million per year, representing 14 percent of total U.S. agricultural export growth stemming from full KORUS implementation (see table 7). Korean tariffs on frozen U.S. pork will be zero as of January 1, 2016, if KORUS is implemented before then. Korean tariffs on imports of boneless chilled pork, frozen chicken legs, and frozen chicken offal from the United States will decrease to zero 10 years after implementation. In the case of chilled

[13]Fabiosa et al. (2007) model a year-by-year scenario of the U.S.-Korea TA through 2016 and find a 19-percent expansion of U.S. beef exports by 2016. Although U.S. exports would still face a 30-percent tariff in 2016, the levy on competitors would be 40 percent.

pork cuts, a safeguard mechanism may slow the growth of Korean imports by temporarily raising tariffs if annual trigger levels are exceeded. The increasing margins of preference accruing to U.S. exports of these products will help them compete with exports from the EU, Canada, and Chile (which already enjoys lower tariffs) and may also enhance U.S. competitiveness with Korean pork and poultry meat.[14]

[14]Fabiosa et al. (2007) estimate that partial liberalization of imports from the United States by 2016 would increase U.S. pork exports by 21 percent and poultry exports by 5.6 percent.

Table 7
Projected effect on U.S. exports to Korea due to KORUS

	Tariff average	Base ($ millions)	Change ($ millions)	Percent change
Rice	450.0	48	-1	-2.8
Wheat	2.2	299	30	10.0
Other grains	0.0	1,237	-12	-1.0
Fruits and vegetables	51.5	281	133	47.3
Oilseeds	5.0	357	50	13.9
Cotton	1.0	116	14	12.3
Beef	37.3	701	563	80.3
Poultry and pork	24.9	291	276	94.9
Other livestock products	4.2	316	49	15.4
Oilseed products	6.8	90	34	37.3
Dairy products	44.0	64	93	145.9
Processed food and fish	18.4	926	404	43.7
Other agricultural products	46.6	237	301	127.0
Total agriculture		4,962	1,933	38.9

KORUS = U.S.-Korea Trade Agreement.

Source: USDA, Economic Research Service results of Global Trade Analysis Project modeling exercise for this study; base year is 2014.

Table 8
Korea's animal product imports from the United States

	Tariff	Korean imports from U.S.	U.S. share of:[1]		Competitors	Phase-in
			Imports	Market		
	Percent	*$ millions*	*Percent*			*Years*
Chilled and frozen beef	40	171	16	9	Korea, Australia, New Zealand	15
Chilled and frozen pork	22.5,25[2]	206	29	9	Korea, EU, Canada, Chile	10[3]
Frozen chicken meat and offal	20	38	51	4	Korea, Brazil	10, 12[2]
Edible offal of cattle and swine	18	12	13	NA	Australia, New Zealand, EU	15[3]
Prepared/preserved meat and offal	27,30,72[2]	13	10	NA	Korea, China, Thailand, EU	15
Cheese	36	42	19	13	New Zealand, Australia, EU	10,12,15[2]

NA = not available.
[1]Trade and market data are the average for 2007-09.
[2]Subcategories have different tariffs or phase-in periods.
[3]Some subcategories enjoy a zero tariff as of 1/1/2016. Others are phased in from the first implementation year.

Sources: USDA, Economic Research Service using Tariff Schedules of Korea; USDA's Production, Supply, and Distribution database; and official import data of Korea.

Growth in exports of U.S. dairy products to Korea is projected to be 145 percent, or more than $90 million per year (see table 7). Although Korean tariffs on milk powders from the United States in general are not reduced, the United States may gain from a small country-specific TRQ on powdered and evaporated milk that is duty free. In the case of cheese, a TRQ for Korean imports from the United States will grow each year, with zero duty within the TRQ. However, after 15 years, all U.S. exports become duty free (10 years, in the case of cheddar cheese). For butter and food whey, U.S.-specific TRQs provide duty-free access in addition to the existing WTO TRQs, and, after 10 years, all U.S. exports of these products to Korea become duty free. Korea's dairy industry is high cost relative to the U.S. industry, and the tariff advantages that the United States will receive will make its products more competitive against those of Oceania and the EU as well.

Growth in exports of animal products to Korea will contribute just over 50 percent of the projected total U.S. agricultural export gains from the TA. Some of this growth will come from the existing exports of competing countries, and some will come from new Korean demand stimulated by lower prices. Because market share will likely be taken from Korean livestock and poultry industries, production of animal products in Korea is expected to fall, resulting in less need for feedstuffs such as corn and soymeal. Imports of those products are expected to decrease, including from the United States. The expected decrease, however, is only 1 percent per year.

Other products. The other half of U.S. agriculture's export gains from full KORUS implementation is projected to come from exports of processed foods and fish products, other agricultural products, fruits and vegetables, oilseeds and oilseed products, wheat, and cotton.

Processed foods and fish exports may account for about 20 percent of the gains to U.S. agricultural exports to Korea. Processed foods include a large number of trade categories, and over $130 million of this trade is characterized simply as "other processed products." Thus, a full description of the segment is difficult. Large, identifiable subcategories include processed fruits and vegetables, snack foods, and fruit juices (app. 2, table 2). Tariffs vary widely, from relatively low levels on chocolates to extremely high levels on some Korean specialty products. Korean firms manufacture many processed products, but global markets can supply even more types. In this highly competitive environment, duty-free access should benefit U.S. exporters.

Korea is a major fish-consuming and fish-harvesting country. U.S. fish product exports to Korea, centered on roe and surimi (fish paste) from Alaskan pollock, averaged about $300 million in 2007-09. Model results project an increase of over 40 percent in U.S. exports of processed foods and fish products if KORUS is fully implemented (see table 7).

"Other agricultural products" is a residual category with many parts. It includes beverages, tobacco, essential oils, sugar, and nursery products (app. 2, table 2). U.S. exports of wine, tobacco products, waters, and other branded products to Korea could benefit from tariff reduction, especially in the face of competition from the EU and Oceania. Model results project an increase of over 100 percent in this category.

U.S. fruit and vegetable exports to Korea are projected to grow by $133 million per year as a result of KORUS (see table 7). U.S. exports, averaged over 2007-09, were dominated by $83 million in orange shipments and $88 million in nut exports (table 9). Oranges are not fully liberalized in the TA. The 50-percent tariff is retained in the September-February period, but a small TRQ with zero duty is set up for imports in that period from the United States. The TRQ grows by 3 percent in perpetuity. For the March-August period, duties are reduced until they reach zero at the beginning of the seventh year after implementation. U.S. exports of nuts and other fruits would benefit from relatively early tariff reductions.

In sum, model results project a gain of over $1.9 billion per year in U.S. exports to Korea upon full TA implementation (see table 7). Of this increase, 95 percent will occur in high-value food items such as livestock products, processed products, and fruits. Bulk commodities, such as wheat, corn, soybeans, and cotton, already face low tariffs and will be minimally affected by the TA. The increase in U.S. exports to Korea represents 39 percent growth over base levels. Earlier model results made by the USITC projected gains of $1.9 billion to $3.8 billion (USITC, 2007a).[15]

[15]This range was calculated by performing a systematic sensitivity analysis of the model with respect to two of its key parameters, the elasticities of substitution between domestic and imported varieties of goods and between different foreign suppliers of goods.

Table 9
U.S. fruit, vegetable, and nut exports to Korea

	U.S. exports	Tariff[2]	Phase-in
	$ millions	*Percent*	*Years*
Fresh fruits	138		
Oranges	83	50	
Cherries	26	24	0
Other	29		
Fresh vegetables	9	8-304	0-15[3]
Frozen fruits	1	30	5-15
Frozen vegetables	2	27, 30	0-15
Nuts	88		
Shelled walnuts	41	30	6
Shelled almonds	37	8	0
Others	9		

[1]Trade data are averages for 2007-09.
[2]Frozen vegetable tariffs are either 27 or 30 percent.
[3]Tariffs on potatoes, not for chipping or seed, are not cut in the agreement.

Sources: USDA, Economic Research Service calculations using Tariff Schedules of Korea and USDA's BICO (bulk, intermediate, and consumer) database.

Total U.S. imports of agricultural products from Korea are estimated to increase about $60 million per year (table 10). Growth in imports of agricultural products from Korea would primarily be in processed products, which currently face U.S. tariffs of about 6 percent. Ethnic foods, such as biscuits, savory snack foods, ramen noodles, and seaweed products, would account for the bulk of the increase.

Table 10
Projected effect on U.S. imports from Korea due to KORUS

	Tariff average	Base	Change	Percent change
		----$ millions----		
Rice	7.0	2.8	1.5	53.8
Wheat	0.0	0.0	0.0	0.0
Other grains	0.0	0.1	0.0	4.5
Fruits and vegetables	1.0	41.4	0.6	1.5
Oilseeds	10.1	0.4	0.2	52.4
Cotton	0.0	0.1	0.0	0.0
Beef	0.0	0.6	0.0	2.6
Poultry and pork	2.5	1.3	0.2	14.6
Other livestock products	0.2	3.2	0.1	2.8
Oilseed products	4.1	0.8	0.6	65.8
Dairy products	48.1	4.8	11.0	228.5
Processed foods	5.5	184.3	28.2	15.3
Beverages and tobacco products	6.2	100.9	17.1	16.9
Total agriculture		340.7	59.4	17.4

KORUS = U.S.-Korea Trade Agreement.

Source: USDA, Economic Research Service results of Global Trade Analysis Project modeling exercise for this study; base year is 2014.

The U.S-Colombia Trade Promotion Agreement (CTPA)

Structure of agricultural trade

Colombia was the largest South American market for U.S. farm products in 2007-09 and the 16th most important market for U.S. agriculture overall. U.S. shipments of corn, wheat, soybeans, cotton, and soybean meal topped the list, accounting for over three-quarters of total exports (table 11). During 2007-09, U.S. products accounted for 39 percent of Colombia's $3.5 billion annual agricultural import market. Other major exporters to Colombia were Argentina, Brazil, Canada, Chile, the EU, and members of the Andean Common Market (Bolivia, Ecuador, and Peru).

U.S. agricultural imports from Colombia averaged $1.7 billion in 2007-09, making it the 12th largest agricultural exporter to the United States. Leading imports were coffee, cut flowers, bananas and plantains, coffee extracts, and candies and chewing gum. The United States ran a negative agricultural trade balance (more imports than exports) with Colombia, averaging over $440 million during 2007-09. The negative trade balance had been narrowing considerably in recent years but increased in 2009 as a result of the sharp drop in U.S. exports. Colombia had been a rapidly expanding market for U.S. agricultural exports until very recently, growing at a 40-percent annual rate between 2004 and 2008. In 2008-09, however, U.S. agricultural exports to Colombia dropped from $1.6 billion to $900 million, or 46 percent. In 2009, trade values declined worldwide as prices dropped from the high levels of 2008. Colombia was no exception, with its total agricultural imports in 2009 dropping 16 percent from the previous year. The U.S. share of Colombian imports also declined sharply, with much of this decline being filled by

Table 11
Composition of U.S. agricultural trade with Colombia, 2007-09 averages

	Main U.S. exports			Main U.S. imports	
Product	Value	Share of total	Product	Value	Share of total
	$ millions	*Percent*		*$ millions*	*Percent*
Corn	455.9	35.9	Coffee	738.1	43.0
Wheat	227.0	17.9	Cut flowers and foliage	515.2	30.1
Soybeans	95.8	7.5	Bananas, including plantains, fresh or dried	200.7	11.7
Cotton	64.0	5.0	Coffee extracts	38.1	2.2
Soybean meal	63.1	5.0	Candies and chewing gum	26.5	1.5
Corn gluten meal	43.4	3.4	Crude animal material (glue stock)	25.8	1.5
Food preparations	37.4	2.9	Sugar, raw and refined	23.7	1.4
Soybean oil	26.4	2.1	Baked products and pastries	20.9	1.2
Pet food	21.9	1.7	Food preparations	15.4	0.9
Soybean flour	15.9	1.3	Tobacco products	15.0	0.9
Subtotal, top 10	1,050.6	82.7	Subtotal, top 10	1,619.5	94.5
All other agricultural products	219.9	17.3	All other agricultural products	95.1	5.5
Total	1,270.5	100.0	Total	1,714.6	100.0

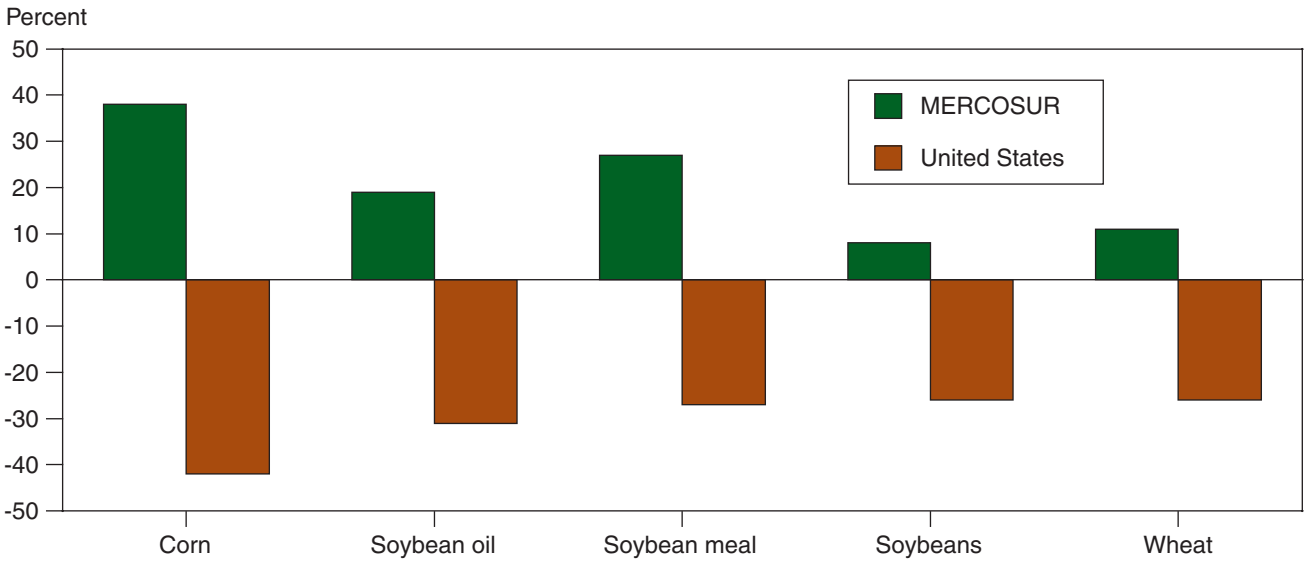
Source: USDA, Economic Research Service using U.S. International Trade Commission's Dataweb.

additional Colombian imports from the MERCOSUR countries, particularly Argentina and Brazil (fig. 3).

Colombia has an FTA with the MERCOSUR countries, the agricultural provisions of which entered into force on January 1, 2009. In the case of corn, this allowed 2009 imports from Argentina and Brazil to pay a 7.6-percent duty while imports from the United States paid 15 percent (USDA, FAS, 2010b). In October 2010, the tariff on imports from the United States dropped to 5 percent, while that on imports from MERCOSUR countries dropped to zero, as the effect of higher international prices for corn produced a lower rate under the "price band" calculation (USDA, FAS, 2010c). [16] In the case of wheat imports, the tariff preference for MERCOSUR is even greater, with Argentine wheat entering duty free, while U.S. wheat pays a 17-percent duty (USDA, FAS, 2010a). The effect of the FTA between Colombia and the MERCOSUR countries on U.S. agricultural exports is clearly very different from that of the two ASEAN FTAs. In the case of ASEAN, a significant portion of U.S. exports already enters duty free, whereas all U.S. agricultural exports to Colombia face a duty. Further, a large portion of dutiable U.S. agricultural exports to ASEAN faced limited competition from China, Australia, or New Zealand. The most important U.S. exports to Colombia compete head-to-head with exports from MERCOSUR, and the tariffs MERCOSUR countries face have been declining gradually. In 2009, the margins of preference that MERCOSUR imports receive finally started having an effect on the competitive position of the United States, a position that could soon be further eroded if the Canada-Colombia FTA and the EU-Colombia FTA enter into force and competing exports from these countries start receiving preferential treatment.

[16]Price bands serve to insulate producers and processors from trade competition when the world price for an imported good falls below a calculated reference price. Under the price band system, variable monthly duties, which may be positive or negative, are imposed on top of ad valorem tariffs to keep domestic prices within a predetermined range.

Figure 3
Change in U.S. and MERCOSUR market shares in Colombia between 2008 and 2009



MERCOSUR = Common Market of the South.

Source: USDA, Economic Research Service using trade data in the Global Trade Atlas database.

Agricultural provisions of CTPA

Colombia currently applies tariff protection on all U.S. agricultural imports, with rates ranging from 5 to 80 percent. Under WTO rules, Colombia could raise these rates to their bound levels, which range from 15 to 227 percent. In addition, some agricultural products imported by Colombia are subject to additional duties imposed on top of the applied ad valorem tariff. This policy, which utilizes a price-band system to generate variable duties, is designed to keep domestic prices within a predetermined range. U.S. exports to Colombia that are subject to the price-band system include corn, wheat, rice, soybeans, pork, poultry, cheeses, and powdered milk.

Under the pending CTPA, the United States would receive immediate duty-free access on 78 percent of Colombian agricultural tariff lines accounting for almost 50 percent of 2007-09 U.S. agricultural exports to Colombia. This would apply to high-quality beef, wheat, soybeans, soybean meal, cotton, grapes, apples, pears, peaches, cherries, and many processed food products, including fruit juices, beer, wine, frozen french fries, breakfast cereals, and cookies. Colombia would eliminate most other tariffs on agricultural products within 15 years. Exceptions include poultry (spent fowl and chicken leg quarters) and rice, whose tariffs go to zero in 18 years and 19 years, respectively.

Other products whose tariff cuts would be subject to the longest implementation periods include pork, standard quality beef, corn, some fruits and vegetables, processed products, and dairy products. These also tend to be the products on which the highest applied rates are levied. The agreement would also provide duty-free TRQs on standard quality beef, variety meats, chicken leg quarters, spent fowl (chickens), dairy products, dried beans, corn, sorghum, glucose, pet food, animal feeds, rice, and soybean oil. The TA would also remove Colombia's price-band system upon implementation of the agreement. However, if the rates under the price-band system result in a rate below the MFN tariff, and this also happens to be lower than the preferential tariff under CTPA, the United States will be allowed to sell the product to Colombia at the lower rates.

The United States currently extends duty-free treatment to most imports from Colombia under the ATPA, a regional trade preference program. As a result, during 2007-09, 99.8 percent of Colombia's exports to the United States entered duty free. The pending CTPA would make these trade preferences permanent. During 2007-09, Colombia was assessed duties estimated at about $965,000 on U.S. imports of $9.8 million (USITC 2010 dataweb). The majority of dutiable trade occurred in sugar and sugar-containing products, dairy products, and tobacco. Currently, Colombian exports of these products are charged a duty if they exceed the U.S. TRQ quantities. Under the TA, the United States would provide additional duty-free TRQs on imports of Colombian beef, dairy products, tobacco, and sugar.[17] For the first three categories of products, the duty-free amounts increase over time, but within 15 years (less for some products), Colombia will have duty-free, quota-free access for all imports. In the case of sugar and specified sugar-containing products, the United States would triple Colombia's access to the U.S. sugar market in the first year of the agreement, from its historic 2.3-percent share of the U.S. raw cane sugar TRQ (25,273 metric tons), through the creation of an additional quota of 50,000 metric tons. Beginning in year 2, this new

[17]These TRQs are in addition to those the United States created under the Uruguay Round Agreement on Agriculture.

quota would expand by 750 metric tons annually in perpetuity. Sugar imports in excess of these quotas would continue to be charged the over-quota MFN tariff, which can exceed 100 percent in some years.

Potential impact on U.S. agricultural exports

The United States has consistently had a trade deficit with Colombia over the past decade in both agricultural and nonagricultural goods. About 75 percent of imported agricultural products from Colombia consist of coffee beans and cut flowers that enter the United States with zero tariffs. Nearly 80 percent of nonagricultural imports from Colombia comprise coal and oil and face very low tariffs. The CTPA would narrow the trade deficit because of improved U.S. access to a more open market, while additional imports would be minimal because most products already enter the U.S. market duty free.

As previously discussed, the U.S. market share in Colombia has fallen for some commodities due to greater competition from Brazil and Argentina as well as from Canada and Chile. Despite increased competition and declining market share, total U.S. agricultural exports to Colombia are expected to be sustained at about $900 million per year through 2014 without the CTPA, as a result of continued strong global prices for grains and oilseeds, particularly corn.

It is likely that U.S. agricultural exports will benefit broadly with full implementation of the CTPA. This is because Colombia maintains sizeable tariffs across a wide spectrum of both bulk commodities and high-value products. Model results suggest that overall U.S. agricultural exports to Colombia will increase by 44 percent, or $370 million per year (table 12). The USITC estimates that U.S. agricultural exports to Colombia would grow by 24 percent,

Table 12
Projected effect on U.S. exports to Colombia due to CTPA

	Tariff average	Base	Change	Percent change
		----$ millions----		
Rice	50.6	3.9	28.6	739.2
Wheat	12.5	149.0	90.1	60.5
Other grains	14.9	287.1	69.3	24.1
Fruits and vegetables	14.6	13.9	2.5	17.9
Oilseeds	10.1	67.6	18.1	26.7
Cotton	10	28.2	9.6	34.1
Beef	21.7	21.4	17.5	82.0
Poultry and pork	19.8	28.0	18.1	64.6
Other livestock products	13.7	6.2	2.4	38.1
Oilseed products	15.5	41.2	52.1	126.3
Dairy products	18.3	4.4	2.3	53.3
Processed foods	15	184.4	55.9	30.3
Other agricultural products	9.4	17.0	4.1	24.2
Total agriculture		852.2	370.7	43.5

CTPA = Colombia Trade Promotion Agreement.

Source: USDA, Economic Research Service results of Global Trade Analysis Project modeling exercise for this study; base year is 2014.

or $170 million per year (USITC, 2006). Jurenas (2009) cites a study by the American Farm Bureau Federation that estimates an annual increase of $693 million in U.S. agricultural exports to Colombia following implementation of the CTPA.

Among the Colombian grain sectors, rice is most heavily protected, with a tariff average of 51 percent. The United States would compete directly with rice exports from Peru and Ecuador in the Colombian market. U.S. rice exports to Colombia could increase annually by nearly $30 million, or about 740 percent, as a result of the elimination of the tariff on rice. In the last decade, the United States has been the leading supplier of wheat to Colombia. Other suppliers include Canada and Argentina. The U.S. wheat share of the Colombian market has fallen since 2008, and this trend will likely continue as long as U.S. wheat faces a 17-percent tariff. However, with the CTPA, U.S. wheat exports to Colombia would likely increase by more than 60 percent, regaining some market share lost to Argentina and Canada.

The United States has traditionally been the major supplier of corn to Colombia. However, the United States is now facing significant competition from Argentina. In both 2009 and the first part of 2010, Colombia imported more corn from Argentina than it imported from the United States. This shift is due mainly from a price advantage Argentina enjoys as a result of tariff reductions for Argentine corn provided under the Colombia-Mercosur FTA. With the removal of the tariff, annual U.S. corn exports to Colombia would likely increase 24 percent, or about $70 million.

Despite having lost market share to Argentina and Paraguay in the Colombian soybean market in 2010, the United States continues to be the leading supplier of soybeans to Colombia. The United States also has remained the leading supplier of cotton to Colombia. Given that the United States is the dominant supplier and tariffs are relatively low, the removal of tariffs would modestly expand U.S. exports of both soybeans and cotton.

Colombia has maintained high tariffs on most livestock products, including beef, poultry, pork, and dairy products. The United States supplies about 50 percent of Colombia's beef (including fats of bovine origin), with the remainder coming from other South American countries. It is likely that U.S. exports of beef to Colombia will rise by more than 80 percent after the elimination of tariffs in the CTPA. The United States competes directly with Chile and Canada for exports of pork to Colombia. Currently, U.S. pork and poultry meat faces an average MFN tariff of nearly 20 percent in Colombia. The elimination of tariffs on U.S. exports would likely increase U.S. exports of these products by more than 60 percent. The MFN tariff faced by U.S. dairy product exports to Colombia currently averages about 18 percent. The scheduled elimination of these tariffs is estimated to increase U.S. exports by an additional 50 percent.

Colombian demand for soybean meal has grown as a result of increased feed demand by the country's poultry sector. However, the U.S. share of Colombia's soybean meal market plummeted from 60 percent in 2008 to 8 percent in 2010, whereas Argentina increased its share from 31 to 84 percent over the same period. The United States faces an average tariff for oilseed products of nearly 16 percent in the Colombian market. The full implemen-

tation of the CTPA would likely more than double U.S. exports of oilseed products and make them more competitive with Argentina's exports.

Colombia's imports of processed food products comprise a wide array of items, including confectionery products and ingredients used in Colombia's food manufacturing industry. The United States faces an average tariff of 15 percent on processed food items. Elimination of the tariff from the CTPA would likely increase U.S. exports of these products to Colombia by 30 percent, or $52 million per year.

U.S. agricultural imports from Colombia would increase about 6 percent, or $117 million per year, following implementation of the CTPA (table 13). Nearly all of the increase would be from an expansion of the U.S. sugar quota, accounting for $108 million over a 10-year period. U.S. dairy imports would also increase following the elimination of over-quota tariffs on Colombian dairy products. This would likely result in an annual increase of about $3 million in additional U.S. dairy imports from Colombia.

Table 13
Projected effect on U.S. imports from Colombia due to CTPA

	Tariff average	Base	Change	Percent change
		----$ millions----		
Rice	0.0	0.2	0.01	6.5
Wheat	0.0	0.0	0.00	0.0
Other grains	0.0	0.2	0.00	2.5
Fruits and vegetables	0.0	233.2	0.03	0.0
Oilseeds	0.0	0.0	0.02	0.0
Cotton	0.0	0.1	0.02	38.0
Beef	0.0	0.3	0.04	14.1
Poultry and pork	0.0	0.7	0.01	2.0
Other livestock products	0.0	23.9	0.29	1.2
Oilseed products	0.0	4.3	0.57	13.3
Dairy products	41.2	1.5	2.78	181.8
Processed foods	0.0	320.2	5.02	1.6
Other agricultural products	0.0	1,467.3	107.72	7.3
Total agriculture		2,048.0	116.53	5.7

CTPA = Colombia Trade Promotion Agreement.

Source: USDA, Economic Research Service results of Global Trade Analysis Project modeling exercise for this study; base year is 2014.

The U.S.-Panama Trade Promotion Agreement (PTPA)

Structure of agricultural trade

The United States runs a positive agricultural trade balance with Panama, averaging over $330 million per year during 2007-09, which helps rank Panama as 42nd among overseas U.S. markets (table 14). Leading U.S. exports to Panama were corn, soybean meal, wheat, rice, and food preparations, which together accounted for over 55 percent of all U.S. sales. The United States accounted for almost 50 percent of Panama's $2.5 billion agricultural imports during this period. Major U.S. competitors for trade with Panama were Costa Rica, Mexico, and Guatemala.

U.S. imports from Panama averaged $52 million per year during 2007-09, placing Panama 65th as a supplier of agricultural commodities to the United States. Leading U.S. imports were sugar, coffee, pineapple, melons, and bananas.

Agricultural provisions of PTPA

During 2007-09, one-third of U.S. agricultural exports entered Panama's market duty free, including soybeans, soymeal, wheat, and fresh grapes. About one-half of the remaining exports faced tariffs between 1 and 15 percent, but some key products were subject to much higher rates, including corn at 40 percent, rice at 90 percent, and chicken leg quarters at 260 percent. Under PTPA, an additional 24 percent of U.S. agricultural exports to Panama would receive immediate duty-free treatment, including high-quality beef, mechanically deboned chicken, frozen whole turkeys and turkey breasts, pork variety meats, whey, crude vegetable oils, most fresh fruits (including

Table 14
Composition of U.S. agricultural trade with Panama, 2007-09 averages

	Main U.S. exports			Main U.S. imports	
Product	Value	Share of total	Product	Value	Share of total
	$ millions	*Percent*		*$ millions*	*Percent*
Corn	75.5	19.7	Sugar, raw and refined	17.1	33.0
Soybean meal	50.7	13.2	Coffee	12.3	23.7
Wheat	33.9	8.8	Fresh or dried pineapples	5.7	10.9
Food preparations	33.0	8.6	Fresh melons (excluding watermelons)	3.3	6.4
Rice	20.6	5.4	Nonalcoholic beverages	2.2	4.3
Grain products	14.0	3.7	Fresh or chilled pumpkins and squash	2.1	4.1
Cocoa beans and products	14.0	3.6	Bananas, including plantains, fresh or dried	2.0	3.8
Vegetables: preparations	7.3	1.9	Baked products and pastries	1.9	3.7
Whiskies	7.3	1.9	Rum and taffia	0.9	1.7
Cheese	6.9	1.8	Cocoa beans and products	0.9	1.6
Subtotal, top 10	263.2	68.6	Subtotal, top 10	48.4	93.2
All other agricultural products	120.5	31.4	All other agricultural products	3.5	6.8
Total	383.8	100.0	Total	52.0	100.0

Source: USDA, Economic Research Service using U.S. International Trade Commission's Dataweb.

apples and pears), almonds, walnuts, raisins, prunes, many processed food products (including soups and chocolate confectionery), distilled spirits, wine, and pet food. Currently, the tariffs on these items entering Panama range from 5 to 15 percent.

Under PTPA, Panama agreed to establish preferential TRQs for imports of U.S. pork, lard, specified processed pork products, chicken leg quarters, specified dairy products, fresh potatoes, frozen french fries, onions, corn, rice, refined corn oil, dried beans, and tomato paste. Quotas for these import-sensitive commodities would be phased out in 5 to 20 years. The longest transition period (20 years) would apply to rice, Panama's most sensitive agricultural commodity. However, Panama agreed to increase duty-free access for U.S. rice if needed to cover a shortfall in domestic output. Border protection on U.S. chicken leg quarters would end in year 18. Quotas to be created for fresh or chilled onion and fresh or chilled potatoes would expand by 2 percent annually in perpetuity with MFN over-quota tariffs applying to imports that exceed quota amounts.

Almost all of Panama's agricultural exports to the United States already enter duty free under the CBERA trade preference program. Under PTPA, the United States would provide additional duty-free TRQs on imports of Panamanian dairy products and sugar. For dairy products, the duty-free amounts increase over time, and after 15-17 years, Panama will have duty-free, quota-free access for all dairy imports. In the case of sugar and specified sugar-containing products, the United States would increase Panama's access to the U.S. sugar market in the first year of the agreement, from its historic 2.7-percent share of the U.S. raw cane sugar TRQ (30,540 metric tons), through the creation of two additional quotas of 505 (on raw and refined sugar and syrups) and 6,060 metric tons (on raw cane sugar). Beginning in year two, these new quotas would expand annually by 5 and 60 metric tons, respectively, for 10 years. The larger of the two quotas would then be capped at 6,600 metric tons, while the smaller would continue to increase by 5 metric tons per year in perpetuity. Sugar imports in excess of these quotas would continue to be charged the over-quota MFN tariff, which can exceed 100 percent in some years.

Potential impact on U.S. agricultural exports

Panama's trade flow data in the GTAP model are biased by the large quantities of imports and exports passing through the country's Colon Free Zone. This made it impracticable to use GTAP for this analysis.

The USITC employed a partial equilibrium model that simulates the effects of changes to tariffs and TRQs on trade between the United States and Panama in specified goods (USITC, 2007b). It estimated that annual U.S. exports of agricultural commodities and processed foods to Panama would be $46 million higher (or about 20 percent above the 2006 level) when the agreement is fully implemented. This increase was largely attributed to gains in exports of rice ($13.8 million), corn ($7 million), processed foods ($9.6 million), frozen potatoes ($1 million), and meats ($4.4 million). Given the size of the tariffs currently levied on these products and the share of the Panamanian import market currently accounted for by U.S. exports, we believe these figures are within the ranges we would expect as a result of implementing the PTPA.

Conclusions

The principal objective of bilateral and regional free trade agreements is to secure trade liberalization and expand market access for members. But the discriminatory nature of FTAs may result in FTA members expanding their trade at the expense of nonmembers, who may become less competitive purely on the basis of facing a higher tariff than the members.

Most studies of the effects of FTAs find that trade diversion is less apparent than might be expected. While overall trade diversion does not appear to be a major concern in the economic literature, within some agreements or within specific sectors of some agreements, it can be significant. This study finds that in the case of the recently implemented FTAs between the ASEAN countries and China, Australia, and New Zealand, the potential for U.S. agricultural exporters to be affected as a result of trade diversion is modest. This is because a large portion of U.S. exports to these countries already faces duty-free or minimal tariffs. Where tariffs are significant, the United States often faces only minimal competition from FTA members.

By contrast, our analysis of the pending U.S. trade agreement with Colombia reveals a different story. Colombia has been active in negotiating additional FTAs with some key U.S. competitors. One of these FTAs, with the four members of MERCOSUR, has already had significant effects on U.S. agricultural exports and market shares in the Colombian market. A majority of U.S. agricultural exports to Colombia compete head-to-head with exports from MERCOSUR countries. The U.S. market position in Colombia could soon be further eroded if the Canada-Colombia FTA and the EU-Colombia FTA enter into force and competing exports from these countries receive duty-free treatment. Duty-free access to the Colombian market would help maintain and improve the competitive position of U.S. producers.

Korea is also negotiating FTAs with the EU and Australia, two important competitors of the United States in the Korean market. In beef exports, where large U.S. gains are expected from a U.S-Korea trade agreement, the United States competes with Australia. Likewise, in pork and processed foods, two additional expected sources of U.S. export gains, the United States competes directly with the EU.

Exports are very important to U.S. agriculture. While the overall scale of gains in an individual trade agreement is limited compared with the potential gains in a multilateral agreement, U.S. trade agreements can, indeed, provide opportunities for additional U.S. agricultural sales overseas. Model results indicate that U.S. agricultural exports would increase by $1.9 billion per year if KORUS was implemented, $370 million per year if the CTPA was implemented, and $46 million if the PTPA was implemented.

References

Blustein, Paul (2009). *Misadventures of the Most Favored Nations*. Public Affairs Books: New York.

Burfisher, Mary E., and Steven Zahniser (2003). "Multilateralism and Regionalism – Dual Strategies for Trade Reform," *Amber Waves*, Vol. 1, Issue 4. U.S. Department of Agriculture, Economic Research Service, www.ers.usda.gov/amberwaves/september03/features/multilateralism.htm

Cooper, William H., Mark E. Manyin, Remy Jurenas, and Michaela D. Platzer (2009). *The Proposed South Korea-U.S. Free Trade Agreement (KORUS FTA): Provisions and Implications*. Congressional Research Service RL34330.

Fabiosa, Jacinto F., Dermot J. Hayes, and Fengxia Dong (2007). "Impact of the South Korea-U.S. Free Trade Agreement on the U.S. Livestock Sector." Working Paper 07-WP 455. Center of Agricultural and Rural Development, Iowa State University.

Francois, Joseph, Miriam Manchin, Hanna Norberg, and Annette Pelkmans (2009). *Trade Impact Assessment (Trade SIA) of an EU-ASEAN Free Trade Agreement*. Research Report 200908-01. Institute for International & Development Economics.

Francois, Joseph F., Bradley J. McDonald, and Hakan Nordstrom (1996). *Liberalization and Capital Accumulation in the GTAP Model*. GTAP Technical Paper No. 7. Center for Global Trade Analysis, Purdue University.

Freund, Caroline, and Emanuel Ornelas (2010). "Regional Trade Agreements." World Bank Policy Research Working Paper 5314.

Gehlhar, M. (1997). "Historical Analysis of Growth and Trade Patterns in the Pacific Rim": An Evaluation of the GTAP Framework," in T.W. Hertel (ed.), *Global Trade Analysis: Modeling and Applications*. Cambridge University Press: Cambridge, MA.

Global Trade Information Services (2010). Global Trade Atlas and World Trade Atlas databases.

Harrison, W.J., and K.R. Pearson (1996). "Computing Solutions for Large General Equilibrium Models Using GEMPACK." *Computational Economics*, Vol. 9, pp. 83-127.

Hertel, T., and M. Tsigas (1997). "The Structure of GTAP," in Hertel, T. (ed.), *Global Trade Analysis*. Cambridge University Press: Cambridge, MA.

Hornbeck, J.F. (2005). *The Proposed U.S.-Panama Free Trade Agreement*. Congressional Research Service RL32540.

Jurenas, Remy (2009). *Agriculture in Pending U.S. Free Trade Agreements with Colombia, Panama, and South Korea*. Congressional Research Service R40622.

Korea Customs Service (2010). Korea Customs Tariff Database, http://english.customs.go.kr/kcsweb/user.tdf?a=user.customtariff.CustomTariffApp&c=1001&mc=ENGLISH_INFORMATION_KOREA

Krugman, Paul (1991). "Is Bilateralism Bad?" in E. Helpman and A. Razin (eds.), *International Trade and Trade Policy*. MIT Press: Cambridge, MA.

Mai, Yinhua, Philip Adams, Mingtai Fan, Ronglin Li, and Zhaoyang Zheng (2005). *Modeling the Potential Benefits of an Australia-China Free Trade Agreement*. The Centre of Policy Studies, Monash University, Melbourne, Australia.

Narayanan, B.G., and T.L. Walmsley (2008). *Global Trade, Assistance, and Production: The GTAP 7 Data Base*. Center for Global Trade Analysis, Purdue University.

U.S. International Trade Commission (USITC) (2006). *U.S.-Colombia Trade Promotion Agreement: Potential Economy-wide and Selected Sectoral Effects*. USITC Publication 3896.

U.S. International Trade Commission (USITC) (2007a). *U.S.-Korea Free Trade Agreement: Potential Economy-wide and Selected Sectoral Effects*. USITC Publication 3949.

U.S. International Trade Commission (USITC) (2007b). *U.S.-Panama Trade Promotion Agreement: Potential Economy-wide and Selected Sectoral Effects*. USITC Publication 3948.

U.S. International Trade Commission (USITC) (2010). U.S. Imports/Exports Data. http://dataweb.usitc.gov/

U.S. Department of Agriculture, Foreign Agricultural Service (2010a). *Colombia's Looming FTA With Canada Is Bad News for U.S. Wheat Exports*. GAIN Rep. No. 8-6-2010.

U.S. Department of Agriculture, Foreign Agricultural Service (2010b). *Colombia Grain and Feed Annual*. GAIN Rep. No. 3-10-2010.

U.S. Department of Agriculture, Foreign Agricultural Service (2010c). *U.S. Corn Tariff Dropped to Five Percent*. GAIN Rep. No. 10-29-2010.

Villarreal, M. Angeles (2010). *The Proposed U.S.-Colombia Free Trade Agreement: Economic and Political Implications*. Congressional Research Service RL34470.

World Trade Organization (WTO) (2009). *Overview of Developments in the International Trading Environment*. WT/TPR/OV/12.

Appendix 1 – Projecting a 2014 Benchmark

The FTAs in this report are agreements in which preferential trade liberalization is undertaken reciprocally between the participating countries. The GTAP modeling framework provides a useful tool for assessing effects of FTAs because it is comprised of explicit bilateral trade flows between the United States and all trading partners. The model captures domestic and foreign economic activity for all countries and in all goods and services. Impacts of an FTA depend most importantly on pre-existing trade flows and the reduction in tariffs and TRQs.

Because the data are historical in the GTAP framework, this can misrepresent current trade patterns. The current public release of the GTAP Data Base (version 7) depicts the world economy as of 2004. Since 2004, there have been several global economic shocks affecting trade, including increased energy and agricultural commodity prices, a worldwide financial crisis, and outbreaks of livestock diseases. Global trade patterns have also shifted considerably with China's ongoing rapid economic growth. Also supporting U.S. agricultural exports is the cumulative effect of the depreciated U.S. dollar. This depreciation of the dollar makes U.S. agricultural exports increasingly competitive in international markets. U.S. agricultural exports rose from $62 billion in 2004 to $108 billion in 2010. There are also commodity-specific shifts in trade patterns. Trade in meat has changed dramatically since 2004. This is especially true for exports of beef and other meat exports to Korea. Despite beef exports hampered by BSE (Bovine Spongiform Encephalopathy) restrictions, U.S. agricultural exports to Korea have nearly doubled since 2004.

One of the challenges of assessing pending TAs is that it is not possible to predict exactly when each TA will be ratified. In addition, there is also a "phase-in" period once a TA is signed into law. Assumptions regarding the approximate timing are needed to quantify the effects of TAs. It is assumed that if ratified TAs were to be implemented in the near future, most tariffs would be reduced by 2014. In this study, the year 2014 serves as a benchmark year for the analysis of the pending U.S. TAs with Korea and Colombia.

The GTAP framework can be used to generate a future base period by simulating economic growth over several years, and it can be used to simulate the effect of policy reforms in a future year. In this study, we perform a growth simulation to update the base year period prior to performing trade policy simulations for TAs. This is done by using predetermined rates of economic growth for all regions. In doing so, we use the model to establish a new benchmark year (2014) and for estimating the future effects of the TAs being phased in beyond 2014.

To assess the impact of pending TAs, it was necessary in this study to simulate world trade, production, and consumption as they would likely appear in 2014, when implementation of TAs might take place provided the agreements are ratified. The re-benchmarking of GTAP was taken in two steps. First, macroeconomic variables are updated for all countries and sub-regions in the model. This information was drawn from USDA's macroeconomic projections (USDA, 2010). Gross domestic product and population changes

are based on observed changes from 2004 to 2009 with projections made from 2010 to 2014 (tables A1.1 and A1.2). Macroeconomic assumptions underlying USDA's long-term projections reflect a slow transition back toward steady growth at longrun sustainable rates in 2011 and beyond. Global growth is projected to average 3.3 percent in 2010 through 2014. The accelerated growth is mostly due to high growth rates in emerging market countries such as China and India. Each country/region reaches a predetermined GDP level in 2014. In the growth simulation GDP, the economy-wide stock of capital and labor supply are exogenous while total factor productivity is endogenous. In general, developing countries are the main source of growth in world agricultural demand and trade. Income growth in developing

Table A1.1
Gross domestic product levels and growth rates

	2004	2009	2014	Annual growth, 2004-09	Annual growth, 2009-14
	----------$ billions----------			*-----Percent change-----*	
United States	12,264	13,006	14,917	1.2	2.8
Korea	813	927	1,123	2.7	3.9
Colombia	114	140	166	4.2	3.5
Panama	15	21	29	7.6	6.8
EU 27	13,376	13,896	15,064	0.8	1.6
China	2,084	3,339	4,999	9.9	8.4
India	699	1,018	1,469	7.8	7.6
Other Latin America	2,520	2,930	3,537	3.1	3.8
Other Asia and Oceania	7,432	7,921	9,075	1.3	2.8
Rest of world	4,200	4,936	5,970	3.3	3.9
World	43,515	48,134	56,349	2.0	3.2

Source: USDA, Economic Research Service.

Table A1.2
Population level and growth rates

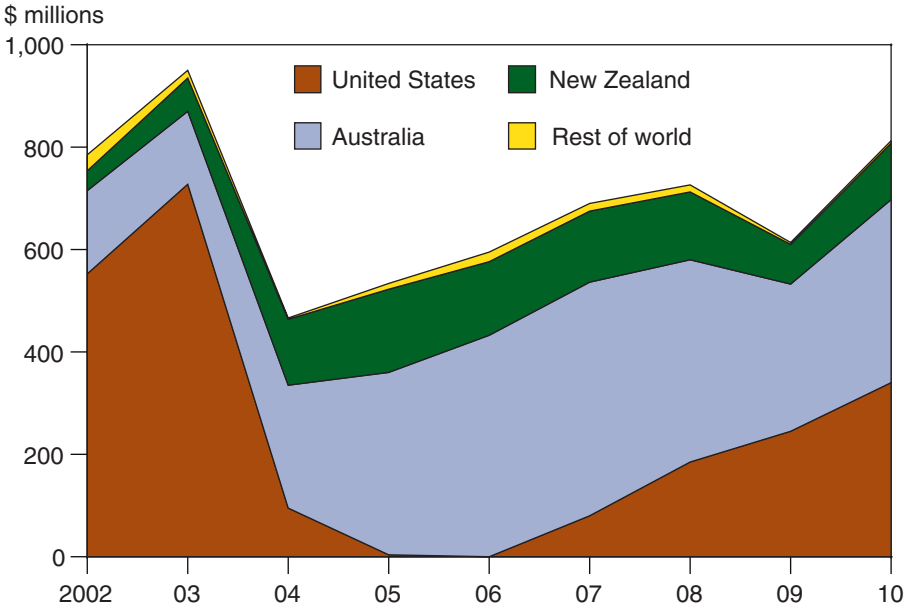
	2004	2009	2014	Annual growth, 2004-09	Annual growth, 2009-14
	----------Millions----------			*-----Percent change-----*	
United States	293	307	322	0.96	0.97
Korea	48	49	49	0.27	0.22
Colombia	41	44	46	1.31	1.15
Panama	3	3	4	1.60	1.43
EU 27	488	492	494	0.14	0.08
China	1,299	1,339	1,385	0.60	0.68
India	1,074	1,157	1,236	1.50	1.34
Other Latin America	505	539	571	1.30	1.18
Other Asia and Oceania	1,151	1,222	1,291	1.21	1.09
Rest of world	1,485	1,617	1,754	1.71	1.65
World	6,387	6,768	7,153	1.16	1.11

Source: USDA, Economic Research Service.

countries increases the demand for food more than in developed countries because a larger share of income is devoted to food consumption.

The second step of the benchmarking exercise is to realign commodity-specific trade flows to better reflect observed trends in trade flows. Although income growth provides the foundation for world demand and trade for agricultural products, in some cases commodity shifts in trade take place for other reasons. For example, a gradual recovery took place for U.S. beef exports to Japan and Korea, which were markets that were closed to the United States following the first U.S. case of bovine spongiform encephalopathy (BSE). U.S. exports of beef to Korea were set at their 2003 level for 2014 (app. fig. 1). Korea also became Asia's fastest growth market for pork with its imports accounting for one-fifth of the increase in world pork imports. Increasing per capita consumption of poultry in Korea, combined with environmental restrictions on expanding production in Korea is contributing to strong import growth. Global trade in soybean and soybean products has risen rapidly since 2004, surpassing both the volume of wheat and coarse grains. U.S. exports of soybeans rose from 25 million tons in 2004 to 40 million tons in 2009, largely from strong demand in China. Argentina is now the dominant supplier of soybean meal and soybean oil exports and continues to increase its share in the world market. Alterations to reflect these fundamental changes were made to the GTAP trade data to better depict trade patterns for the year 2014.

Appendix figure 1
Korean beef imports



Source: USDA, Economic Research Service using trade data in the Global Trade Atlas database.

Appendix 2—Tables

Table A2.1
ASEAN FTAs, summary of tariff line commitments[1]

	Bound duty free		Duty free in first year[2]		Duty free by last year[3]		Partially liberalized[2]		Excluded		Total tariff lines	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
ASEAN-China												
China	70	6	963	87	0	0	50	5	22	2	1,105	100
Indonesia	0	0	1,091	93	0	0	0	0	85	7	1,176	100
Malaysia	107	9	1,050	87	0	0	13	1	33	3	1,203	100
Philippines	0	0	1,045	82	70	5	32	3	130	10	1,277	100
Thailand	29	2	1,057	87	0	0	66	5	67	5	1,219	100
Vietnam	95	9	341	31	663	60	0	0	0	0	1,099	100
ASEAN-Australia/New Zealand												
Australia	231	31	524	69	2	0	0	0	0	0	757	100
New Zealand	460	45	544	53	19	2	0	0	0	0	1,023	100
Indonesia	0	0	990	79	113	9	63	5	92	7	1,258	100
Malaysia	107	9	886	74	127	11	20	2	65	5	1,205	100
Philippines	0	0	549	43	624	49	72	6	36	3	1,281	100
Thailand	29	2	460	38	623	51	0	0	107	9	1,219	100
Vietnam	95	8	33	3	954	81	76	6	24	2	1,182	100

ASEAN = Association of Southeast Asian Nations. FTA = free trade agreement.
[1]The table contains a count of simple tariff lines (not trade weighted) at the tariff line level (the HS8-digit level for China, the Philippines, Thailand, Australia, and New Zealand; the HS9 digit level for Malaysia; and the HS10-digit level for Indonesia and Vietnam).
[2]Includes cuts made under the Early Harvest Program.
[3]Duties that are cut to zero by the end of the FTA's implementation period.

Source: USDA, Economic Research Service.

Table A2.2

Sensitive tariff lines under the ASEAN-Australia/New Zealand and ASEAN-China FTAs

ASEAN country tariff lines excluded from cuts or partially liberalized under the ASEAN-Australia/New Zealand FTA

IBAT description	Indonesia				Malaysia				Philippines				Thailand				Vietnam			
	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut
Ag products: misc	85.0	2																		
Beverages: beer	40.0	2		2	410.5	2		2									40.0	2		
Beverages: brandy	170.0	4		4	470.7	2		2									40.0	4		
Beverages: cider	143.3	6		6	421.9	8		8									40.0	5		
Beverages: distilled spirits nes	137.1	17		17	611.0	11		11									29.7	17		
Beverages: gin	170.0	2		2	1,014.5	1		1									40.0	2		
Beverages: nonalcoholic													20.0	4	4	4				
Beverages: rum	170.0	2		2	1,109.8	1		1									40.0	2		
Beverages: whiskey	170.0	2		2	372.0	1		1									40.0	2		
Beverages: wine	148.7	15		15	180.1	8		8									28.0	15		
Cocoa powde									5.0	1										
Coffee husks & skins													30.0	2	2	2				
Coffee mixtures & extracts													40.0	3	3	3				
Coffee: not roasted													30.0	4	4	4				
Coffee: roasted													30.0	4	4	4				
Crude animal material	7.5	1																		
Crude vegetable material													30.0	1	1	1	5.0	2		2
Dairy: butter									5.0	1										
Dairy: cheese	4.0	2																		
Dairy: fluid milk & cream	4.0	2											20.0	3	3	3				
Dairy: milk & cream, pwdr & cndnsd	4.0	4	4										20.0	2	2	2				
Dairy: other milk products	4.0	3							5.0	1										
Eggs					5.0	4	4	4												
Feed: pet food									5.0	3										
Feed: waste & residues nes																	5.0	1		
Fiber: silk													30.0	1	1	1				
Food prep: composite mixtures	85.0	8																		
Fruit (dried & frsh): coconuts													20.0	2	2	2				
Fruit (frsh): avocados & mangoes	8.3	2			5.0	3														
Fruit (frsh): bananas	4.0	1			5.0	5														
Fruit (frsh): berries	4.0	1																		
Fruit (frsh): citrus nes	18.8	1															32.0	1		
Fruit (frsh): melons					5.0	4														
Fruit (frsh): pineapples	4.0	1			9.0	1														
Grain prod: breakfast cereal									5.0	1										
Grain prod: flour (non-wheat)	9.0	1		1																
Grain prod: meal									5.0	1										
Grain prod: starch (corn)									5.0	1										
Grain: corn	5.0	1		1					34.0	2	2		20.0	2	2	2				
Grain: rice (unmilled)	21.8	4	4	4	40.0	4		4	50.0	6	6	6	30.0	3	3	3				
Hort: flowers & foilage (cut)	7.5	3											5.0	5						
Hort: plants (live)	5.0	4																		
Live animals (other)	5.0	1		1																

continued—

Table A2.2

Sensitive tariff lines under the ASEAN-Australia/New Zealand and ASEAN-China FTAs—continued

ASEAN country tariff lines excluded from cuts or partially liberalized under the ASEAN-Australia/New Zealand FTA

IBAT description	Indonesia				Malaysia				Philippines				Thailand				Vietnam			
	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut
Live bovine	2.5	1																		
Live sheep & goats									5.0	2	2									
Meat (frsh or frzn): edible offal	2.5	1							4.0	1										
Meat (frsh or frzn): goat	2.5	1							5.0	2	2									
Meat (frsh or frzn): sheep	3.8	4		2																
Meat (frsh): pork									28.0	6	6									
Meat (frsh): poultry									5.0	2	2						12.5	6		3
Meat (frzn): beef	5.0	1		1																
Meat (frzn): pork	3.8	1							28.0	10	10									
Meat (frzn): poultry	12.5	1							23.7	13	13						17.9	7		6
Meat (prep): beef																	5.0	1		
Meat (prep): nes									18.5	2							5.0	3		
Meat (prep): pork									28.1	7							5.0	8		
Meat (prep): poultry									32.0	3							5.0	4		
Nuts & fruit (dried & frsh) nes	4.0	1			5.0	7							30.0	1	1	1				
Oil seeds: copra													20.0	1	1	1				
Oil seeds: other																	10.0	1		1
Oil seeds: soybeans	10.0	1		1									20.0	2	2	2				
Oil: coconut													20.0	4	4	4				
Oil: palm													20.0	3	3	3				
Oil: palm kernal													20.0	7	7	7				
Oil: soybean													20.0	4	4	4				
Oilcake: soybeans													20.0	1	1	1				
Spices													27.0	6	6	6				
Starches (edible nes)									5.0	1										
Sweeteners: beet & cane sugar (raw)	24.8	3		3					53.8	4	4	4	65.0	2	2	2				
Sweeteners: beet & cane sugar (refined)	36.8	4		4					32.2	14	14	14	65.0	4	4	4				
Sweeteners: honey	4.0	1																		
Tea													30.0	8	8	8				
Tobacco (unmanufactured)					5.0	5	5	5					60.0	12	12	12				
Tobacco products	10.6	16		9	120.6	14		14									35.9	17		12
Veg (dried): onion, garlic, leeks													27.0	1	1	1				
Veg (dried): other													27.0	1	1	1				
Veg (frsh): cabbage	4.0	5							20.0	2										
Veg (frsh): carrots & edible roots		2							32.0	1										
Veg (frsh): garlic & leeks									5.02				27.0	2	2	2				
Veg (frsh): lettuce	4.0	1							20.0	2										
Veg (frsh): onions & shallots	12.5	1							5.0	2			43.5	4	4	4				
Veg (frsh): other	4.0	1							16.0	1										
Veg (frsh): potatoes	18.8	1							32.0	2	2		27.0	2	2	2				
Veg (frsh): tomatoes	4.0	1																		
Totals		155	23	92		85	9	65		108	75	36		107	102	102		100	0	24
		555	209	319																

continued—

Table A2.2

Sensitive tariff lines under the ASEAN-Australia/New Zealand and ASEAN-China FTAs—continued

China and ASEAN tariff lines excluded from cuts or partially liberalized under the ASEAN-China FTA

IBAT description	Indonesia				Malaysia				Philippines				Thailand				Vietnam			
	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut
Ag products: misc	150.0	2		2																
Beverages: beer	40.0	2		2																
Beverages: brandy	150.0	4		4																
Beverages: cider	138.0	5		5																
Beverages: distilled spirits nes	121.8	17		17																
Beverages: gin	150.0	2		2																
Beverages: nonalcoholic													50.0	8	8					
Beverages: rum	150.0	2		2																
Beverages: whiskey	150.0	2		2																
Beverages: wine	134.0	15		15																
Coffee husks & skins													44.0	2	2	2				
Coffee mixtures & extracts													40.0	3	3	3				
Coffee: not roasted													30.0	4	4	4	5.0	2		
Coffee: roasted													30.0	4	4	4	5.0	1		
Crude vegetable material													1.0	2	2	2				
Dairy: fluid milk & cream					35.0	12	12	12					40.0	3	3	3				
Dairy: milk & cream, pwdr & cndnsd													5.0	2	2	2				
Eggs					50.0	4	4	4					5.0	2						
Feed: pet food									29.7	6		6	5.0	9						
Fiber: animal hair, excl wool																	5.0	1	1	
Fiber: cotton (carded)																	40.0	1	1	1
Fiber: cotton (not carded)																	5.0	1	1	
Fiber: silk													226.0	1	1	1				
Fiber: wool																	5.0	5	5	
Food prep: composite mixtures	150.0	5		5													5.0	1		
Fruit (dried & frsh): coconuts													50.0	2	2					
Fruit (prep): composite mixtures									5.0	1										
Fruit (prep): pineapples																	5.0	2		
Fruit juice: mixtures													5.0	3						
Fruit juice: pineapple																	5.0	2		
Grain prod: breakfast cereal																	50.0	1	1	
Grain prod: flour (non-wheat)	9.0	1		1													16.7	3	3	1
Grain prod: flour (wheat)													5.0	2			50.0	1	1	
Grain prod: meal																	32.0	5	5	
Grain prod: starch (corn)									5.0	1										
Grain: corn	5.0	2		2					42.5	2	2	2	20.0	2	2	2	35.0	2	2	1
Grain: rice (milled)	160.0	6	6	6	40.0	4		4	45.0	12	12	12	50.0	6	6		27.5	4	4	
Grain: rice (unmilled)	160.0	3	3	3	40.0	4		4	45.0	6	6	6	50.0	3	3		50.0	6	6	
Grain: wheat																	5.0	3	3	
Live pigs									32.5	4	4	4								
Live poultry					30.0	2	2	2	36.3	4	4	4								
Meat (frsh): pork									35.0	10	10	10								
Meat (frsh): poultry					40.0	2	2	2	39.0	10	10	10								

continued—

Table A2.2

Sensitive tariff lines under the ASEAN-Australia/New Zealand and ASEAN-China FTAs—continued

China and ASEAN tariff lines excluded from cuts or partially liberalized under the ASEAN-China FTA

IBAT description	Indonesia				Malaysia				Philippines				Thailand				Vietnam			
	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut	Avg. tariff	No. of lines	TRQ lines	No. cut
Meat (frzn): pork									35.0	10	10	10								
Meat (frzn): poultry					40.0	2	2	2	31.3	24	24	20								
Meat (prep): pork									40.0	6		6	5.0	4						
Meat (prep): poultry									40.0	3	0	3								
Nuts & fruit (dried & frsh) nes													50.0	1	1					
Nuts & fruit (prepared) nes													5.0	5			5.0	1		
Oil seeds: copra													36.0	1	1	1				
Oil seeds: soybeans													80.0	2	2	2				
Oil: coconut													20.0	4	4	4				
Oil: palm													20.0	3	3	3	8.8	4	4	4
Oil: palm kernal													20.0	7	7	7				
Oil: rape																	9.0	5	5	5
Oil: soybean													50.0	4	4		9.0	2	2	2
Oilcake: soybeans													5.0	1	1	1				
Spices									5.0	4			27.0	6	6	6	5.0	2		
Starches (edible nes)									5.0	1										
Sweeteners: beet & cane sugar (raw)									50.0	4	4	3	50.0	2	2		50.0	2	2	2
Sweeteners: beet & cane sugar (refined)									29.0	14	14	11	50.0	4	4		50.0	4	4	4
Tea													30.0	8	8	8				
Tobacco (unmanufactured)	5.0	10		10	5.0	1	1	1					30.0	12	12	12	5.0	5		
Tobacco products					46.8	14		1									34.2	6		2
Veg (dried & frsh): roots & tubers									40.0	4		4								
Veg (dried): onion, garlic, leeks													50.0	1	1					
Veg (frsh): beans & peas									5.0	2										
Veg (frsh): cabbage					90.0	1	1	1	30.0	3		3								
Veg (frsh): carrots & edible roots									21.7	3		2								
Veg (frsh): cucumbers									5.0	1										
Veg (frsh): garlic & leeks									22.5	4		2	50.0	2	2					
Veg (frsh): lettuce									5.0	4										
Veg (frsh): onions & shallots									40.0	4		4	50.0	4	4					
Veg (frsh): other									5.0	5										
Veg (frsh): potatoes									40.0	2	2	2	50.0	2	2					
Veg (frzn or prep): other									18.8	8		6								
Veg (prep): tomatoes													5.0	2						
Totals		78	9	78		46	24	33		162	102	130		133	106	67		72	50	22
		491	291	330																

ASEAN = Association of Southeast Asian Nations. FTA = free trade agreement. nes = not elsewhere specified. TRQ = tariff-rate quota.

Source: USDA, Economic Research Service calculations using USDA internal databases.

Table A2.3

Three U.S. pending trade agreements, summary of tariff line commitments[1]

	Bound duty free		Duty free in first year		Duty free by last year		Partially liberalized[2]		Excluded		Total tariff lines	
	No.	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*
U.S.-Korea												
U.S.	387	21	676	37	751	41	0	0	0	0	1,814	100
Korea	30	2	558	36	932	60	0	0	31	2	1551	100
U.S.-Colombia												
U.S.	387	21	1231	68	149	8	0	0	47	3	1,814	100
Colombia	0	0	714	78	206	22	0	0	0	0	920	100
U.S.-Panama												
U.S.	387	21	1228	68	152	8	2	0	47	3	1,816	100
Panama	270	19	691	49	459	32	0	0	2	0	1,422	100

[1]The table contains a count of simple tariff lines (not trade weighted) at the tariff line level (the HS8-digit level for Colombia, Panama, and the U.S. and the HS10-digit level for Korea).
[2]In the case of U.S. tariff treatment to Panama, this includes two subdivided tariff lines designated as receiving special designation.

Source: USDA, Economic Research Service.

Table A2.4

Selected processed food, fish, and other U.S. agricultural exports to Korea

	U.S. exports[1]	Tariff	Phase-in	Competitors
	$ millions	*Percent*	*Years*	
Processed fruit and vegetables	112			
Frozen french fry potatoes	27	18	0	Canada
Prepared/preserved sweet corn	20	15	5	Thailand
Mixtures of nuts	11	45	0	China
Other	55			
Snack foods	85			
Prepared/preserved potato chips	13	20	5	China
Chocolate and chocolate confectionery, filled, less than 2 kg	9	8	5	EU
Confectionery and food preparations containing cocoa, not for retail sale	8	8	NA	EU
Chocolate and chocolate confectionery, not filled, less than 25 kg	9	8	5	EU
Corn chips and similar snacks	5	8	NA	China
Other	40			
Fruit and vegetable juices	40			
Grape juice	11	45	0	Chile, EU
Mixtures of fruit juices	7	50	10	
Frozen orange juice	5	54	0	Brazil, Israel
Other	16			
Coffee, roasted	18	29.5	5	Korea, EU, Japan, Switzerland
Fish products	293			
Frozen Alaska pollock roe	86	10	NA	Russia
Frozen Alaska pollock surimi (fish paste)	80	10	NA	ASEAN, China
Frozen cod, except fillets, livers, and roe	22	10	NA	Russia
Firsh meal fit for human consumption	12	20	NA	
Other	94			
Beverages	41			
Beverage waters	8	8	0	EU
Grape wines	11	15	0	EU, Chile, Australia
Other	22			
Tobacco	21			
Unmanufactured tobacco	21	20	10	Brazil, EU, India, Malawi, China

NA= not available. ASEAN = Association of Southeast Asian Nations.
[1]Average for 2007-09.

Source: USDA, Economic Research Service calculations using Tariff Schedules of Korea and USDA's BICO (bulk, intermediate, and consumer) database.