



United States
International Trade Commission

Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2016 Report

June 2016

Publication Number: 4614

Investigation Number: 332-555

United States International Trade Commission

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Preface

On June 29, 2015, the President signed the Bipartisan Congressional Trade Priorities and Accountability Act of 2015 (19 U.S.C 4204 (f) (2)). Section 105 (f)(2) of the Act requires the Commission to submit two reports to the House Committee on Ways and Means and the Senate Committee on Finance, one in 2016 and a second not later than mid-2020, on the economic impact of trade agreements implemented under trade authorities procedures since 1984. This report is in response to the request for the first report. Section 105(f)(2) provides as follows:

(2) REPORT ON IMPACT OF TRADE PROMOTION AUTHORITY.— Not later than one year after the date of the enactment of this Act, and not later than 5 years thereafter, the United States International Trade Commission shall submit to the Committee on Ways and Means of the House of Representatives and the Committee on Finance of the Senate a report on the economic impact on the United States of all trade agreements with respect to which Congress has enacted an implementing bill under trade authorities procedures since January 1, 1984.

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Acronyms and Abbreviations

Terms	Definitions
AAFA	American Apparel and Footwear Association
ABT	Agreement on Basic Telecommunications
AD	Antidumping
ADB	Asian Development Bank
AISI	American Iron and Steel Institute
AMS	aggregate measure of support
APHIS	Animal and Plant Health Inspection Service (U.S. Department of Agriculture)
ASM	Annual Survey of Manufacturers
ATC	Agreement on Textiles and Clothing
BEA	Bureau of Economic Analysis (U.S. Department of Commerce)
BIS	Bureau of Industry and Security (U.S. Department of Commerce)
BIT or BITs	U.S. bilateral investment treaty (or treaties)
BLS	Bureau of Labor Statistics (U.S. Department of Labor)
CAFTA-DR	Dominican Republic-Central America Free Trade Agreement
CBERA	U.S. Caribbean Basin Economic Recovery Act
CBI	U.S. Caribbean Basin initiative
CBTPA	U.S. Caribbean Basin Trade and Partnership Act of 2000
CDA	Copper Development Association
CGE	computable general equilibrium
CGTA	Center for Global Trade and Analysis (Purdue University)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CRS	U.S. Congressional Research Service
CTHA	Chemical Tariff Harmonization Agreement
CTS	Council for Trade in Services
CUSFTA	U.S.-Canada Free Trade Agreement
CVD	countervailing duty
DIGSV	Dirección General de Sanidad Vegetal (Plant Health Directorate, Mexico)
DSB	Dispute Settlement Body
EAA	Express Association of America
ERS	Economic Research Service (U.S. Department of Agriculture)
EU	European Union
EUR	euro
FAO	Food and Agricultural Organization of the United Nations
FAS	Foreign Agriculture Service (U.S. Department of Agriculture)
FDI	foreign direct investment
FSIS	Food Safety and Inspection Service (U.S. Department of Agriculture)
FTA	free trade agreement
FTZs	Foreign Trade Zones
GAO	U.S. Government Accountability Office
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GIs	geographical indications
GPA	Government Procurement Agreement (World Trade Organization)
GSP	Generalized System of Preferences
GTAP	Global Trade Analysis Project (Purdue University)
GTIS	Global Trade Information Systems
HAB	Hass Avocado Board

Terms	Definitions
HS	Harmonized Commodity Description and Coding System (or Harmonized System)
HTS	Harmonized Tariff Schedule of the United States
ICSG	International Copper Study Group
IIPA	International Intellectual Property Alliance
ILO	International Labour Organization
IPRs	intellectual property rights
ISAC 11	Industry Sector Advisory Committee for Nonferrous Ores and Industrial Minerals
ISDS	investor-state dispute settlement
ISI	Integrated Sourcing Initiative
IT	information technology
ITA	Information Technology Agreement
ITAC	Industry Trade Advisory Committee
ITAC 9	Industry Trade Advisory Committee on Nonferrous Metals, Construction, and Building Materials
ITAC 12	Industry Trade Advisory Committee on Steel
ITAC 13	Industry Trade Advisory Committee on Textiles and Clothing
ITAC 3	Industry Trade Advisory Committee for Chemicals, Pharmaceuticals, Health/Science Products and Services
ITAC 8	Industry Trade Advisory Committee for Information and Communications Technologies, Services, and Electronic Commerce
ITMF	International Textile Manufacturers Federation
JPY	Japanese yen
KORUS	U.S.-Korea Free Trade Agreement
MFA	Multi-fibre Arrangement
MFN	most-favored nation
MIFAFF	Ministry for Food, Agriculture, Forestry, and Fisheries (Korea)
MRLs	maximum residue limits
MT	metric tons
NAALC	North American Agreement on Labor Cooperation
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
NAM	National Association of Manufacturers
NASS	National Agricultural Statistics Service
NCMs	nonconforming measures
NCTO	National Council of Textile Organizations
NHTSA	National Highway Traffic Safety Administration
NPPC	National Pork Producers Council
NTMs	nontariff measures
NTR	normal trade relations
OAS	Organization of American States
OECD	Organisation for Economic Co-operation and Development
OICA	Organisation Internationale des Constructeurs d'Automobiles (International Organization of Motor Vehicle Manufacturers)
OIE	World Organization for Animal Health (formerly the International Office of Epizootics)
OTEXA	Office of Textiles and Apparel (U.S. Department of Commerce)
POP	point of presence
PQA	Pork Quality Assurance
PSD	Production, Supply, and Distribution Online
QIA	Quarantine and Inspection Agency (Korea)
ROOs	rules of origin
ROW	rest of the world

Terms	Definitions
SAGARPA	Secretariat of Agriculture, Livestock, Rural Development, Fishery and Food (Mexico)
SIC	Standard Industrial Classification
SMA	Steel Manufacturers Association
SMEs	small and medium-sized enterprises
SOCMA	Society of Chemical Manufacturers and Affiliates
SPS	sanitary and phytosanitary
SPS Agreement	WTO Agreement on the Application of Sanitary and Phytosanitary Measures
SSGs	special safeguard measures
TBTs	technical barriers to trade
TIA	Telecommunications Industry Association
TiVA	Trade in Value Added (database)
TPA	Trade Promotion Agreement
TPLs	Trade Preference Levels
TRIMs	WTO Agreement on Trade-related Investment Measures
TRIPS	WTO Agreement on Trade-related Aspects of Intellectual Property Rights
TRQ	tariff-rate quota
U.S.C.	United States Code
UAW	International Union, United Automobile, Aerospace, and Agricultural Implement Workers of America
UNCTAD-TRAINS	United Nations Conference on Trade and Development—Trade Analysis and Information System
URAA	Uruguay Round Agreements Act
URAAG	The Uruguay Round Agreement on Agriculture
URAs	Uruguay Round Agreements
USAGE	United States Applied General Equilibrium model
USD	U.S. dollar
USDA	U.S. Department of Agriculture
USDOC	U.S. Department of Commerce
USDOL or DOL	U.S. Department of Labor
USDOS	U.S. Department of State
USDOT	U.S. Department of Transportation
USFIA	U.S. Fashion Industry Association
USITC	U.S. International Trade Commission
USO	universal service obligation
USTR	Office of the U.S. Trade Representative
WBMS	World Bureau of Metal Statistics
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WITS	World Integrated Trade Solution (World Bank)
WTO	World Trade Organization

Executive Summary

This report assesses the economic impact on the United States of U.S. trade agreements implemented under trade authorities procedures since 1984. Its scope includes the multilateral Uruguay Round agreements as well as 15 U.S. bilateral and regional trade agreements.¹ The report analyzes many of the diverse effects of the trade agreements, including effects on international trade in goods and services, consumers, labor markets, international investment, receipts for intellectual property, and the trade position of small and medium-sized enterprises (SMEs).

Section 105(f)(2) of the Bipartisan Congressional Trade Priorities and Accountability Act of 2015 (19 U.S.C. § 4204(f)(2)) requires that the U.S. International Trade Commission (Commission or USITC), not later than one year after the date of enactment of the Act, submit a report to the Committee on Ways and Means of the House of Representatives and the Committee on Finance of the Senate on the economic impact on the United States of all

¹ In chronological order, this encompasses U.S. bilateral agreements with Israel and Canada; the North American Free Trade Agreement; the Uruguay Round Agreements; U.S. bilateral agreements with Jordan, Singapore, Chile, Australia, Morocco, and Bahrain; a U.S. regional trade agreement (CAFTA-DR) with the Dominican Republic and five Central American countries, including El Salvador, Honduras, Nicaragua, Guatemala, and Costa Rica; and five more U.S. bilateral agreements, with Oman, Peru, Korea (KORUS), Colombia, and Panama.

Findings

U.S. bilateral, regional, and multilateral agreements have evolved markedly over the last 30 years, with their provisions often becoming broader, stronger, and more transparent.

The Commission's economic analysis finds that in 2012 U.S. bilateral and regional trade agreements increased U.S. aggregate trade (expanding it by about 3 percent) and U.S. real GDP and U.S. employment (expanding these by less than 1 percent, \$32.2 billion and 159.3 thousand fulltime equivalent employees, respectively), and increased bilateral trade with partner countries by 26.3 percent.

The Commission's analysis of agreements that focus on specific industries but include many partners, such as the Information Technology Agreement, show that they have had larger impacts on trade in their targeted industries than do bilateral agreements that cover many sectors.

The trade agreements analyzed here have affected the U.S. economy in many different ways, including gains to consumers through lower prices and greater product variety, increased receipts for intellectual property, and a positive effect, on average, on U.S. bilateral merchandise trade balances with partner countries.

Case studies highlight several types of agreement provisions that have impacted U.S. industries. Ranging from avocados to steel and to express delivery services, the case studies show that while in most instances trade agreements have generated gains, in others they have led to negative outcomes.

trade agreements with respect to which Congress has enacted an implementing bill under trade authorities procedures since January 1, 1984. The Commission must also submit another report on the same subject not later than five years after the first one. This report is the first of those two reports.

To produce this report, the Commission used information from a variety of sources, including publicly available literature and data, interviews with industry representatives, a roundtable discussion with services industry representatives, and the Commission's public hearing.

The Commission also used a variety of approaches to assess the impact of trade agreements. First, to provide context for understanding the agreements' effects, the Commission traced the evolution of key provisions over the last 30 years, and found that these provisions have frequently expanded in scope and strengthened U.S. and partner country obligations on many issues. Second, the Commission developed several economic models that update and extend the economic literature while focusing more specifically on the agreements' impacts on the U.S. economy. In addition, the Commission conducted case studies that analyze effects of the agreements on particular U.S. industries. Finally, to assess the current methods used to analyze the economic impact of trade agreements, as well as examine research findings, the Commission reviewed the economic literature on the subject.

The Commission used at least one, and often several, of these analytical approaches to evaluate widely debated economic effects of the trade agreements, including their impacts on U.S. labor markets, U.S. consumers, foreign direct investment, intellectual property, and trade balances. For example, the effects of the trade agreements on U.S. labor markets are analyzed in a model of economy-wide effects on aggregate employment and wages, in an industry-specific model of declines in U.S. employment in the textiles and apparel industries, in a review of the academic literature on the employment effects of the North American Free Trade Agreement (NAFTA), and in some of the case studies.

The Commission's quantitative estimates of these agreements' effects reveal three broad themes. First, the estimates show that U.S. bilateral and regional trade agreements have expanded bilateral trade flows with partner countries by 26.3 percent on average across the traded goods and services sectors. The Commission's estimates fall at the lower end of the range of estimated effects of global trade agreements on bilateral trade flows—an increase of 30 percent to 114 percent over a 10 year period after an agreement has entered into force—as reported in the academic literature. The Commission estimates that U.S. bilateral and regional trade agreements have also had positive effects on U.S. aggregate trade (expanding it by about 3 percent) and on U.S. real gross domestic product (GDP) and U.S. employment (expanding these by less than 1 percent).

Second, the Commission’s economic analysis of agreements that focus on specific industries but include many partners—such as the Information Technology Agreement (ITA), Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), and zero-for-zero agreement on steel of the Uruguay Round—shows that these agreements have had larger impacts on trade in their targeted industries than do bilateral agreements that cover many sectors. Third, the Commission’s economic analysis shows that trade agreements have affected not only trade but also other aspects of the U.S. economy, with results including higher aggregate employment, lower prices, and greater consumer choice, as well as negative effects on production and employment in certain sectors.

Finally, the case studies show that the ability to attribute certain changes that industries have experienced over time to trade agreements varies from case to case. For example, committees established under the sanitary and phytosanitary (SPS) chapters of U.S. trade agreements have resolved SPS issues in a way that clearly facilitated trade in pork, avocados, and blueberries. On the other hand, for several industries—including copper, mining machinery, and steel—it is difficult to distinguish the effects of the trade agreements from those of other domestic and international developments.

The rest of this executive summary discusses in more detail the Commission’s findings in this report. The summary begins with the report’s overview of U.S. trade agreement provisions, followed by its quantitative estimates, case studies, and literature review.

Provisions of the Trade Agreements

The Commission’s examination of agreement provisions reveals that U.S. trade agreements have evolved during the last 30 years, often expanding in depth and in breadth. The Uruguay Round Agreements (URAs) have been particularly important for many sectors, both because they represented the first or most significant multilateral trade agreement in many areas and because they have served as a foundation for further liberalization efforts that followed. For example, the Uruguay Round Agreement on Agriculture (URAAG) brought agriculture under effective disciplines of the General Agreement on Tariffs and Trade (GATT) for the first time. The General Agreement on Trade in Services (GATS) was the world’s first multilateral agreement on services trade. And the Agreement on Textiles and Clothing (ATC) gradually eliminated the global quota system established in 1974 by the Multi-Fibre Arrangement. Subsequent U.S. bilateral and regional trade agreements then built on these URAs. For instance, the later agreements have allowed greater market access for agricultural goods than the URAAG did. They have also strengthened and expanded the scope of commitments to liberalize services, and have increase the transparency of these commitments as they have moved from a

limited “positive list” approach to the more expansive “negative list” approach, using GATS as a starting point.²

For issues that have not been covered by binding multilateral agreements—such as government procurement, investment, electronic commerce, labor, and the environment—U.S. bilateral and regional trade agreements have been pivotal in instituting key trade commitments and establishing precedents for later agreements. For example, labor rights were not covered in the URAs, but have been included in all bilateral and regional U.S. trade agreements since NAFTA, with the commitments in later agreements encompassing more obligations over time. Similarly, while government procurement was addressed through the creation of a voluntary plurilateral agreement during the Uruguay Round, government procurement provisions in later bilateral and regional U.S. trade agreements have expanded benefits and market access for U.S. suppliers into trading partners’ markets. This was true both because of the strengthening of these provisions and because several trade agreement partners were not part of the plurilateral agreement.

Further, according to the analyses and views the Commission studied, the impact of U.S. trade agreement provisions has been highly diverse. For example, the elimination of quotas under the ATC in the Uruguay Round triggered a rise in U.S. imports of low-cost apparel, benefiting U.S. consumers but leading to a decline in U.S. apparel production. In agreements affecting services, the impact of specific commitments is often unclear, since these commitments usually only lock in existing policies; however, industry representatives report gains from the increased certainty resulting from these agreements. In other areas, such as technical barriers to trade and government procurement, there are indications that certain trade agreement provisions have had a positive impact on the U.S. economy, even if it is difficult to quantify such gains.

Economic Models of the Impacts

In its assessment of the trade agreements, the Commission combines the results of industry-specific models and economy-wide models (table ES.1). The economic models are mostly statistical. They use conventional econometric techniques to estimate the historical relationship between economic outcomes (including trade in goods and services, investment, and receipts for the use of intellectual property) and the U.S. trade agreements, while controlling for other coinciding events that are reflected in the historical data. While a few of the models presented

² In positive list agreements, provisions apply only to services that are specifically identified by each party. In contrast, the scope of negative list agreements is limited only by those measures specifically identified in parties’ lists of nonconforming measures (NCMs), and as such, these agreements are generally considered more comprehensive and transparent than positive list agreements.

in this report focus on specific provisions, such as tariff reductions or provisions to protect intellectual property, most estimate the combined or total effect of an agreement's provisions.

Table ES.1: Estimates from the Commission's economic modeling of the effects of the agreements

Type of economic impact	Findings
Effects on bilateral trade	The bilateral and regional trade agreements increased bilateral trade with partner countries by 26.3 percent in 2012.
Effects on total exports and imports	The bilateral and regional trade agreements increased total U.S. exports by 3.6 percent in 2012. They increased total U.S. imports by 2.3 percent.
Effects on real GDP	The bilateral and regional trade agreements increased real GDP by \$32.2 billion (0.2 percent) in 2012.
Effects on U.S. labor markets	The bilateral and regional trade agreements increased total employment by 159.3 thousand fulltime equivalent employees (0.1 percent) and increased real wages by 0.3 percent in 2012.
Effects on U.S. receipts for intellectual property	Increases in patent protection since the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) entered into force increased U.S. international receipts for the use of intellectual property by \$10.3 billion (12.6 percent) in 2010.
Effects on international investment	The bilateral and regional trade agreements had a mixed effect on foreign direct investment, in some cases increasing and in other cases decreasing inbound and outbound investment flows.
Effects on bilateral trade balances	The bilateral and regional trade agreements had a positive effect, on average, on U.S. bilateral merchandise trade balances with the partner countries, increasing trade surpluses or reducing trade deficits by a total of \$87.5 billion (59.2 percent) in 2015.
Effects on U.S. consumers	The bilateral and regional trade agreements resulted in tariff savings of up to \$13.4 billion in 2014, with a significant part of these savings benefiting U.S. consumers, and also increased the variety of products imported by the United States.
Effects of the Information Technology Agreement (ITA) on U.S. information technology exports	The ITA increased annual U.S. exports of covered information technology products by \$34.4 billion (56.7 percent) in 2010.
Effects of the Uruguay Round and NAFTA tariff reductions on U.S. steel imports	These agreements are estimated to have increased annual U.S. steel imports by \$1.2 billion (14.7 percent) in 2000.
Effects on U.S. employment in the textile and apparel industries	Rising imports, due in part to the Agreement on Textiles and Clothing (ATC), accounted for most of the reduction in U.S. employment in the apparel industry between 1998 and 2014.

Source: USITC estimates.

Note: The estimates are reported for various years based on data availability or the time period over which an agreement was implemented or effects of agreements could be measured. **Estimated impacts in the table represent changes relative to the levels of economic outcomes that would have existed absent the agreements.**

The main challenge in retrospective analysis, such as that undertaken in this study, is to disentangle the impact of the trade agreements from the many changes in economic conditions that coincided with the implementation of the agreements. The models do not try to assess the relative importance of all of the determinants of trade, investment, and the other economic outcomes; instead, they aim to isolate the incremental impact of the trade agreements.

The resulting estimates add to the academic literature on these economic impacts. The Commission's economic models use techniques that have been developed in the academic studies, in some cases simply updating the models in the studies, but in most cases modifying the models to address this report's narrower focus on agreements involving the United States and their effects on the U.S. economy.

The quantitative estimates offer wide coverage, across many trade agreements and different types of economic outcomes, but they are not comprehensive. They do not capture all of the economic benefits of the agreements, or all of the economic costs, due to limits on available data and analytic techniques. For example, economic costs not captured include the costs of employment transitions between sectors and the costs of temporary unemployment; and an economic benefit not captured includes the increased incentives for innovation. The estimates provide data and analysis about diverse economic effects, and these estimates are complemented by the literature review, case studies, and analysis in the report.

Impacts on the U.S. Economy as a Whole

The Commission combined an econometric model of trade with a simulation model of the global economy to estimate the impact of the U.S. bilateral and regional agreements on sector-level bilateral trade in goods and services. The econometric analysis is based on gravity models of trade that estimate the total tariff equivalents of the barriers to cross-border trade that are removed by the trade agreements, including both tariffs and nontariff measures.

The trade agreements have direct effects on trade costs and trade flows. They have smaller, indirect effects on output and labor market outcomes in the U.S. economy. The estimates of economy-wide effects are based on simulations in the Global Trade Analysis Project (GTAP) computable general equilibrium model of international trade. The traditional GTAP model is extended to allow the aggregate labor supply in each country to respond to changes in real wages rather than remaining fixed, as it does in the traditional model. As a result, the trade agreements have an impact on U.S. aggregate employment levels in the simulations. The simulations translate the impact on trade barriers into impacts on U.S. macroeconomic outcomes, including GDP, aggregate trade flows, aggregate employment, and wages.

Impacts on Intellectual Property, International Investment, and Trade Balances

The report also presents estimates of the effects of the U.S. trade agreements on international investment, intellectual property, and bilateral merchandise trade balances. These economic effects are not explicitly included in the GTAP model, yet they are an important part of the

trade policy debate. Table ES.1 reports Commission estimates of the impact of the increase in patent protection in the TRIPS era on U.S. receipts for the use of U.S. intellectual property in other countries; the effects of the agreements on U.S. foreign direct investment and foreign affiliate sales; and the effects of the agreements on U.S. bilateral merchandise trade balances with partner countries.

Benefits to U.S. Consumers

The Commission examined two ways consumers can benefit from trade agreements: being able to buy less expensive products owing to tariff cuts, and gaining access to a wider variety of products. A Commission analysis of the data on U.S. imports and tariff rates suggests that U.S. consumers saved as much as \$13.4 billion in 2014 from the tariff reductions associated with the agreements (as shown in table ES.1). Further analysis suggests that U.S. consumers who are either middle income (income between \$40,000 and \$69,000) or lower income (income less than \$40,000) benefit disproportionately from the savings associated with the tariff reductions.

Finally, the Commission's econometric models of the effects of trade agreements on the variety of products imported into the United States indicate that, of the 11 agreements analyzed, 4 increased the variety of products imported from trade agreement partner countries, 3 decreased the variety of products imported, and 4 had no statistically significant effect. A Commission analysis of firm-level data on U.S. imports of products from Korea, which are increasing, indicates that, for 86 percent of the products analyzed, there was an increase in the number of distinct Korean suppliers that coincided with the entry into force of the agreement in 2012; this increase implies an increase in product variety as well. Though these estimates of consumer benefits are only illustrative, they make some headway in linking benefits to consumers to the specific trade agreements.

Industry-specific Models of the Impacts

Table ES.1 also presents estimates of industry-specific effects of trade agreements in three categories: information technology (i.e., the ITA); steel products provisions in NAFTA and the URAs; and textiles and apparel (i.e., the ATC). Econometric analysis indicates that the agreements in the first two categories—ITA and steel product provisions in NAFTA and the URAs—had economically important effects on industry trade flows, increasing U.S. exports of information and communication technology products and (via tariff reduction) U.S. imports of steel products. Overall, employment in the textile and apparel industries declined, though this study does not isolate the effects of the ATC from other changes in U.S. trade policy over the last two decades.

Case Studies

The agreements have had diverse effects on different industries, and much of that detail is not captured by the economic models. To address this limitation, 10 case studies in this report analyze the impacts of U.S. bilateral, regional, and multilateral trade agreements on particular industries (table ES.2). Various provisions and chapters of these agreements are analyzed, such as tariff reductions, investment liberalization, rules of origin, SPS measures, customs administration and trade facilitation, and telecommunications.

Table ES.2: Industry case studies, relevant provisions, and main impact

	Industry	Agreement	Provisions	Main impact
1	Pork	U.S.-Colombia	Tariff reduction and SPS resolution	Substantially increased U.S. pork exports to Colombia
2	Avocados	NAFTA	SPS resolution	Permitted avocado imports from Mexico
3	Blueberries	KORUS	SPS resolution	Permitted fresh blueberry exports to Korea
4	Motor vehicle industry and parts	NAFTA	Tariff reduction, rules of origin, investment liberalization	Increased productivity and exports due to expansion of supply chain to include NAFTA partner countries; decline in U.S. production and employment
5	Textiles	CAFTA-DR	Yarn-forward rules of origin	Increased U.S. textile exports, as part of circular supply chain for U.S. apparel consumption, despite decline in U.S. textile production and employment
6	Steel	Uruguay Round and NAFTA	Tariff reduction and rules of origin	Increased exports to NAFTA partners, increased imports from the rest of the world
7	Copper	NAFTA, U.S.-Chile, U.S.-Peru	Tariff reduction	Increased imports from Chile
8	Mining machinery	U.S. Chile and U.S.-Peru	Tariff reduction	Increased exports to Chile and Peru
9	Express delivery	U.S. bilateral and regional trade agreements	Customs administration and postal monopolies	Improved ability of U.S. providers to deliver express shipments; facilitated exports by small and medium-sized firms
10	Telecommunications	GATS, Agreement on Basic Telecommunications, and U.S. bilateral and regional trade agreements (from U.S.-Singapore forward)	Telecom-specific and general provisions	Improved “best practice” regulatory environment and created certainty in partner countries

Source: compiled by USITC.

Note: NAFTA = North American Free Trade Agreement; KORUS = U.S.-Korea free trade agreement (FTA); CAFTA-DR = Dominican Republic-Central America FTA (agreement partners are Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, and Nicaragua); GATS = General Agreement on Trade in Services.

In the pork, avocado, and blueberry industries, it is clear that trade agreements generated specific changes benefiting both consumers and producers by increasing the availability of certain imported goods in the U.S. market and exported U.S. goods in foreign markets. More specifically, SPS committees associated with NAFTA and KORUS have facilitated trade by resolving restrictive SPS measures which blocked U.S. imports of avocados from Mexico and U.S. exports of fresh blueberries to Korea. Similarly, the U.S.-Colombia agreement helped to resolve SPS measures related to pork, benefiting U.S. exporters, which now have the largest foreign market share in Colombia.³

Rules of origin specific to textiles in CAFTA-DR and to motor vehicles in NAFTA appear to have had mixed effects leading to significant developments in each industry. As shown through increased exports to trade agreement partners, rules of origin have strengthened regional supply chains. However, the system of supply chains, along with other factors, has also resulted in lower U.S. production and employment in some segments of the industries. Yet the extent to which these changes would have emerged absent the trade agreements is unclear.

The case studies on copper, mining machinery, and steel again demonstrate the difficulty in distinguishing trade agreement effects from other national and global changes; they show that the effect of tariff reductions can depend on trade agreement partners, the interaction of duty eliminations with other provisions, or the timing of the agreements. For example, the URA zero-for-zero initiative on steel eliminated tariffs and improved global market access, but ultimately resulted in a U.S. trade deficit with the URA partners. On the other hand, while NAFTA also eliminated tariffs on U.S. and trade partner steel imports, the regional content requirements in the rules of origin for autos and appliances (industries in which steel is a key input) led to increased U.S. exports of steel to Canada and Mexico.

Finally, the express delivery and telecommunications case studies show that industry-specific provisions can improve regulatory environments and best practices, which are conducive to the supply of U.S. services in foreign markets. For example, the ability of express delivery providers to effectively supply their services in foreign markets depends in part on provisions that address (1) competition between private express delivery firms and state-owned postal authorities and (2) customs administration and trade facilitation. In cases where the provisions have for example led to more efficient customs procedures (via simplified customs paperwork and higher de minimis levels), express delivery firms may have expanded the services provided to partner countries and facilitated exports by small and medium-size enterprises.

³ These case studies also discuss the effects of tariff reduction or elimination.

Review of the Economics Literature

The report's literature review centers on studies that empirically estimate the historical impacts of trade agreements. The principal findings from the literature published since the Commission's previous report (2003)⁴ are as follows:

- The effectiveness of the GATT/World Trade Organization (WTO) system, which evolved through the URAs, as a means of increasing trade is heavily debated. Estimates of increases in members' trade flows that can be attributed to these agreements range from 16 percent to 277 percent.
- There is little agreement among estimates of the average effects of bilateral and regional trade agreements. The most cited research shows that on average, bilateral and regional trade agreements across the world have led to an increase of 30 percent to 114 percent in each partner's trade over a 10 year period after an agreement has entered into force.
- Estimates of the impacts of NAFTA on the U.S. economy vary by state and industry. Studies indicate that high-value-added industries and the states in which they are located have seen larger growth in wages than industries and states with high concentrations of blue-collar employment. Effects also vary by employees' education, with high-school dropouts experiencing slower wage growth than college graduates.
- Although the United States has generally benefited from its trade agreements, the size of these gains has largely depended on the size of the economies of the agreement partners, the composition of individual agreements, the levels of trade barriers in place before the agreement, and how extensively those barriers were liberalized.

Although there is substantial research on trade agreements overall, only a limited number of retrospective studies have addressed the more recent U.S. bilateral trade agreements. The reason these studies are so few is that it takes time for historical data to build up, for provisions of trade agreements to fully phase in, and for adjustments in economies to become visible.

⁴ USITC, *The Impact of Trade Agreements: Effect of the Tokyo Round, U.S.-Israel FTA, U.S.-Canada FTA, NAFTA, and the Uruguay Round on the U.S. Economy*, 2003.

Chapter 1

Introduction

Objective

The trade agreements that have entered into force under U.S. trade authorities procedures over the past several decades have reshaped U.S. international trade and significantly influenced the U.S. economy.⁵ They have had diverse effects, including reducing barriers to entry into foreign markets for U.S. exporters; increasing foreign exporters' access to the U.S. market; letting U.S. consumers choose from among a larger variety of goods from abroad at lower prices; and reshaping the U.S. labor market. This report by the U.S. International Trade Commission (Commission or USITC) provides details and estimates on how trade agreements implemented under trade authorities procedures since January 1, 1984, have affected the United States. The report is undertaken pursuant to section 105(f)(2) of the Bipartisan Congressional Trade Priorities and Accountability Act of 2015 (the Act) (19 U.S.C. 4204(f)(2)).

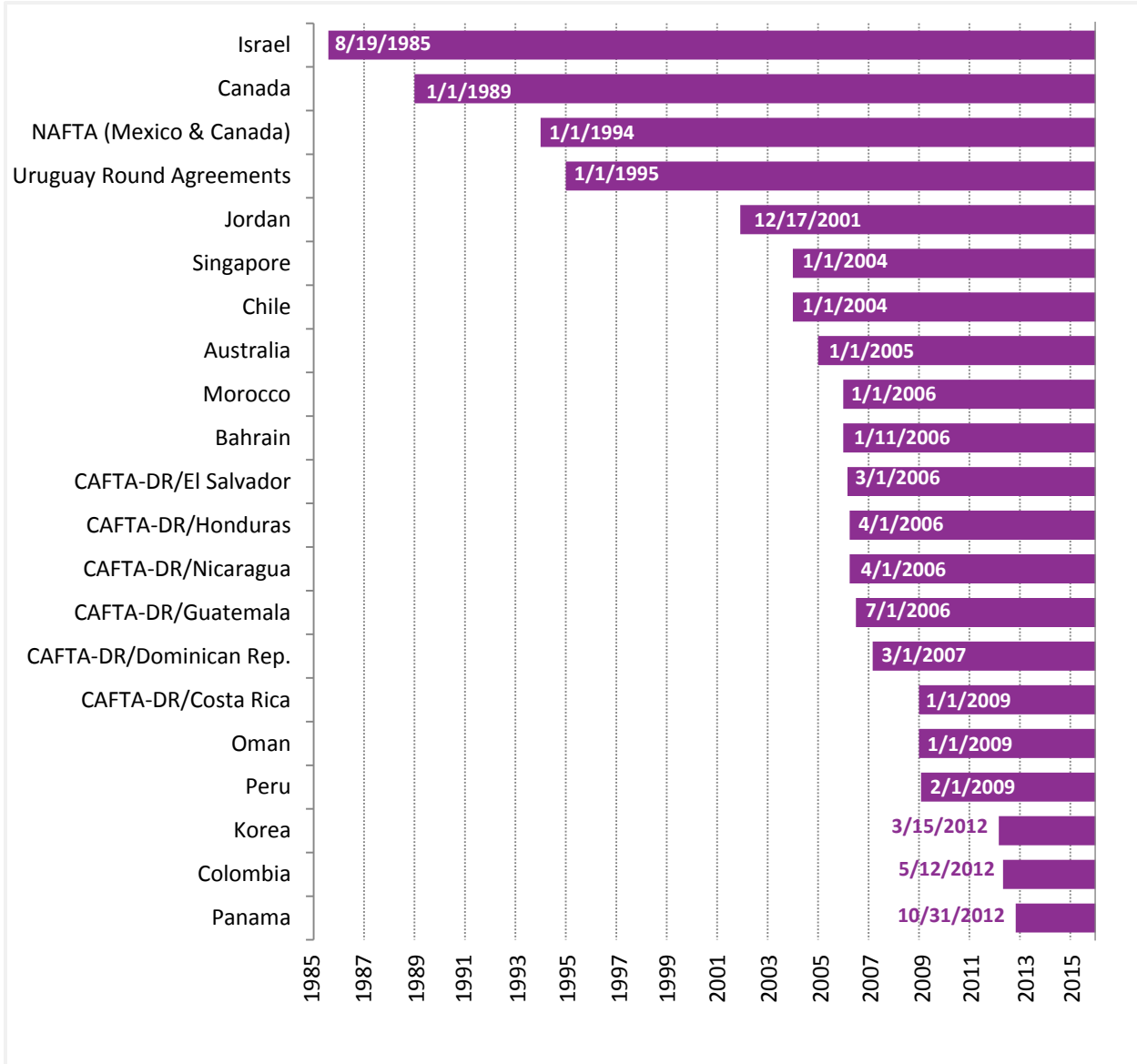
Scope

As required by the Act, this report covers U.S. trade agreements that have entered into force since January 1, 1984. In chronological order, this group of agreements encompasses U.S. bilateral agreements with Israel and Canada; the North American Free Trade Agreement (NAFTA), with Canada and Mexico; the 123-nation Uruguay Round Agreements (URAs); U.S. bilateral agreements with Jordan, Singapore, Chile, Australia, Morocco, and Bahrain; a U.S. regional trade agreement (CAFTA-DR) with the Dominican Republic and the five Central American countries of El Salvador, Honduras, Nicaragua, Guatemala, and Costa Rica; and five more U.S. bilateral agreements, with Oman, Peru, Korea (KORUS), Colombia, and Panama (figure 1.1).⁶

⁵ This report uses the term “trade agreement” rather than the more common term “free trade agreements (FTAs)” because some of the agreements are styled as trade promotion agreements rather than free trade agreements.

⁶ Throughout the report, where appropriate, references to these agreements and specific articles of these agreements are made in footnotes. The full text of most of bilateral and regional trade agreements can be found at USTR, “Free Trade Agreements.” <https://ustr.gov/trade-agreements/free-trade-agreements/>. The U.S.-Canada FTA can be found at Global Affairs Canada, “Canada-United States Free Trade Agreement (FTA).” <http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/us-eu.aspx?lang=eng>. A summary of and link to texts of various Uruguay Round Agreements referenced throughout the report can be found at WTO, “Legal Texts: The WTO Agreements,” https://www.wto.org/english/docs_e/legal_e/ursum_e.htm. The Republic of Korea, also known as South Korea, is called “Korea” in this report.

Figure 1.1: Uruguay Round and U.S. bilateral and regional agreements: Date entered into force



Sources: For agreements with Australia, Bahrain, Chile, Colombia, Korea, Morocco, Oman, Panama, Peru, and Singapore, dates are from USTR, “Free Trade Agreements,” <https://ustr.gov/trade-agreements/free-trade-agreements>; for the agreement with Jordan, date is from USTR, “Countries and Regions,” <https://ustr.gov/countries-regions/europe-middle-east/middle-east/north-africa/jordan>; for agreements with Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, and Nicaragua, dates are from USDOS, “Benefits of U.S. Trade Agreements,” <http://www.state.gov/e/eb/tpp/bta/fta/c26474.htm>; for agreements with Canada, with Mexico and Canada (NAFTA), and with Israel, dates are from USITC, *Impact of Trade Agreements: Effect*, 2003. The date for the Uruguay Round agreements is from the WTO website, “The Uruguay Round,” https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact5_e.htm (all websites accessed May 2, 2016). Several of the individual agreements from the Uruguay Round entered into force at later dates. Corresponds to appendix table I.1. Note: The U.S.-Canada agreement was superseded by NAFTA.

These agreements apply to a large share of U.S. trade. For example, U.S. trade with countries that are members of the World Trade Organization (WTO) and as a result have joined the URAs

accounted for approximately 99 percent of U.S. merchandise exports and imports in 2015.⁷ In addition, 46.9 percent of U.S. merchandise exports and 34.4 percent of U.S. merchandise imports in 2015 were between the United States and the partner countries in the bilateral and regional trade agreements listed in figure 1.1.⁸ A substantial share of both U.S. cross-border trade and affiliate transactions in services also appear to take place between bilateral and regional trade agreements partners.⁹

Growth in International Trade

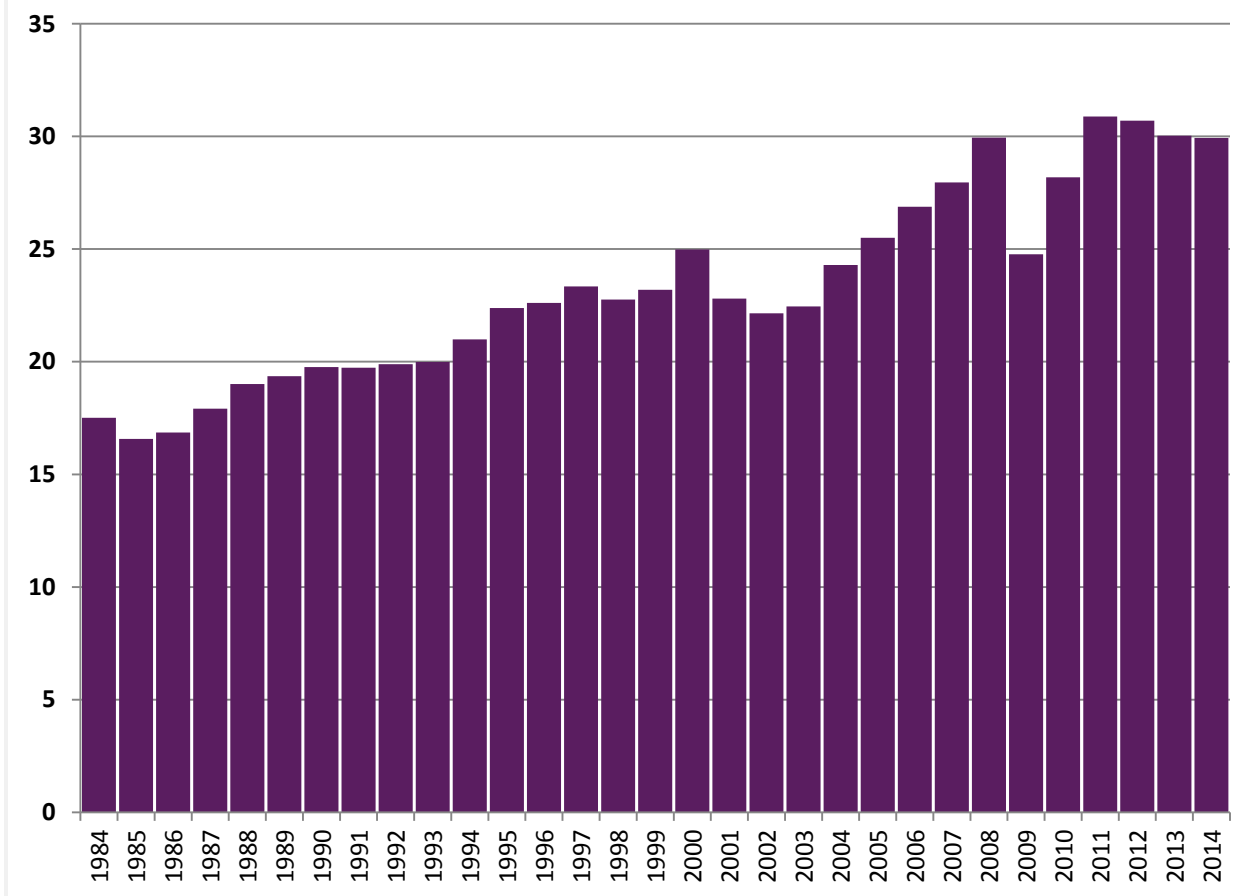
There has been significant growth in U.S. international trade since 1984, both in dollar values and as a share of U.S. gross domestic product (GDP). The rise in the ratio of the country's total trade to its GDP, a conventional measure of a country's openness to trade, indicates that trade has grown faster than the overall U.S. economy in most of the last 30 years (figure 1.2). The expansion in trade is the result of many economic factors, including the rapid growth of many emerging economies over this period, the reduction in transport and communication costs and other technological impediments, the growth of global value chains, and other globalization trends, as well as the liberalization of policy barriers to trade and investment under the trade agreements analyzed in this report. This report does not try to explain all of the growth in international trade over the period. Instead, the report estimates the contribution made by the U.S. trade agreements shown in figure 1.1.

⁷ USITC DataWeb/USDOC (accessed April 18, 2016).

⁸ Ibid.

⁹ It is difficult to quantify the exact share of trade in services with the partner countries, because public data sources do not report separate values for each country. In 2013, the most recent year available, at least 25 percent of total U.S. affiliate sales (sales of U.S.-headquartered companies in foreign markets) were supplied by affiliates located in bilateral and regional trade agreement partner countries, while at least 16 percent of U.S. affiliate purchases (sales of foreign-based companies in the United States) were supplied by affiliates of firms based in bilateral and regional trade agreement partner countries (includes data for 13 partner countries). In 2014, the most recent year available, at least 22 percent of total U.S. cross-border exports of private sector services and 17 percent of total U.S. cross-border imports of private sector services were between the United States and bilateral and regional trade agreement partner countries (includes data for 7 partner countries). See USITC, *Recent Trends, 2015*, for overview of trade in services. USDOC, BEA, Interactive Data, International Services, tables 2.2, 3.2, and 4.2; USDOC, BEA, Interactive Data, International Transactions, table 3.1 (accessed April 13, 2016).

Figure 1.2: U.S. trade as a percentage of U.S. GDP, 1984–2014



Source: World Bank, World Development Indicators database (accessed April 18, 2016). Corresponds to appendix table I.2.

Approach

The report combines several different but complementary approaches to analyze the impact of these agreements. These approaches make it possible to identify the major mechanisms through which trade agreements have affected the U.S. economy and to gauge the magnitude of the effects. The report examines the evolution and impact of specific provisions in trade agreements; gives quantitative estimates of the agreements’ impacts, as developed by the Commission; presents case studies that assess the agreements’ industry-specific impacts; and summarizes the studies in the economic literature that seek to measure the impact of individual and multiple agreements.

Impacts of the Provisions in Trade Agreements

The report begins by describing the composition and evolution of provisions included in the trade agreements. This section first looks at provisions that are specific to particular sectors,

including agriculture, manufactured goods, natural resources, and services. It then examines a sampling of key provisions that apply across sectors, including those related to technical barriers to trade (TBT), government procurement, investment, electronic commerce, intellectual property rights (IPR), labor, and the environment.

Each sector-specific and cross-sectoral provision is the subject of a discrete section that includes (1) information on the treatment of these issues in the URAs and in U.S. regional and bilateral trade agreements and (2) a brief analysis and summary of views on the impact of each of the provisions.

Economic Modeling

The Commission has developed several economic models that provide additional estimates of the impacts of the trade agreements on the U.S. economy. The models build on the methodologies developed in academic studies of the effects—usually on a global scale—of various agreements, updating and modifying the models to address the narrower focus of this report: the impacts of U.S. agreements on the U.S. economy.

The models use statistical techniques to estimate the relationship between entry into the trade agreements and changes in economic outcomes like trade and investment. Some estimate effects on the U.S. economy as a whole, while others are industry specific. The models estimate the historical relationship between the trade agreements and economic outcomes (such as trade in goods and services, investment, and receipts for the use of intellectual property), while accounting for other coinciding events that are reflected in the data. The models isolate the incremental impact of the trade agreements, which is often statistically significant even when it is not the most important factor determining a given pattern of international trade and investment.

The first group of economic models quantifies the effects of the agreements on the U.S. economy as a whole. The models in this group fall into two broad types: econometric and computable general equilibrium. Within this group, the econometric models estimate the correlation of the U.S. bilateral and regional trade agreements on cross-border trade in goods and services, and then computable general equilibrium model simulations translate these econometric estimates into effects on the economy as a whole.

The second group of models quantifies the impact of the trade agreements on international investment, intellectual property, and trade balances. One of these models is an econometric model of the correlation between the global increase in patent protection in recent years and the increase in U.S. receipts for the use of U.S. intellectual property in other countries. This group also includes econometric models of the effects of the agreements on U.S. foreign direct

Chapter 1: Introduction

investment and foreign affiliate sales and on U.S. merchandise trade balances with partner countries.

The third group of models quantifies several of the consumer benefits of the agreements. Consumers benefit when they have access to a greater variety of products and when they pay lower prices as a result of reductions in trade barriers. This group includes econometric models of the effects of trade agreements on the variety of products imported into the United States; an analysis of firm-level data on product variety in U.S. imports from Korea; and a calculation of tariff savings associated with the agreements.

The final group of models presents industry-specific models of the impact of selected agreements. One econometric model quantifies the impact of NAFTA and URA tariff reductions on U.S. imports of steel mill products. A second model quantifies the impact of the ITA on U.S. exports of information and communication technology products. A third model estimates the contribution of rising imports, due in part to the ATC, to the declines in U.S. employment in the textile and apparel industries between 1998 and 2014.

Case Studies

The report also presents case studies analyzing the way provisions of the trade agreements covered in this report have affected particular industries. The case studies have been chosen to help illustrate the varied effects that the agreements have had across industries—effects that may not be captured by the Commission’s economic models. Most case studies also seek to highlight important developments in individual industries that have coincided with the implementation of trade agreements, such as technological advances and changes in foreign competition, and thus shed light on the complex network of factors affecting trade and investment patterns.

The case studies cover a range of industries across the agricultural, manufacturing, natural resources, and services sectors that data or industry representatives indicate have been affected by various agreements:

1. Pork (U.S.-Colombia agreement)
2. Avocados (NAFTA)
3. Blueberries (KORUS)
4. Motor vehicles (NAFTA)
5. Textiles (CAFTA-DR)
6. Steel (URAs and NAFTA)
7. Copper (NAFTA and the U.S.-Chile and U.S.-Peru agreements)
8. Mining machinery (U.S.-Chile and U.S.-Peru agreements)

9. Express delivery services (combined effects of U.S. bilateral and regional trade agreements)
10. Telecommunications (combined effects of URAs and U.S. bilateral and regional trade agreements)

The case studies seek to present clearly both the main provisions assessed and the outcomes that emerged from the analyses. Examples of outcomes include reducing tariffs, addressing sanitary and phytosanitary restrictions, developing international supply chains in response to rules-of-origin requirements, and implementing trade facilitation measures. Generally, the main economic outcome assessed by each case study is the direct impact of the agreement in question on U.S. exports and imports. However, the case studies also discuss effects on U.S. employment, investment, productivity, profitability, and output.

The Economic Literature

The final section reviews the academic literature that estimates the economic impacts of trade agreements. The literature review first presents background information and key results from the Commission's earlier retrospective studies that look at the historical and current impacts of U.S. trade agreements. It then surveys the current scholarship analyzing trade agreements. The review focuses on works published after 2002 that develop empirical estimates of the impacts of trade agreements.¹⁰ Particular attention is given to results reflecting the impacts of trade agreements on trade flows, GDP and welfare, employment and wages, and other broad economic impacts.

Information Sources

To conduct the analyses described above, the Commission made extensive use of information from a wide variety of sources, many of which are publicly available. The information can be divided into data from statistical databases, information from Commission events, and findings from empirical literature and prior Commission reports.¹¹ The following table shows the sources of much of the data used to conduct the analyses. The report also makes use of some non-public information gathered through Commission staff interviews with industry representatives.

¹⁰ The literature review does not include theoretical research or research conducted by interest groups.

¹¹ USITC, *The Impact of Trade Agreements: Effect*, 2003; USITC, *The Impact of Trade Agreements Implemented*, 2005.

Table 1.1: Data sources used in this report

Data source	Examples
Statistical databases	USITC DataWeb; the World Bank’s World Integrated Trade Solution; information on the U.S. economy from the U.S. Department of Commerce’s Bureau of Economic Analysis; surveys by the U.S. Census Bureau; the World Bank’s World Development Indicators, and the Global Trade and Analysis Project version 9 database.
Commission events	USITC Ninth Annual Services Roundtable (November 5th, 2015); USITC public hearing for this report (November 17, 2015). ^a
Data from academic literature	Baier and Bergstrand Economic Integration Agreements database; Park index on patent protection.

^a A summary of the Roundtable discussion will be included in the forthcoming USITC publication, *Recent Trends in U.S. Services Trade, 2016 Annual Report*, which is scheduled for release in September 2016. See appendix C of this report for a list of participants in the Commission’s November 17, 2015, hearing for this report. See appendix D for summaries of positions of interested parties received for this report.

Organization of the Report

The report contains five chapters in total. Chapter 2 analyzes the evolution of various provisions in U.S. multilateral, bilateral, and regional trade agreements over time, and discusses their effects. Chapter 3 presents the Commission’s quantitative analyses showing ways that the trade agreements have affected the U.S. economy. Chapter 4 presents case studies of impacts from the trade agreements on specific industries. Chapter 5 concludes with a review of the economic literature analyzing the impact of the trade agreements.

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Chapter 2

Provisions of the Trade Agreements

Introduction

This chapter provides an overview of key provisions included in the U.S. multilateral, regional, and bilateral trade agreements (“U.S. trade agreements”) implemented since January 1, 1984.¹² The first part of the chapter focuses on sector-specific provisions, including those pertaining to agriculture, to manufactured goods and natural resources, and to services. The second half of the chapter covers a sampling of cross-sectoral provisions (i.e., measures affecting more than one segment of the economy) and includes separate discussions of U.S. trade agreement provisions on technical barriers to trade (TBT), government procurement, investment, electronic commerce, intellectual property rights (IPR), labor, and the environment.¹³

Each section in this chapter provides information on the treatment of these issues in the Uruguay Round Agreements (URAs) and in U.S. regional and bilateral trade agreements, with additional information appearing in appendix E. This information is largely based on original analysis by the Commission, but in some instances is also based on information from secondary sources. The sections also briefly summarize existing analyses and views about the impact of the subject provisions. These summaries include information from diverse sources, which vary across provisions depending on availability and include academic analyses, interviews with industry representatives, and information provided at the Commission hearing, among others.

In general, this overview reveals that the provisions in U.S. trade agreements have evolved markedly during the last 30 years, frequently becoming broader, stronger, and more transparent over time. For many sectors and cross-sectoral issues, measures included in the URAs have been particularly important, as they have instituted trade disciplines that have established a precedent or baseline for later agreements. Following the Uruguay Round, U.S. bilateral and regional trade agreements have deepened U.S. and partner country obligations on many issues.

¹² Figure 1.1 (chapter 1) lists the U.S. agreements covered in this report. Also see chapter 1 (footnote) for links to full texts of these agreements.

¹³ Several types of general provisions—such as those covering competition, transparency, customs administration and trade facilitation, and dispute settlement, among other issues—are not discussed in a separate section in this chapter. They are discussed throughout the chapter, as appropriate.

Available information suggests that the impact of the provisions found in U.S. trade agreements has been mixed. Some provisions reportedly have had a positive and/or negative impact on the U.S. economy, while other provisions have had a minimal or uncertain impact on the U.S. economy.

Agriculture

During the Uruguay Round, World Trade Organization (WTO) members negotiated two agreements that primarily affect trade in agricultural products: the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), discussed at the end of this section, and the Agreement on Agriculture (URAAG). The URAAG marks the first instance in which agriculture was brought under effective disciplines of the General Agreement on Tariffs and Trade (GATT): while the GATT always applies to agricultural trade, the URAAG made the GATT disciplines more effective by closing loopholes and introducing new disciplines on domestic production and trade policies that distort global trade.¹⁴ U.S. trade agreements have built on the URAAG by including provisions that increase market access between parties, while using existing mechanisms to protect import-sensitive agricultural products.

The Agreement on Agriculture

The URAAG entered into force on January 1, 1995, with the establishment of the WTO. The URAAG sought to make agricultural trade less distorted and more market oriented by introducing disciplines on government intervention in three main areas: market access, domestic support, and export competition.¹⁵ First, regarding market access, the URAAG required countries to convert nontariff measures (NTMs) affecting agricultural goods trade into most-favored-nation (MFN) tariffs that afforded protection equal to or less than the NTM had (a process called tariffication).¹⁶ Maximum (or bound) tariff levels were established for agricultural products. Countries then committed to reduce the average tariff across all agricultural products over the agreement implementation period and to reduce tariffs on individual lines in the global Harmonized Commodity Description and Coding System (HS) by a

¹⁴ In earlier rounds, agriculture had been granted special exemptions from GATT rules (under GATT 1947) and had not been subject to the disciplines applied to industrial and manufactured goods.

¹⁵ Market access, domestic support, and export competition are commonly referred to as the three “pillars” of the URAAG. WTO, “Agriculture: Explanation: Introduction” (accessed October 15, 2015).

¹⁶ These NTMs included import bans, quotas, and other import controls, but not those related to the misapplication of SPS measures. The WTO granted “special treatment” in the form of minimum access commitments for certain products: rice imported by Korea, the Philippines, and Japan, and cheese and sheep meat imported by Israel. As of 2015, Japan and Korea have “tariffied” their quotas on imports of rice. WTO, “Agriculture: Explanation: Market Access” (accessed October 15, 2015).

certain minimum percentage. The required reductions depended on the development status of the participating countries, as shown in table 2.1.

Table 2.1: Agreement on agriculture tariff reduction

Development level	Average overall reduction	Minimum reduction per HS line	Implementation period (end year)
Developed	36%	15%	6 years (2000)
Developing	24%	10%	10 years (2004)

Source: WTO, “Agriculture: Explanation: Market Access” (accessed October 15, 2015).

Note: Least-developed countries were exempt from these reductions.

Countries established tariff-rate quotas (TRQs) for many of the newly “tariffied” products, subject to certain guidelines.¹⁷ The agreement also allowed member countries to establish agricultural special safeguard measures (SSGs) that permit countries to temporarily impose extra duties on agricultural products if there is a surge in the volume of imports (i.e., if imports in any one year exceed a predetermined quantity, known as a volume trigger) or if the import price falls below a certain level (known as a price trigger).¹⁸

Second, the URAAG required WTO member countries to impose disciplines on the level of domestic support. The agreement divided domestic support programs into categories based on their potential to distort global trade, and established guidelines to govern their use (figure 2.1). These categories are commonly called boxes. “Amber box” policies are those viewed as trade distorting, “blue box” policies are trade distorting but contain provisions that limit production to reduce distortion, and “green box” policies are considered minimally trade distorting or non-trade distorting.¹⁹ The URAAG initially focused on decreasing the use of amber box support programs and then capping these programs to reduce trade distortions (see table 2.2).²⁰

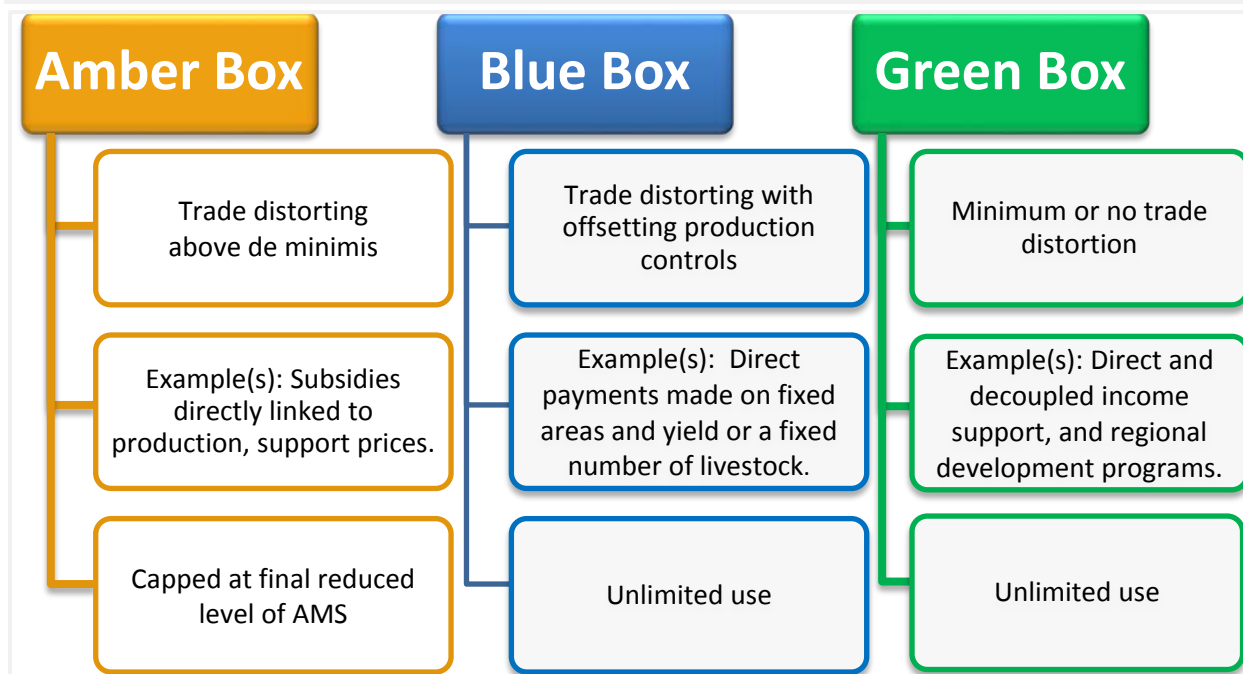
¹⁷ Quota access had to be equal to that of 1986–88, and if access were below 3 percent of domestic consumption, additional access had to be given on a MFN basis to ensure minimum access opportunities. Members had to expand access to 5 percent by 2000 (developed countries) or 2004 (developing countries). WTO, “Agriculture: Explanation: Market Access” (accessed October 15, 2015).

¹⁸ Specific formulas guiding the calculations of a quantity surge or a price drop were laid out in the URAAG. Under the volume trigger, once a surge has been identified, extra tariffs may be levied through the end of the calendar year. Under a price trigger, extra tariffs may also be levied, but only on shipments priced below the reference price. Per the URAAG, agricultural SSG duties can be triggered automatically, and a country does not need to demonstrate serious injury to its domestic industry to do so. WTO, “Agriculture: Explanation: Market Access” (accessed October 15, 2015); WTO, “Market Access: Special Agricultural Safeguards (SSGs)” (accessed October 18, 2015).

¹⁹ For agriculture there is no forbidden or “red” box, unlike in some other sectors. WTO, “Agriculture Negotiations: Background” (accessed November 23, 2015); WTO, *Domestic Support in Agriculture: Boxes*, October 1, 2002.

²⁰ WTO, “Agreements” (accessed November 30, 2015).

Figure 2.1: Categories of domestic support



Source: WTO, *Domestic Support in Agriculture: Boxes*, October 1, 2002.

Note: AMS = aggregate measure of support. The AMS is the total value of amber box support programs. Trade-distorting programs below de minimis levels do not count toward the AMS cap. The WTO defines de minimis as “Minimal amounts of domestic support that are allowed even though they distort trade.” WTO, “Glossary Term: De Minimis,” https://www.wto.org/english/docs_e/legal_e/16-tex_e.htm#annex (accessed April 28, 2016).

Table 2.2: Member country amber box domestic support reduction commitments

Development level	Reduction aggregate measure of support value	Implementation period (end year)
Developed	20%	6 years (2000)
Developing	13%	10 years (2004)

Source: WTO, “Agriculture: Explanation: Domestic Support” (accessed December 1, 2015).

Note: Least-developed countries were exempt from these reductions and have no cap on their aggregate measure of support (AMS). The AMS is the total value of amber box support programs. Trade-distorting programs below de minimis levels do not count toward the AMS cap.

Third, the URAAG prohibited the use of export subsidies for agricultural products unless the subsidies were entered in a country’s list of commitments. It also required WTO members to reduce both the quantity and value of subsidies by fixed percentage amounts over the implementation period of the agreement (see table 2.3).²¹ However, no reductions were required from least-developed countries. Products which did not receive export subsidies during the 1986–88 base period were ineligible for future export subsidies.

²¹ Reductions were based on average levels during 1986–90. WTO, “Agriculture: Fairer Markets for Farmers” (accessed November 30, 2015). The URAAG also sought to prevent circumvention of these rules by having parties agree not to use commercial transitions or other export subsidies as a workaround. The URAAG, Part V, Art. 10, https://www.wto.org/english/docs_e/legal_e/14-ag_02_e.htm#articleX.

Table 2.3: Member country export subsidy reduction commitments

Development level	Reduction in Volume	Reduction in Value	Implementation period (end year)
Developed	21%	36%	6 years (2000)
Developing	14%	24%	10 years (2004)

Source: WTO, "Agreements" (accessed November 30, 2015).

Note: Least-developed countries were exempt from these reductions.

U.S. Bilateral and Regional Trade Agreements

NAFTA entered into force in 1994; however, its market access provisions generally reflected those of URAAG with expanded duty-free access as well as the establishment of TRQs and SSGs.²² Subsequent U.S. trade agreements primarily have sought to expand and accelerate the market access disciplines established under the URAAG. U.S. trade agreements include provisions that eliminate tariffs and global TRQs on almost all tariff lines, while setting up temporary TRQs and SSGs to give particularly sensitive agriculture sectors time to adjust to greater competition from imports.²³ In addition, most U.S. trade agreements eliminate the use of export subsidies on goods traded between partner countries.²⁴

As they do with other goods, U.S. trade agreements eliminate import duties on agricultural products based on a negotiated tariff elimination schedule. In most of these agreements, the majority of agricultural products become duty free as soon as the agreement enters into force.²⁵ However, for some highly sensitive agricultural products, U.S. trade agreements did not completely eliminate all tariffs. For example, the United States excluded sugar from its trade agreement with Australia, and Korea excluded rice from its trade agreement with the United States (KORUS).

TRQs and SSGs are commonly used in U.S. trade agreements to provide added protection to a few participating countries' most sensitive agricultural products (see appendix E, tables E.1 and E.2 for more specific information on TRQs and SSGs in U.S. trade agreements, including those

²² Unlike the URAAG and subsequent bilateral and regional U.S. trade agreements, NAFTA treated safeguards as a type of tariff rate quota. NAFTA also acknowledged that domestic supports and export subsidies were being reformed under the GATT and that there may be subsequent obligations in these areas. NAFTA, Section A, Articles 703–705.

²³ NAFTA also established TRQs and SSGs on sensitive products including, for Mexico, corn, pork products, and apples from the United States. NAFTA, Section A, Article 703, Annex 703.3; Annex 302.2, "Schedule of Mexico," Chapter 10.

²⁴ Since the URAAG went into effect, U.S. trade agreements have not addressed domestic support provisions. Generally domestic support programs affect overall agricultural production and trade, but not specific bilateral trade flows.

²⁵ As measured by tariff lines. For examples, see U.S.-Singapore FTA, Annex 2.B and Annex 2.C; U.S.-Australia FTA, Annex 2-B; U.S.-Oman FTA, Annex 2-B.; U.S.-Colombia TPA, Annex 2.3.

discussed below).²⁶ Most TRQs are temporary, and duty-free access is given after a certain implementation period. However, in many U.S. trade agreements at least one product or product group has a permanent TRQ where the in-quota volume increases annually, normally at a compound rate, over time in perpetuity, but complete duty-free access is never granted.²⁷ The United States' permanent TRQs cover sugar products from nine Latin American partner countries, and dairy products from Australia.²⁸ Additionally, most U.S. trade agreements with sugar-exporting countries include a sugar compensation mechanism that provides a means for the United States to compensate foreign sugar exporters in lieu of granting duty-free access to the U.S. market under a sugar TRQ.²⁹ Latin American trade agreement partners most commonly maintain permanent TRQs on U.S. white corn or potatoes. Other U.S. products subject to permanent TRQs by some partner countries include wheat, wheat products, horticulture items, and dairy products. In most trade agreements, all parties set up SSGs; the United States, however, uses them on fewer products than it does TRQs, while for its trade agreement partners the number of SSGs is close to the number of TRQs.³⁰ The vast majority of agricultural SSGs are temporary and terminate once a product becomes duty free, based on the tariff elimination schedule within an agreement.³¹

Until the mid-2000s, the United States consistently set up TRQs for certain products in trade agreements, regardless of whether the other party to the agreement was an exporter of the

²⁶ This discussion focuses on the trade agreements enacted after the URAAG round reforms (i.e., after NAFTA). Access granted under these trade agreement's TRQs is in addition to any access granted to the world generally through WTO TRQs.

²⁷ While most permanent TRQs increase over time, for some, the in-quota volume stops growing after an initial period of annual increases. See U.S.-Panama TPA, Annex 3.3; U.S.-Morocco FTA, Annex IV. In addition, under CAFTA-DR, a portion of the existing ethyl alcohol TRQ under the U.S. Caribbean Basin Economic Recovery Act (CBERA) was reserved specifically for Costa Rica and El Salvador. These country-specific allocations were to last for the lifetime of the CBERA quota, which expired January 1, 2012. See CAFTA-DR, annex 3; Tax Reform Act of 1986, as amended, Section 423 (P.L. 99-514) 19 U.S.C. 2703(a)(1)(B). <https://www.law.cornell.edu/uscode/text/19/2703>.

²⁸ The nine countries are Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Peru, Panama, and Colombia. The United States has indefinite TRQs on 11 dairy products or product groups, although this trade agreement allows for a review of the dairy access commitments at the request of either party after 20 years. See U.S.-Australia FTA, annex 2-B.

²⁹ The sugar compensation mechanisms lay out notification requirements for such action, basis for payment, and payment period. See, e.g., CAFTA-DR, Art. 3.16.

³⁰ Only four U.S. trade agreements have not established SSGs. See appendix E, tables E.1 and E.2. Parties tend to operate SSGs on the same basis (i.e., they all use either volume triggers or price triggers). NAFTA also established special safeguards before the URAAG established the mechanics of SSGs for WTO members. As a result, NAFTA SSGs operate as tariff-rate quotas, with the out-of-quota duty capped at the lesser of the MFN duty on July 1, 1991, or the prevailing MFN rate. See NAFTA, Chap. 3, Art. 730.

³¹ Morocco has a "permanent" SSG on imports of chicken leg quarters and wings from the United States. Parties are supposed to review this SSG by year 24 of the agreement and, with the approval of both parties, this SSG may be terminated. Lacking a consensus, Morocco may maintain the SSG indefinitely. Similarly, the United States currently has a "permanent" SSG on beef imports from Australia. However, if enacted, the Trans-Pacific Partnership (TPP) Agreement will eliminate this SSG. U.S.-Morocco FTA, Annex 3-A; U.S.-Australia FTA, Annex 3-A; TPP Agreement, Annex 2-D.

product. For example, the United States established temporary TRQs on dairy, sugar, cotton, and peanut imports from Jordan, Singapore, Oman, and Bahrain, even though these countries do not export these products to the United States.³² In trade agreements entering into force after 2006, the United States modified its approach and—in most cases—established TRQs only on products that were both import sensitive and might be competitively supplied by partner countries.³³

U.S. trade agreements typically include a few provisions addressing aspects of agricultural trade other than market access. For example, in line with the URAAG, many U.S. trade agreements include an article in which parties reaffirm their commitment to the general elimination of export subsidies and ban their use between partner countries.³⁴ Since the mid-2000s, many U.S. trade agreements have established committees on agricultural trade that offer a forum to promote cooperation and discuss problems that may arise in administering trade agreements' agricultural provisions.³⁵ In addition, some trade agreements establish mechanisms to consult on specific areas of bilateral concern, such as dairy commitments and trade in chicken.³⁶

The Impacts of Trade Agreements

Overall, trade agreements appear to increase agricultural trade.³⁷ An analysis of regional trade agreements globally found that, on average, they increased bilateral trade in agrifood products by 104 percent over the level that they would have been without the agreements.³⁸ Although the U.S. agriculture sector appears to benefit from trade agreements overall, individual agreements can affect agricultural subsectors differently. For example, a study shows that the reduction of tariff and nontariff barriers under the North American Free Trade Agreement (NAFTA) has positively affected trade in grain products between the United States and Canada but had minimal impacts in trade of oilseeds and oilseed products.³⁹ USDA has found that U.S.

³² USDA, PSD Online (accessed October 22 and 26, 2015). Overall U.S. agricultural imports from these countries combined were about one-tenth of 1 percent of total U.S. agricultural imports during 2012–14. GTIS, Global Trade Atlas database (accessed October 22, 2015).

³³ After 2006, the United States continued to include TRQs and SSGs on dairy product imports in its trade agreements, regardless of whether the trading partner could competitively supply them.

³⁴ This article is in eight U.S. trade agreements covering 13 trading partners.

³⁵ Includes trade agreements enacted in 2004—six U.S. trade agreements covering 12 trading partners. Such committees have generally not been formed with partner countries that are not major agricultural producers or traders.

³⁶ The eight partner countries covered by these agreements have both TRQs and SSGs on U.S. chicken products, primarily chicken leg quarters; these mechanisms last between 16 and 19 years. See CAFTA-DR, Annex 3.3 and Annex 3.15; U.S.-Peru TPA, Annex 2.3 and Annex 2.18; U.S.-Colombia TPA, Annex 2.3 and Annex 2.18.

³⁷ Huchet-Bourdon, Le Mouël, and Vijil, *The Impact of Regional Trade Agreements*, 2013. This study was based on all regional trade agreements (worldwide) in force between 2001 and 2011.

³⁸ The trade flows of “raw” agricultural products expanded 128 percent; of food products, 94 percent. Huchet-Bourdon, Le Mouël, and Vijil, *The Impact of Regional Trade Agreements*, 2013, 10–11.

³⁹ Deng and Nzuma, “Assessing the Effects of NAFTA,” 2005, 15–17.

exports of corn to Mexico, which grew substantially during the NAFTA implementation period, benefited from tariff reductions and TRQ access established by NAFTA as well as additional import licenses issued by the Mexican government in excess of TRQ commitments.⁴⁰ The volume of U.S. exports of corn to Mexico increased from 913,000 metric tons (mt) in 1991–93 to 7.9 million mt in 2011–13, an over seven-fold increase. In 2015, with tariffs, TRQs, and import licenses totally eliminated in this sector, U.S. exports totaled almost 12 million mt.⁴¹ The case studies in chapter 4 suggest that both NAFTA and KORUS have facilitated trade in certain horticulture products and that the U.S.-Colombia agreement led to a substantial increase in U.S. pork exports to Colombia.

Sanitary and Phytosanitary Measures

The Sanitary and Phytosanitary Agreement

The Sanitary and Phytosanitary (SPS) Agreement entered into force on January 1, 1995, along with all other provisions establishing the WTO in the Uruguay Round. The agreement recognizes that governments have the right to adopt measures to protect human, animal, or plant life or health and to set levels of protection that they deem appropriate. However, it applies only to governmental measures that may directly or indirectly affect international trade and does not apply to measures taken by a private company or trade association.⁴²

More broadly, SPS measures are any laws, decrees, regulations, requirements, and procedures that governments apply to protect human, animal, or plant life or health from risks arising from the entry or spread of plant- or animal-borne pests or diseases, or from additives, contaminants, toxins, or disease-causing organisms in foods, beverages, or feedstuffs. For example, the United States and other governments routinely apply measures at the border to protect domestic crops or livestock from imported agricultural products or animals that may introduce a plant pest or animal disease into the country.⁴³ SPS measures include end-product criteria; process and production method requirements; testing, inspection, certification, and approval procedures; quarantine treatments, including requirements bearing on the transport of animals or plants, or on the materials necessary for their survival during transport; provisions

⁴⁰ On January 1, 2008, Mexico removed the TRQ on imports of yellow corn and white corn from the United States and Canada, and the tariff on 1005.90.99 became duty free. NAFTA, Annex 302.2, “Schedule of Mexico,” Chapter 10; USDA, PSD Online (accessed June 14, 2016). For an example of a benefit from tariff reductions and TRQ access see Zahniser et al., NAFTA at 20, February 2015, 23–24. Other studies were either unable to isolate specific effects of NAFTA or did not find that NAFTA had a significant impact on corn exports to Mexico; for example, see Chowdhury, and Allen “Impact of NAFTA on U.S. Corn Trade,” 2005.

⁴¹ GTIS, Global Trade Atlas (accessed June 14, 2016).

⁴² USTR, *2013 Report on Sanitary and Phytosanitary Measures*, 2013, 5.

⁴³ USTR, *2013 Report on Sanitary and Phytosanitary Measures*, 2013, 4.

on relevant statistical methods, sampling procedures, and methods of risk assessment; and packaging and labeling rules directly related to food safety.⁴⁴

The SPS Agreement also includes provisions calling for international harmonization of SPS standards, a notification process for national SPS regulations, and provisions on the scientific basis for measures. One of the primary objectives of the agreement is to offer member countries guidance on the level of protection they may apply against imports with SPS risks. To that end, the WTO established a permanent committee for consultations on SPS measures affecting trade. The committee gives guidance on several types of issues, including science-based measures, risk assessment, unjustifiable discrimination and restrictions on trade, harmonization of SPS measures between members using international standards, and transparency.⁴⁵ In particular, the SPS Agreement has been important in encouraging parties to base their own SPS rules on international SPS standards set by multilateral organizations.⁴⁶

SPS trade disputes under the WTO entail an analysis of scientific evidence and risk assessment. A WTO member country can pass SPS legislation to protect consumers and the food supply, but these laws can be challenged by another WTO member on the grounds that too little scientific evidence supports the need for the trade restriction. The WTO's dispute settlement procedures offer members several ways to pursue SPS trade disputes, including mediation, arbitration, or use of an impartial panel of trade experts that makes recommendations.⁴⁷

U.S. Bilateral and Regional Trade Agreements

Most trade agreements between the United States and its trading partners were signed after the WTO's SPS Agreement took effect and use that agreement's regulatory framework. NAFTA entered into force a year before the WTO was established, but NAFTA's SPS text is similar to the final WTO SPS Agreement because the negotiations for both agreements overlapped in the early 1990s.⁴⁸ All U.S. trade agreements negotiated after the WTO was established reaffirm

⁴⁴ USTR, *2013 Report on Sanitary and Phytosanitary Measures*, 2013, 6.

⁴⁵ For more information on the types of issues on which the committee provides guidance, see USTR, *2013 Report on Sanitary and Phytosanitary Measures*, 2013, 6–8.

⁴⁶ The three recognized standard-setting bodies in the SPS Agreement are (1) the Joint Food and Agricultural Organization of the United Nations (FAO)/ WHO Codex Alimentarius Commission for food safety; (2) the FAO International Plant Protection Convention for plant health; and (3) the World Organization for Animal Health, formerly known as the International Office of Epizootics (OIE), for animal health and zoonoses (animal diseases that can be passed to humans). USTR, *2013 Report on Sanitary and Phytosanitary Measures*, 2013, 7.

⁴⁷ USTR, *2014 Report on Sanitary and Phytosanitary Measures*, 2014, 14–15.

⁴⁸ All the basic elements of the WTO's SPS agreement are present in NAFTA: nondiscrimination between domestic and foreign goods; no disguised restrictions on trade; SPS measures are permitted in order to protect human, animal, and plant life and health; only science-based measures are allowed; and SPS measures must be applied only so far as needed to reach the appropriate level of protection. NAFTA also addressed the use of international standards to set SPS measures and criteria for NAFTA member states to establish equivalence between trading partners. Meilke, *An Appraisal of the SPS Provisions*, 2001, 4, 7–10.

parties' obligations under the SPS Agreement. Except for NAFTA, U.S. bilateral agreements do not provide any channels for dispute settlement except through WTO procedures.⁴⁹

The Impacts of Trade Agreements

An important outcome of U.S. trade agreements is the establishment of standing committees and ad hoc working groups to address bilateral SPS matters. These bodies promote technical cooperation, clarify regulatory frameworks, and review progress in resolving outstanding SPS measures holding up bilateral trade in agricultural goods.⁵⁰ Although the United States formally engages on SPS trade issues with governments with which it has no bilateral trade agreements, the consultation process with non-trade agreement members is less structured. Methods of SPS engagement are numerous, and include official comments to foreign governments through the U.S. Department of Agriculture's Foreign Agriculture Service (FAS) and the State Department; formal and informal meetings by U.S. embassy staff with foreign officials abroad; consultations between foreign regulatory agencies and FAS representatives; meetings between technical experts from both countries to discuss U.S. concerns; and raising issues during regular meetings of the WTO's SPS Committee. However, not only do SPS discussions through bilateral and regional trade agreement working groups formalize processes and resolve issues more quickly, they also encourage the resolution of disagreements before they become formal complaints filed with the WTO Dispute Settlement Body (DSB).⁵¹

Uniquely, NAFTA provides a dispute settlement mechanism to resolve SPS disputes between member states.⁵² Further, NAFTA rules encourage SPS testing at the state or provincial level whenever possible, rather than requiring national approvals. Accepting tests at this level tends to increase agricultural trade because meeting SPS requirements on a regional basis is a more attainable standard. Examples include U.S. imports of avocados from selected growers in the Mexican state of Michoacán; Mexican imports of citrus from Arizona and parts of Texas not regulated for fruit fly; and U.S. recognition of the Mexican state of Sonora as being free of hog cholera.⁵³

In another instance, under the U.S.-Chile agreement, Chile and the United States worked to develop a system of equivalence to replace the quarantine treatment for fruit in place before

⁴⁹ For example, Chapter 6, Article 6.2 of the U.S.-Chile Agreement stipulates that "neither party may have recourse to dispute settlement under this agreement for any matter arising under this Chapter." In other words, SPS trade disputes between trade agreement members are directed to the WTO's Dispute Settlement Body. WTO, "Dispute Settlement" (accessed April 12, 2016). Identical language exists in the SPS chapter (Chapter 8) of KORUS.

⁵⁰ USTR, *2014 Report on Sanitary and Phytosanitary Measures*, 2014, 10.

⁵¹ USDA, APHIS, Trade Support Team, *Special Focus: SPS Issues and Free Trade Agreements*, July 2004, 3, 4, 7.

⁵² NAFTA Secretariat, NAFTA Text, Chapter Seven (Agriculture and Sanitary and Phytosanitary Measures).

⁵³ Zahniser and Link, *Effects of North American Trade Agreement on Agriculture*, 2002.

the trade agreement.⁵⁴ Several Chilean fruit exporters have reported that the trade agreement with the United States—a country with stringent SPS risk analysis procedures—accelerated the authorization of their products to enter the U.S. market.⁵⁵

Manufactured Goods and Natural Resources

Although the provisions covering nontariff measures on nonagricultural goods varies by agreement, U.S. trade agreements negotiated over the past 30 years have reduced both tariff and nontariff barriers on trade in these products.

Under the URAs, signatories—including the United States—agreed to reduce or eliminate duties and to bind tariff rates on a non-preferential basis.⁵⁶ GATT 1994 incorporates GATT 1947 provisions on market access, as well as “national treatment” obligations and “most-favored-nation” (MFN) obligations. National treatment obligations mean that parties must treat foreign and locally made goods equally, while MFN obligations mean that parties cannot discriminate between trade partners, i.e., custom duty rates apply equally across all parties.⁵⁷ Related sectoral agreements, such as the Information Technology Agreement, offer tariff-free access to certain goods among select signatories of the WTO.⁵⁸

The URAs also include the Agreement on Rules of Origin, which aims for transparency, predictability, and consistency in defining and applying rules of origin across all WTO members.⁵⁹ Rules of origin are the criteria used to determine which nation is the source of a product and may be used to decide what duties or restrictions apply in importing a product from abroad.⁶⁰ The URA Agreement on Rules of Origin requires that all WTO members report

⁵⁴ Fulponi and Engler, "The Impact of Regional Trade Agreements," 2013, 18.

⁵⁵ Fulponi and Engler, "The Impact of Regional Trade Agreements," 2013, 29. Like any trade agreement working group, the U.S.-Chile SPS working group does not always resolve the most sensitive trade barriers quickly. For example, for years Chile required pork produced in the United States to be shipped frozen or tested for trichinosis, a significant impediment to U.S. exports of fresh and chilled pork to Chile. Only in 2015 was a certification process put in place to allow for U.S. exports of fresh and chilled pork to Chile. USTR, *2013 Report on Sanitary and Phytosanitary Measures*, 2013, 33–34; USTR, *2014 Report on Sanitary and Phytosanitary Measures*, 2014, 34; USDA, FSIS, "Export Requirements for Chile," March 24, 2016.

⁵⁶ These agreements are in GATT 1994, Annex 1, https://www.wto.org/english/docs_e/legal_e/legal_e.htm; https://www.wto.org/english/docs_e/legal_e/ursum_e.htm#General. "Binding" a tariff rate means setting a ceiling above which it cannot rise; "applied" tariff rates are often substantially lower than bound ones.

⁵⁷ The MFN (nonpreferential) rate offered to all members is known in the United States as the "normal trade relations" (NTR) rate.

⁵⁸ The ITA was concluded after the Uruguay Round and is therefore not technically part of the URAs, as explained in detail in the later section.

⁵⁹ WTO, Agreement on Rules of Origin; USTR, "Rules of Origin," n.d. (accessed May 3rd, 2016).

⁶⁰ CRS, *International Trade: Rules of Origin*, June 24, 2015.

changes to their country's rules of origin to the WTO, and the agreement's provisions are subject to WTO dispute settlement provisions.⁶¹

U.S. bilateral and regional trade agreements generally expand upon the URA non-preferential market access rules. Typically, they offer duty elimination and tariff reduction on a preferential basis (i.e., only to the partner country) that extends beyond the non-preferential rates agreed to in the URAs. Most U.S. trade agreements also contain more stringent rules of origin than the URAs. The U.S.-Canada agreement was the first agreement in which very detailed rules of origin were negotiated, and rules of origin in subsequent agreements have been more or less specific, depending on parties' interests.⁶² Almost all traded products are subject to general rules of origin; for example, most products must meet a "regional content requirement" threshold (see appendix E, box E.1). But most products are subject to product-specific rules of origin as well. Some products subject to specific rules of origin in U.S. trade agreements include automobiles, textiles, and chemicals (as discussed later in this chapter).

U.S. trade agreements also cover general nontariff measures, such as import and export restrictions, import licensing, administrative fees and formalities, and export taxes. The scope and depth of these measures vary across U.S. trade agreements. For example, NAFTA includes only a provision prohibiting export taxes, and the U.S.-Singapore agreement includes only some import and export restrictions, while KORUS covers all four types of measures.

Machinery and Electronics Products

Tariff rates on industrial machinery, appliances, electronics, and medical equipment were bound under the URAs, and the most ambitious tariff reductions on these products have been negotiated under the WTO Information Technology Agreement (ITA).⁶³ U.S. trade agreements generally eliminate additional barriers with partner countries in these sectors. NAFTA is particularly notable for binding significant tariff reductions for key export markets, while the U.S.-Singapore agreement's integrated sourcing initiative and KORUS market provisions on medical equipment are notable for lowering sector-specific nontariff trade barriers.⁶⁴

Uruguay Round Agreements

⁶¹ USITC, "Rules of Origin—Basic Principles," n.d. (accessed May 3, 2016). WTO members can bring disputes to remedy unfair rules of origin of trade partners. So far, seven dispute cases have been brought to the WTO citing the Agreement on Rules of Origin. WTO, "Disputes by Agreement: Rules of Origin," n.d. (accessed May 3, 2016).

⁶² For example, the U.S.-Canada agreement contained 1,498 separate rules of origin in an annex to the trade agreement text. NAFTA rules of origin are far more detailed; Inama, *Rules of Origin in International Trade*, 2009, 276.

⁶³ Covering groups 35 and 36 of the Standard Industrial Classification, or SIC (or parts of HS Chapters 37, 42, 66, 67, 82, and 84 through 97). USITC, *Impact of Trade Agreements*, 2003, 161.

⁶⁴ USITC, *Impact of Trade Agreements*, 2003, 158; texts of the U.S.-Singapore FTA and KORUS.

The URAs included three sectoral agreements on specific technology and machinery products, medical equipment, construction equipment, and agricultural equipment. These agreements eliminated tariff duties imposed by certain participants (the duty free commitments were offered on an MFN basis, benefitting all WTO members).⁶⁵ When the negotiations were concluded in 1994, these sectoral agreements covered about 85 to 90 percent of global exports in their respective sectors.⁶⁶

While technically not part of the URAs, the ITA has been the most ambitious WTO tariff reduction effort for the machinery and electronics product sectors. Under the ITA, countries accounting for about 96 percent of the world's information technology (IT) goods exports eliminated tariff duties on such products (see box 2.1).⁶⁷

Box 2.1: The WTO Information Technology Agreement

The ITA is a WTO plurilateral agreement signed in 1996 by 29 countries to eliminate duties on an agreed list of IT products. Its membership has since increased to 81 countries, accounting for about 96 percent of world's trade in IT products as of 2010. ITA duty-free rates are extended to all WTO members, whether they are part of the agreement or not.^a The ITA agreement established a list of technology products that qualify for duty-free rates. The products are divided into three categories depending on end use.

The first category (Attachment A-1) is a positive list—a list of specific IT products that receive tariff-free treatment. These include 112 products corresponding to 110 HS 1996 subheadings (88 are fully included and 22 are partially covered). Computers, computer peripherals including printers, software on physical media, telecommunications equipment including telephones, semiconductors including integrated circuits and printed circuits, and certain scientific instruments are among the products on this list.

The second category (Attachment A-2) is a positive list of semiconductor manufacturing and testing equipment, including 78 product items corresponding to 45 HS 1996 subheadings. Products include semiconductor wafer processing machines, die attach apparatus, and wire bonders.

The third category (Attachment B) is a positive list of 12 products, without HS subheadings, which are covered under the ITA wherever they are classified. This dual approach with Attachment A addressed the confusion created by inconsistent customs classification practices for some high-tech products. Products include computers, flat panel displays, network equipment, monitors (not high-definition televisions), optical disc storage units, certain printed circuit assemblies, and miscellaneous computer-related products.

In 2010, the following product categories accounted for the vast majority of global exports of IT products:

⁶⁵ The participants include the United States, Canada, the EU, Australia, New Zealand, Switzerland, Norway, and Korea.

⁶⁶ Data from Mann and Liu, 2007; Mann and Liu citing Bora and Liu, 2006; and Hoda, 2002.

⁶⁷ The ITA was not part of the URAs, but for the United States it was negotiated under authority contained in the legislation that implemented the URAs.

- Semiconductors (33 percent of total global IT product exports)
- Electronic parts and accessories (24 percent)
- Computers (22 percent)
- Telecommunication equipment (16 percent)

The ITA established the WTO ITA Committee to oversee the implementation of the agreement and address various issues, including technology convergence (increase of products with multifunctionality) and customs classification divergence.^b In 2015, after years of negotiation, the ITA Committee has recently succeeded in finalizing the ITA expansion agreement, under which 201 more high-technology goods were granted tariff-free status among select participants.^c

^a Countries that have not yet joined the ITA maintain relatively high bound and applied tariffs on IT products (averaging 33 percent and 7 percent, respectively). WTO, *15 Years of the Information Technology Agreement*, 2012.

^b WTO, “Information Technology Agreement,” April 18, 2016, 24–41. For a discussion on the ITA implementation from a customs perspective, see Tasker, “The Information Technology Agreement: Building Global Information Infrastructure,” 2001.

^c WTO, “Information Technology Agreement,” April 18, 2016.

U.S. Bilateral and Regional Trade Agreements

For most of the goods in the machinery and electronics product sectors, U.S. trade agreements eliminated tariff barriers with partners immediately upon implementation or phased out tariffs over a period of time. NAFTA, for example, eliminated Canadian and Mexican tariffs on most products in these sectors. Mexico’s trade-weighted tariffs on U.S. exports of these products fell from 13.6 percent to 2.3 percent between 1991 and 1999, and all tariff barriers were eliminated by 2008.⁶⁸ KORUS eliminates tariff barriers over a period of up to 20 years in a process known as “staging” (see the example of tariff elimination staging below, in table 2.4):

Table 2.4: Tariff elimination schedule of the KORUS FTA: U.S. exports of infrastructure and machinery sectors goods to Korea

Tariff elimination in effect	Trade volume (using 2010 data)		Tariff lines affected (Korea)	
	% of U.S. exports	U.S. exports (million \$)	% of HS tariff lines	Number of HS tariff lines
Immediate (2012)	67	1762.5	79.3	848
2015	17	434.5	15.4	165
2017	3	75.4	1.6	17
2022	13	354.9	3.6	39
Total	100	2,627.3	100	1069

Source: U.S. Commerce Department FTA Tariff Tool, <http://www.export.gov/fta/ftatarifftool/>.

Note: “Infrastructure and machinery” products are a subset of products defined by the U.S. Department of Commerce, encompassing large machinery, hand tools, and energy generation equipment.

⁶⁸ USITC, *Impacts of Trade Agreements*, 2003, 158.

U.S. trade agreements also set specific rules of origin for most goods in this sector. These rules include regional value content requirements in some agreements that are calculated by using build-up, build-down, or net cost methods.⁶⁹

The Australia, Bahrain, CAFTA-DR, Chile, Colombia, Korea, Morocco, Oman, Panama, Peru, and Singapore agreements contain provisions addressing remanufactured goods. These provisions prohibit import bans, limit regulatory barriers, set out rules of origin, and ensure nondiscriminatory treatment for these goods.⁷⁰ Remanufactured goods, which primarily consist of technology and machinery goods accounted for \$11.7 billion (or about 1 percent) of U.S. domestic exports in 2011; 38 percent of these exports were imported by countries with which the United States has a trade agreement.⁷¹

U.S. trade agreements have started to include provisions on specific product groups within the machinery and electronics sector. KORUS, for example, includes a provision specific to medical devices. This provision commits each party to determine government-provided reimbursement amounts for pharmaceutical and medical devices based on “competitive market-derived prices.”⁷² The provision also requires transparency in pricing and reimbursement decisions for medical devices.

The U.S.-Singapore agreement includes an “integrated sourcing initiative” (ISI) that relaxes rule-of-origin requirements for certain information technology and medical products.⁷³ This provision specifies a positive list of 266 goods that receive preferential tariff treatment, regardless of origin, as long as the goods are imported into Singapore before being shipped directly to the United States for importation.⁷⁴ For these goods, the U.S. waives the merchandise processing fee as the importing party.⁷⁵

⁶⁹ Build-up, build-down, and net cost refer to methods used to calculate regional content value percentages. The build-up method uses the “value of original materials,” the build-down method uses the difference between “adjusted value of the good” and “value of non-originating materials,” and the net cost method uses the difference between “net cost of the good” and the “value of non-originating materials. See appendix E, box E.1 for more information.

⁷⁰ See USITC, *Remanufactured Goods*, 2012.

⁷¹ Total U.S. domestic exports in 2011 were about \$1.3 trillion. USITC, *Remanufactured Goods*, 2012, xix–xx.

⁷² KORUS, Chapter 5. Because Korea provides a state-run health insurance system, reimbursements refer to government payments for products provided by domestic healthcare facilities. The reimbursement provision is meant to ensure that reimbursements by government-funded pharmaceutical and medical devices are transparent and based on market-derived prices.

⁷³ Article 3.2 of the U.S.-Singapore FTA states, “Each Party shall provide that a good listed in Annex 3B is an originating good when imported into its territory from the territory of the other Party.” This provision relaxes the burden for exporters in proving origin of goods listed in annex 3-B.

⁷⁴ The implementing legislation is more specific on ISI benefit qualifications compared to the FTA text. For example, products on the ISI list shipped from a non-FTA country and used as input for manufacturing a product not on the

Impacts of Trade Agreements

The National Association of Manufactures (NAM), in its written submission for this investigation, reported that exports of U.S. manufactured goods have increased significantly among trade agreement partners.⁷⁶ NAM contends that trade agreements contributed to the growth, noting that 48 percent of U.S. exports of manufactured goods are imported by trade agreement partners.⁷⁷ NAM states that the overall impact of trade agreements on employment on these sectors is difficult to isolate.⁷⁸

There has been extensive research on the impact of the ITA on trade in technology products. Economic studies have generally concluded that tariff elimination under the ITA has had a strong and positive impact on global technology trade, though none of these studies focus solely on the impact on the U.S. market.⁷⁹ This report estimates that a significant percentage of the growth in U.S. exports of these goods is attributable to the ITA (see economic modeling results in chapter 3).

Transportation Equipment

The URAs deal only minimally with market access for transportation equipment—which includes automobiles, automobile parts, and civilian aircraft, among other products—by addressing some tariff barriers and a limited number of NTMs.⁸⁰ Subsequent U.S. trade agreements address both tariff and nontariff barriers on trade in transportation equipment,

ISI list do not count as an originating material for the purposes of calculating regional value content. See CBP, "Singapore Free Trade Agreement Implementation Information," January 30, 2004.

⁷⁵ Koh and Chang, *The U.S.-Singapore FTA: Highlights and Insights*, 2004, 69. Nanto, "The U.S. Singapore Free Trade Agreement," 2005, 22.

⁷⁶ NAM, written submission to the USITC, November 4, 2015, 7–8.

⁷⁷ NAM, written submission to the USITC, November 4, 2015, 8.

⁷⁸ The UAW cited a study which estimates that the United States lost 700,000 jobs due to NAFTA and subsequent trade deficits with Mexico. On the other hand, the U.S. Chamber of Commerce estimated that by reducing tariffs and trade costs, U.S. trade agreements with 14 partners contributed to 379,300 jobs in the manufacturing sectors in 2008. UAW, written submission to the USITC, February 5, 2016, 2; U.S. Chamber of Commerce, "Opening Markets, Creating Jobs," 2010.

⁷⁹ Mann and Liu finds the ITA has had about a 10 percent positive effect on world trade of covered products; Henn and Gnutzmann-Mkrtyan concludes that tariff elimination, even if the previous existing tariff was already small, had a significantly positive effect on countries that joined the ITA; Joseph and Parayil finds no significant impact for developing countries that have joined the ITA, while Ezell finds positive economic benefits for ITA member developing countries. See Mann and Liu, "The Information Technology Agreement: Sui Generis?" 2007; Henn and Gnutzmann-Mkrtyan, "The Layers of the IT Agreement's Trade Impact," 2015; Joseph and Parayil, "Trade Liberalization and Digital Divide," 2006; Ezell, "The Benefits of ITA Expansion," 2012.

⁸⁰ The URAs cover Chapter 37 of the Standard Industrial Code. Civilian aircraft tariffs were already tariff free due to the Civilian Aircraft Agreement.

and set more detailed rules of market access, including rules of origin. These agreements have had a more significant impact on U.S. production and trade than the URAs.

Uruguay Round Agreements

URA tariff reductions for motor vehicles were largely inconsequential for the U.S. industry, as the United States already faced no tariffs on motor vehicles in its two largest export markets, Canada and Japan.⁸¹ Key nontariff measures—such as those maintained by Japan—were not removed under these agreements. The URAs reduced some developed-country tariffs on motor vehicle parts, including in Japan (where they fell to zero percent) and in Australia, Korea, and Singapore (2 percent).

U.S. Bilateral and Regional Trade Agreements

Beginning with the U.S.-Canada agreement and NAFTA, U.S. trade agreements eliminated all tariff barriers among parties and set detailed market access provisions for the transportation equipment industries. Rules of origin in particular became highly stringent.⁸² For example, NAFTA Annex 300-A contains country-specific rules of origin for the automotive sector, which include an 8-year phase-in period for raising the regional value content requirement for autos and light vehicles from 50 to 62.5 percent.⁸³ To meet this requirement, NAFTA (unlike other U.S. trade agreements) requires producers to “trace” the foreign content of certain components and subassemblies when calculating total regional content using the net-cost method.⁸⁴ These rules are reportedly complex and costly to follow.⁸⁵

Subsequent U.S. trade agreements largely followed the NAFTA model in terms of market access rules for transportation equipment, but moved away from net-cost calculations.⁸⁶ The net-cost method was reduced in scope from 1,355 tariff lines in NAFTA to 54 in the U.S.-Australia agreement and CAFTA-DR, and was not used in the U.S. trade agreements with Chile and Singapore. The Chile, Singapore, CAFTA-DR, and KORUS agreements give parties a choice

⁸¹ The United States already had a trade agreement with Canada, and Japan's MFN rate on motor vehicles was zero.

⁸² NAFTA is discussed in more detail in the case studies in chapter 4.

⁸³ For heavy-duty vehicles, the regional content requirement increases from 50 percent to 60 percent in 8 years; CBP, “Automotive Products,” (accessed May 3, 2016); SICE, “North American Free Trade Agreement,” n.d. (accessed May 3, 2016).

⁸⁴ For example, if the vehicle's engine has 25 percent foreign content (outside of NAFTA), only 75 percent of the engine value can be counted towards the overall regional content requirement. Producers must trace all parts listed in Annex 403.1.

⁸⁵ Inama, *Rules of Origin in International Trade*, 2009, 320–21. There are other NAFTA-specific provisions that deal with accumulation, fungible goods (goods that are interchangeable for commercial uses, with essentially identical properties), and intermediate materials.

⁸⁶ Inama, *Rules of Origin in International Trade*, 2009, 323.

between the build-up and build-down methods, requiring a total of between 35 percent and 45 percent content among trade agreement partners to qualify for tariff-free treatment.⁸⁷

Impacts of Trade Agreements

The URAs had only a marginal effect on the transportation equipment sectors.⁸⁸ A previous Commission study found that overall concessions in these agreements were “largely inconsequential” to the automobile sectors, as most trade with Canada and Japan was already tariff free, and the EU did not make significant tariff reduction commitments.⁸⁹

NAFTA has facilitated the integration of automotive industries in North America. Labor unions have argued that it has contributed to falling production and employment in the U.S. auto industry (see chapter 4 for a detailed discussion).⁹⁰ KORUS, the other U.S. trade agreement with a significant producer of transportation equipment, may also have a significant effect on the transportation equipment sector. However, it is too early to assess the impact of KORUS, as U.S. and Korean tariffs on transport equipment under this agreement will not fully end until 2021.

Textiles and Apparel

For producers of textiles and apparel, the Uruguay Round’s most notable development was the establishment of the Agreement on Textiles and Clothing (ATC), which increased developing countries’ market access to the United States and other advanced economies through the elimination of textile and apparel quotas.⁹¹ Concurrent with the multilateral negotiations, U.S. bilateral and regional trade agreements extended duty- and quota-free access to the U.S. market to certain Western Hemisphere apparel suppliers. These trade agreements established special treatment for the industry, including product-specific rules of origin based on a “yarn-forward” principle. This principle requires that all steps of production, from yarn spinning onward, take place in partner countries in order to qualify for duty-free treatment.

Uruguay Round Agreements

Participants in the Uruguay Round agreed to end the Multifibre Arrangement (MFA). By eliminating the system of quotas, the ATC made textiles and apparel subject to general

⁸⁷ U.S.-Chile FTA, U.S.-Singapore FTA, CAFTA-DR, and KORUS.

⁸⁸ Civilian aircrafts and parts thereof are covered by the plurilateral agreement on civilian aircraft, which zeroed out tariffs among key trading partners. This agreement was negotiated as part of the Tokyo Round and therefore is not discussed in this report.

⁸⁹ USITC, *Impact of Trade Agreements*, 2003, 243.

⁹⁰ USITC, hearing transcript, November 17, 2016, 112 (testimony of Josh Nassar, UAW).

⁹¹ For more information, see USITC, *Textiles and Apparel*, 2004, chapter 1, 8–10.

GATT/WTO rules.⁹² Under the ATC, WTO members agreed to eliminate textile and apparel quotas on imports from other WTO member countries in four stages over a 10-year transition period. The ATC entered into force in 1995 and ended on January 1, 2005.⁹³ Quotas on many sensitive products were eliminated towards the end of the phaseout period.⁹⁴

Besides a schedule for eliminating textile and apparel quotas, the ATC contained provisions that (1) created a Textiles Monitoring Body to oversee the phaseout; (2) permitted transitional safeguards to protect individual countries from import spikes; and (3) provided guidance on transshipment and false labeling as to a product's country of origin.⁹⁵ An annex to the ATC defined which textile and apparel products were subject to the agreement.⁹⁶

The Uruguay Round also lowered MFN duties on certain textile and apparel products.⁹⁷ U.S. trade-weighted average duties on these products declined from 15.5 percent ad valorem in 1994 to 14.6 percent ad valorem in 2004.⁹⁸ However, sensitive products saw much lower cuts, and rates of duty as high as 32 percent remain on imports of manmade fiber knit shirts and certain synthetic fiber baby garments.⁹⁹

⁹² The MFA was an arrangement negotiated under the GATT that governed trade in textiles and apparel from 1974 through 1994. Through bilateral systems of quotas, the MFA restricted developing-country market access to developed-country markets for textiles and apparel. USITC, *The Year in Trade, 47th Report*, 1996, 81; WTO, "A Summary of the Final Act" (accessed December 7, 2015).

⁹³ The ATC removed quotas on a certain percentage of 1990 trade by volume among four product groupings: tops and yarns; fabrics; made-up textile products; and clothing. The phaseout occurred in four stages, in 1995, 1998, 2002, and 2005. The ATC also required that, for products that remained under quota during the phaseout period, the annual quantitative limits increase each year until ultimately phased out completely. WTO, Uruguay Round Agreement: "Agreement on Textiles and Clothing," https://www.wto.org/english/docs_e/legal_e/16-tex_e.htm#annex (accessed February 1, 2016).

⁹⁴ During the first three stages of quota elimination, the United States liberalized 16, 17, and 18 percent of import lines by volume, respectively, leaving the remaining 49 percent of HTS lines for the final elimination in 2005. USDOC, OTEXA, "WTO Agreement on ATC: Integration" (accessed February 1, 2016).

⁹⁵ WTO, Uruguay Round Agreement, "Agreement on Textiles and Clothing," https://www.wto.org/english/docs_e/legal_e/16-tex_e.htm#annex (accessed February 1, 2016).

⁹⁶ The ATC included an annex of textile and apparel products it covered at the HS6. In addition to traditional textile and apparel articles covered in HS Chapters 50–63, the ATC covered some goods in Chapters 30–49 and Chapters 64–96. WTO, Uruguay Round Agreement, "Agreement on Textiles and Clothing," https://www.wto.org/english/docs_e/legal_e/16-tex_e.htm#annex (accessed February 1, 2016).

⁹⁷ WTO, "Annex: Situation of Schedules of Concessions in Goods, United States of America, Goods Schedule Annexed to Marrakesh Protocol," https://www.wto.org/english/tratop_e/schedules_e/usa.zip (accessed October 26, 2015).

⁹⁸ Calculation is based on aggregate dutiable value and calculated duties for items in HTS Chapters 50–63. Data broken down by North American Industry Classification System (NAICS) categories are not available for 1994. USITC DataWeb/USDOC (accessed February 1, 2016).

⁹⁹ U.S. imports under HTS 6105.20.20 (men's and boys' manmade fiber knit shirts), 6106.20.20 (women's and girls' manmade fiber knit blouses), and certain synthetic fiber baby garments (6111.30.20 and 6111.30.30) are subject to 32 percent ad valorem MFN duty rates.

U.S. Bilateral and Regional Trade Agreements

Under all U.S. trade agreements since NAFTA, textiles and apparel are covered under a special section, appendix, or chapter.¹⁰⁰ Though this is historically an import-sensitive industry, U.S. trade agreements remove all tariffs on originating textile and apparel products over the phaseout periods specified in these agreements.¹⁰¹ Textile and apparel chapters typically include industry-specific provisions for customs cooperation, textile-specific safeguards, and, most importantly, product-specific rules of origin (ROOs).

U.S. trade agreements generally follow a yarn-forward system for textiles and apparel ROOs.¹⁰² For yarn, originating goods must meet a fiber-forward rule.¹⁰³ Each agreement contains special flexibilities and exceptions to the ROOs for cases in which certain inputs are not available in the partner countries. While the textiles and apparel provisions included in different trade agreements are all based on a similar template, each agreement contains nuanced rules and varying flexibilities.¹⁰⁴

NAFTA was the United States' first trade agreement with a significant apparel producer—in this case, Mexico. The agreement eliminated duties on originating textile and apparel products over 10 years.¹⁰⁵ Under NAFTA, textile and apparel items must meet yarn-forward ROOs in order to qualify for duty-free treatment; however, several products, such as silk and linen apparel, certain men's dress shirts, certain cotton nightwear, and brassieres, are subject to more flexible "cut and sew" rules.¹⁰⁶ NAFTA provided that the ROOs could be amended through later consultations between the parties when inputs were not available in commercial quantities for

¹⁰⁰ Typically, textile and apparel articles classified in HTS Chapters 50–63 are covered by special rules. However, trade agreement special rules often include additional products classified elsewhere in the HTS, depending on the agreement. Since the U.S.-Australia agreement, the general note for trade agreements specifies that a textile or apparel good refers to goods listed in the ATC Annex. See General Notes of HTS.

¹⁰¹ Typically, the more sensitive the product, the longer the phaseout period.

¹⁰² The yarn-forward rule was the basis for trade preference programs that preceded NAFTA, such as the 807A Program under CBERA or the Mexico Special Regime Program. NCTO, "The 'Yarn Forward Rule' and U.S. Textile Trade Policy," n.d. (accessed February 1, 2016). Specifically, this includes yarn spinning or extrusion. Knitting or weaving yarn to fabric, knitting to shape, or cutting and sewing finished apparel must take place in a trade agreement partner country. Notable exceptions to the yarn-forward ROOs are the U.S.-Israel FTA and the U.S.-Jordan FTA, which have more liberal "cut and sew" ROOs based on value-added calculations requiring only that fabric be cut and assembled to qualify. Jordan is the sixth-largest single-country source of U.S. imports of apparel under trade agreements largely because of this special market access. Jordan did not have a domestic textile industry before the agreement, and much of its apparel employment consists of foreign workers. Williams, "Made in Jordan: Inside the Unexpected Powerhouse," September 15, 2015.

¹⁰³ Fiber forward means that yarn must be spun or extruded in a partner country to qualify for duty-free treatment.

¹⁰⁴ See, for example, AAFA, "Matrix of Yarn Forward Free Trade Agreements," November 2012.

¹⁰⁵ NAFTA, Annexes 401 and 300-B.

¹⁰⁶ NAFTA, Annex 401.

specific products.¹⁰⁷ NAFTA also contains tariff preference levels for certain yarns, fabrics, made-up goods, and apparel that do not meet ROOs. Imports under tariff preference levels (TPLs) are subject to annual limits for duty-free access into the U.S., Canadian, and Mexican markets.¹⁰⁸

CAFTA-DR—another agreement with significant producers of textile and apparel products—includes provisions structured much like NAFTA’s, with a few important changes.¹⁰⁹ Although the United States had previously extended duty-free preferences to CAFTA-DR partner countries under the Caribbean Basin Trade and Partnership Act of 2000 (CBTPA), which also employed yarn-forward ROOs, CAFTA-DR has additional rules covering inputs to qualifying apparel. Specifically, certain apparel components—visible lining fabrics, sewing thread, narrow elastic fabric, and pocketing fabric—must originate in the region for apparel containing them to qualify for duty-free treatment.¹¹⁰ CAFTA-DR also allows cumulation of inputs for originating goods among the member countries as well as for certain inputs from Mexico, subject to a limit.¹¹¹

Similar to NAFTA, several products are subject to more flexible cut-and-sew rules under CAFTA-DR.¹¹² However, unlike NAFTA, CAFTA-DR contained only temporary TPLs for Nicaragua and Costa Rica.¹¹³ CAFTA-DR also offers flexibilities for inputs not commercially available in the region. More importantly, firms in CAFTA-DR countries can request that a specific input be declared in “short supply,” and if this request is granted, duty-free treatment is available to any made-up or apparel item that incorporates these inputs.¹¹⁴ The products determined to be in

¹⁰⁷ OTEXA, “Free Trade Agreements: Summary of the North American” (accessed February 1, 2016); OAS, North American Free Trade Agreement, Annex 300-B: Textile and Apparel Goods, <http://www.sice.oas.org/trade/nafta/anx300b1.asp#An.300-B> (accessed February 1, 2016).

¹⁰⁸ OTEXA, “Free Trade Agreements: Summary of the North American” (accessed February 1, 2016). TPLs grant preferential access for non-originating goods up to a specified quantity. NAFTA granted permanent TPLs for certain non-qualifying apparel, made-up goods, yarn, and fabric, subject to a cap.

¹⁰⁹ CAFTA-DR, Chapter 4 and Annex 4.1.

¹¹⁰ OTEXA, “Free Trade Agreements: Summary of the U.S.-CAFTA-DR” (accessed February 1, 2016).

¹¹¹ Cumulation permits trade agreement partners to share production processes. World Customs Organization, “Accumulation/Cumulation,” n.d. (accessed February 1, 2016); CRS, *The Dominican Republic-Central America-U.S. Free Trade Agreement*, 2012, 4.

¹¹² In addition to the NAFTA cut-and-sew products, CAFTA includes certain suits, jackets, and dresses, for example.

¹¹³ CAFTA-DR included TPLs for Nicaragua and Costa Rica only. Nicaragua had a TPL for certain non-originating cotton and manmade fiber apparel that expired on December 31, 2014. Costa Rica had TPLs for certain tailored wool apparel, expiring 10 years after the entry into force of the agreement, and certain women’s swimwear, expiring December 31, 2008. For more information see USDOC, ITA, OTEXA, “TPLs under Free Trade Agreements,” n.d. (accessed May 17, 2016).

¹¹⁴ Under CAFTA-DR the processes for determining commercial availability became the responsibility of CITA/Dept. of Commerce, which oversees processes and maintains the short supply list. Products can also be removed from the short supply list if one party begins producing an input.

short supply under CAFTA-DR were largely grandfathered into subsequent trade agreements, such as those with Peru or Colombia.

Impacts of Trade Agreements

Elimination of quotas under the Uruguay Round had a much larger economic effect than multilateral duty reductions, as quota constraints were quite significant for China in particular.¹¹⁵ The elimination of quotas benefited U.S. consumers in the form of lower-cost apparel, mostly due to increased imports of lower-cost apparel from China.¹¹⁶ However, rising imports displaced domestic production: in 1995, imports accounted for roughly 53.8 percent of total U.S. consumption of apparel, and by 2014 the share had grown to 97.3 percent.¹¹⁷ Brown, Deardorff, and Stern model the effects of removing the MFA and estimate that it increased aggregate imports into the United States by \$6.5 billion, aggregate exports by \$4.5 billion, and economic welfare by \$8.6 billion.¹¹⁸ Economic analysis of changes in U.S. textile and apparel industry employment that are attributable in part to the ATC are reported in chapter 3 of this report.

NAFTA and CAFTA-DR were particularly significant agreements for the textile industry, due to the importance of downstream apparel industries in those partner countries. The yarn-forward ROOs created demand for U.S. exports of textiles into the partner countries, where they could be transformed into finished apparel (see textiles case study in chapter 4). One paper estimated that for cotton yarns, CAFTA-DR led to U.S. industry gains of \$124 million.¹¹⁹ In 2015, NAFTA and CAFTA-DR were the largest export markets for the U.S. textiles industry, accounting for 74 percent of total U.S. textile exports.¹²⁰

Chemicals and Pharmaceuticals

Numerous provisions in bilateral, regional, and multilateral trade agreements affected the U.S. chemicals and pharmaceuticals industries, including provisions on intellectual property rights, transparency, regulatory coherence, and tariff liberalization. This section primarily focuses on

¹¹⁵ China was not a WTO member when the ATC entered into force. When China joined the WTO in 2000, it was able to "catch up" on the quota phaseouts. USITC, *Economic Effects of Significant U.S. Import Restraints*, 2007, 60.

¹¹⁶ One paper estimated that the elimination of the MFA yielded an annual gain of \$60 to all U.S. households, or roughly \$7 billion. The paper estimates that prices for U.S. imports of previously quota-restrained apparel from China fell by 38 percent in 2005. Harrigan and Barrows, "Testing the Theory of Trade Policy," 2009.

¹¹⁷ American Apparel and Footwear Association (AAFA), *Apparelstats* 2015, 2016, 5.

¹¹⁸ Brown, Deardorff, and Stern, "Computational Analysis of Multilateral Trade Liberalization," 2002, table 1. For more details on this paper, see chapter 5.

¹¹⁹ The \$124 million gains were an average increase over 2006–11, compared to a baseline of trade under Caribbean Basin Initiative preferences. Pan et al., "Welfare Analysis of CAFTA-DR," 2008, 208–12.

¹²⁰ Based on U.S. domestic exports of textiles classified under NAICS 313. USITC DataWeb/USDOC (accessed February 12, 2016).

tariff eliminations achieved under these agreements, as well as the evolution of rules of origin (ROOs) from the U.S.-Israel agreement onward.¹²¹

Uruguay Round Agreements

Three of the URAs enacted in 1995 were specific to the chemical and pharmaceuticals industries: (1) the Agreement on Trade in Pharmaceutical Products (also called the Pharmaceutical Zero-for-Zero Initiative); (2) the Uruguay Round Concessions on Intermediate Chemicals for Dyes; and (3) the Chemicals Tariff Harmonization Agreement (CTHA). All three agreements liberalized tariffs.

The Pharmaceutical Zero-for-Zero Initiative eliminated tariffs on pharmaceuticals for all WTO members in two ways.¹²² The first applied to products classified under most headings in chapter 30 of the Harmonized Tariff Schedule of the United States (HTS), covering dosage forms (tablets) and formulated pharmaceuticals, and under four headings in HTS chapter 29, covering certain bulk pharmaceuticals. The column 1 general rates of duty on these products were immediately reduced to zero upon implementation on January 1, 1995.¹²³ Second, items identified via the Pharmaceutical Appendix in the HTS are eligible for duty-free entry if classified in an 8-digit HTS subheading with a “K” in the special-rate-of-duty column. Initially covering about 7,000 pharmaceutical products, their derivatives, and certain chemical intermediates for pharmaceuticals, the Pharmaceutical Appendix has been updated four times since entering into force (most recently in 2010), expanding coverage to more than 10,000 products.

The second agreement was the Uruguay Round Concessions on Intermediate Chemicals for Dyes, implemented on January 1, 1995. This agreement eliminated tariffs for all WTO members on dye intermediates (i.e., inputs for dyes) that are specified in the “Intermediate Chemicals for

¹²¹ The first substantial tariff eliminations/reductions in the chemicals and pharmaceuticals sectors occurred with the U.S.-Israel FTA and the U.S.-Canada Free Trade Agreement (CUSFTA).

¹²² The Pharmaceutical Zero-for-Zero Initiative was negotiated pursuant to authority contained in legislation that implemented the Uruguay Round Agreements. “Zero-for-Zero” is generally defined as reciprocal tariff elimination on a sectoral basis. USTR, “Pharmaceuticals,” n.d. (accessed April 29, 2016); USDOC, ITA, “Sectoral Tariff Initiatives,” August 2015.

¹²³ This applies to all countries eligible for column 1 rates of duty. Briefly and with some exceptions, the HTS states that the rates of duty in column 1 are rates which are applicable to all products other than those of Cuba and North Korea. Column 1 is divided into two subcolumns, “General” and “Special.” The “General” subcolumn sets forth the general or normal trade relations rates, with exceptions as noted in the “Special” subcolumn. More information about the “Special” subcolumn is available in the general notes section of the HTS. USITC, Harmonized Tariff Schedule of the United States, 2016, General Note 3, “Rate of Duty Column 1,” 3–6. The four HTS subheadings in Chapter 29 are 2936 (provitamins and vitamins), 2937 (hormones), 2939 (alkaloids), and 2941 (antibiotics).

Dyes Appendix” and that enter under HTS subheadings with an “L” in the special-rate-of-duty column.¹²⁴

Finally, the CTHA reduced many of the higher column 1 rates of duty on chemicals in HTS chapters 28–39 to 5.5 percent or 6.5 percent. Those rates that were already 0–5.5 percent were to remain unchanged, but further reductions in this category were to be considered again in the future.¹²⁵

U.S. Bilateral and Regional Trade Agreements

The momentum of tariff eliminations and reductions achieved under the U.S.-Israel agreement and the U.S.-Canada agreement was continued in the Uruguay Round and later agreements. Before the implementation of the U.S.-Colombia, KORUS, and U.S.-Panama agreements, one source estimated that the three would together eliminate duties by as much as \$500 million annually on U.S. exports of chemicals, with KORUS accounting for about 60 percent of the foregone duties under these three agreements.¹²⁶

ROOs are of particular importance to the chemical industry and have evolved over the years. The U.S.-Canada agreement was the first U.S. trade agreement to include sector-specific rules of origin.¹²⁷ While ROOs in early trade agreements focused largely on tariff shifts and regional value content requirements, newer agreements such as KORUS contained process criteria, such as a chemical reaction rule, to confer origin.¹²⁸ The chemical reaction rule is considered a useful alternative to tariff shifts, since many chemicals can be transformed into new ones via chemical reactions without undergoing a subheading-level change in their tariff classification.

¹²⁴ Dyes are used in applications ranging from textiles to publishing.

¹²⁵ USITC, *Potential Impact on the U.S. Economy and Industries*, 1994.

¹²⁶ SOCMA, “American Chemical Manufacturing and Free Trade Agreements,” 2011.

¹²⁷ USITC, hearing transcript, January 14, 2016 (testimony of Nicole Bivens Collinson); U.S. industry representative, telephone interview by USITC staff, December 2, 2015. The ROOs of the U.S.-Israel FTA are considered to have been similar to those effective under the provisions of the Generalized System of Preferences program.

¹²⁸ A tariff shift rule requires that “the foreign input must have a different heading or subheading than the exported product” for the finished product to be considered originating; USDOC, ITA, “North American Free Trade Agreement: Rules of Origin,” 2014. The chemical reaction rule requires the foreign input to undergo a chemical or biochemical process that creates “a molecule with a new structure by breaking intramolecular bonds and by forming new intramolecular bonds, or by altering the spatial arrangement of atoms in a molecule”; USITC, *Harmonized Tariff Schedule of the United States*, 2016, General Notes, “Singapore,” 220, iv. The chemical reaction rule was first included in the U.S.-Chile and U.S.-Singapore FTAs. Although NAFTA did not originally include chemical process rules, negotiations in 2011–12 updated the NAFTA ROOs to add them. The changes, however, have not yet entered into force.

Impacts of Trade Agreements

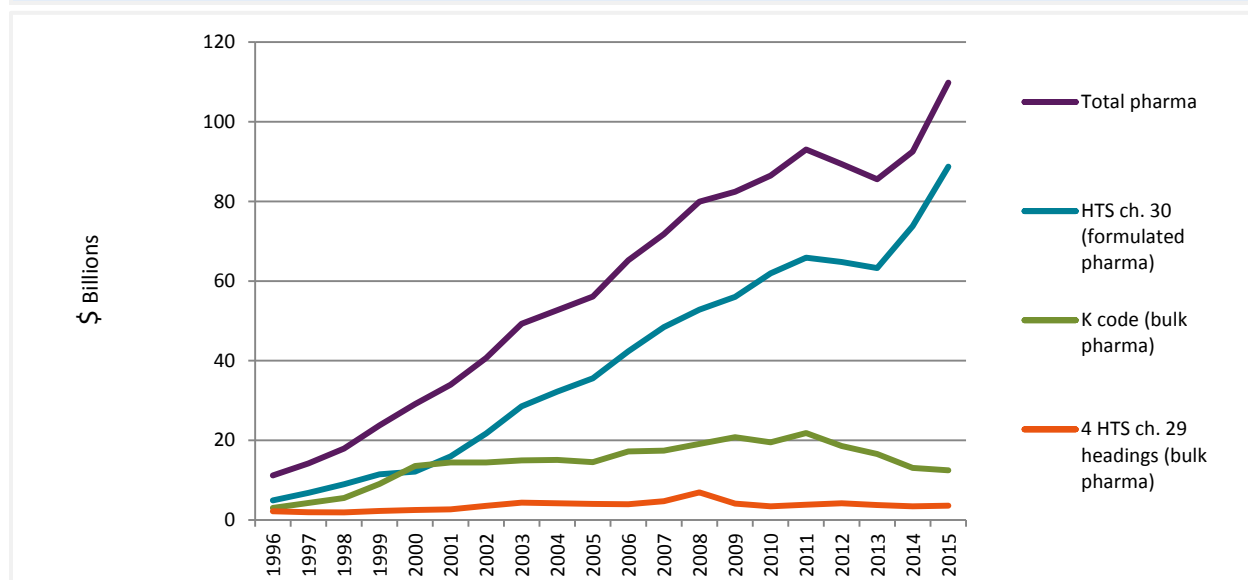
The Pharmaceutical Zero-for-Zero Initiative, the Dyes Intermediates Agreement, and the CTHA are considered to have had mixed results on U.S. chemical imports (data on U.S. exports under these agreements are unavailable).¹²⁹ The Pharmaceutical Zero-for-Zero Initiative, in conjunction with other factors, was a major driver in the growth of U.S. pharmaceutical imports from \$8.6 billion in 1996 to almost \$110 billion in 2015.¹³⁰ Of the three avenues of duty-free entry under the initiative, formulated pharmaceuticals entering under Chapter 30 accounted for much of the increase during the period (figure 2.2).¹³¹

¹²⁹ U.S. export data are not collected for the Pharmaceutical Zero-for-Zero Initiative, the Dyes Intermediates Agreement, or the CTHA, so the quantitative discussions of these agreements in this section address only imports.

¹³⁰ Other reasons for the increase include market access considerations (which vary but could, for example, move firms to set up a physical presence in a country/region) and efforts by the U.S. industry to centralize production capacity in key sites to optimize operating efficiencies and costs. These factors generate substantial amounts of intra-firm transfers between multinational corporations' worldwide operations. USITC DataWeb/USDOC (for commodity group [CH019](#); accessed October 20–23, 2015). One article states, “The United States relies on imports to meet the demand for prescription drugs. By volume, 40 percent of the finished pharmaceuticals consumed in the United States are imported; this figure is close to 80 percent for active and bulk pharmaceutical ingredients in these finished drugs.” BLS, “The Pharmaceutical Industry: An Overview,” 2011.

¹³¹ The continuing shift to duty-free imports of formulated products under Chapter 30 saved companies about \$35 billion in duties over the time period. The duty savings were calculated using the average rate of duty in effect for Chapter 30 in 1994, the year before the implementation of the Pharmaceutical Agreement. In comparison, imports classified under the other two duty-free routes—the four specified HTS headings in Chapter 29 and the “K” code—generally increased through 2011 (albeit at a slower rate than the Chapter 30 imports), then declined during 2012–15. Multiple factors likely contributed to the decline in “K” code imports beginning in 2012. One important factor is the high number of U.S. patents that have expired since 2010. Another is that because the appendix has not been updated with new products since 2010, there are growing U.S. imports of formulated product under Chapter 30, as well as increased use of Foreign Trade Zones (FTZs). Industry representative, telephone interview by USITC staff, October 22, 2015; U.S. Foreign-Trade Zones Board, *Annual Report of the Foreign-Trade Zones Board to the Congress of the United States*, 2012–14.

Figure 2.2: U.S. pharmaceutical imports: Total imports and three import subcategories entered under the Pharmaceutical Zero-for-Zero Initiative, 1996–2015 (billion dollars)



Source: USITC DataWeb/USDOC (accessed October 23, 2015, and February 12, 2016). Corresponds to appendix table I.3.

Note: The products included in this figure are annual U.S. pharmaceutical imports during 1996–2015, including those covered by the Pharmaceutical Zero-for Zero Initiative. Imports covered by the initiative encompass dosage/formulated products in HTS chapter 30; bulk pharmaceuticals imported under the “K code” (i.e., products entering duty free that are both listed in the Pharmaceutical Appendix and classified in an 8-digit HTS subheading with a “K” in the special-rate-of-duty column); and bulk active ingredients of HTS headings 2936 (provitamins and vitamins), 2937 (hormones), 2939 (alkaloids), and 2941 (antibiotics).

U.S. imports of dyes intermediates (classified under the “L” code) peaked at about \$135 million in 1997 before declining irregularly to \$66.5 million in 2015. Three reasons have been cited for the decrease: (1) the Dyes Intermediates Appendix has not been updated since the agreement’s implementation and newer products are not subject to duty-free treatment, reportedly making them less cost-competitive with other products; (2) the U.S. colorant industry moved offshore, following the contraction of the U.S. textile industry, reducing the need for U.S. imports of the necessary intermediates; and (3) the prices of product from two major U.S. import sources, China and India, are said to have been rising recently, in part because of the need to comply with increasing environmental controls.¹³²

¹³² U.S. industry representative, telephone interview with USITC staff, December 2, 2015; IHS Inc., “*Chemical Economics Handbook: ‘Dyes,’*” December 2014. The industry representative notes that similar evolutionary changes have occurred in printing as publications have transitioned from hard copies to electronic formats.

The CTHA is seen as having partly contributed to the shift of chemical production from the United States to other countries (including those with lower labor costs). However, it is also viewed as having boosted the competitiveness of the U.S. industry by reducing input costs.¹³³

The changes to ROOs are considered to have benefited both U.S. imports and exports. In the Commission hearing, the Society of Chemical Manufacturers and Affiliates (SOCMA) stated that the U.S. industry supports the additional process criteria, especially the chemical reaction rule. SOCMA characterized the KORUS ROOs provisions as being “the gold standard,” noting the advantages of a mix of tariff shift and chemical process rules. SOCMA asserted that the KORUS ROOs “are simple and transparent. They allow for flexibility as this agreement contains both tariff shift and chemical process rules which are sensible for our industry.”¹³⁴

Natural Resources

The natural resources category broadly covers minerals, metals, wood, and their downstream products, such as glass, ceramics, steel, paper products, and furniture. For the most part, these goods have been affected less by the U.S. trade agreements examined in this report than by other factors. However, certain provisions of these agreements have had substantial impacts, including zero-for-zero tariff reductions for steel, the removal of all duties for various wood products under the Uruguay Round, and a handful of staged tariff reductions for certain products in bilateral and regional agreements.

Uruguay Round Agreements

U.S. imports of natural resources have been subject to low or zero average tariff rates for decades, and these tariffs were cut further in 1995 under the URAs.¹³⁵ For example, petroleum products already had applied tariff rates averaging less than 1 percent ad valorem before the Uruguay Round. Under the Uruguay Round, “zero-for-zero” tariff reductions were negotiated between the United States and other key WTO members for steel products, pulp and paper

¹³³ Cefic, “Free Trade Is Beneficial for All,” n.d. (accessed December 4, 2015); USTR, “Chemicals,” n.d. (accessed December 4, 2015); Sloan, “Regulations, Mergers and Acquisitions, Offshoring Impact Chemical Industry,” September 30, 2014.

¹³⁴ USITC, hearing transcript, November 17, 2015, 135 (testimony of Jim DeLisi, Fanwood Chemical, on behalf of SOCMA.)

¹³⁵ Bound tariff rates for natural resources had already been progressively reduced during the previous rounds of the GATT, culminating in the Uruguay Round. WTO, “Natural Resources, International Cooperation and Trade Regulation,” 2010, 165.

products, and hardwood furniture.¹³⁶ Additionally, about one-fifth of natural resources tariff lines were bound at a duty rate of “free” under the URAs.¹³⁷ Beyond these tariff reductions, the URAs did not include any provisions specific to natural resources.¹³⁸

NAM asserts that one aspect of the Uruguay Round Agreements that had a lasting impact on the U.S. steel industry was the “application of the WTO dispute settlement system to U.S. antidumping and countervailing duty determinations.”¹³⁹ Although antidumping and countervailing duty determinations were subject to dispute settlement under GATT 1947, the WTO Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU) makes adopted rulings and recommendations from a dispute binding.¹⁴⁰ The domestic steel industry contends that WTO dispute settlement decisions have adversely affected certain U.S. antidumping and countervailing duty measures, namely “zeroing” and “cross-cumulation,” which benefited the domestic steel industry.¹⁴¹ The U.S. Department of Commerce subsequently changed its policy of using zeroing for U.S. trade cases.¹⁴²

U.S. Bilateral and Regional Trade Agreements

U.S. tariffs on natural resources products are low on average, and nearly two-thirds of tariff lines for these products currently have an MFN duty rate of “free.” U.S. tariffs on qualifying products that were dutiable were either eliminated when the U.S. trade agreement entered into force or were phased out over a transition or “staging” period, particularly if they were considered to be import-sensitive products. For example, glazed and unglazed ceramic tiles,

¹³⁶ USDOC, ITA, “Sectoral Tariff Initiatives,” August 25, 2015; USITC, *The Impact of Trade Agreements*, 2003, 220, 222. For more information regarding steel and the zero-for-zero negotiation, see chapter 4 of this report. Pulp and paper tariffs were completely removed by 2004, and tariffs on hardwood furniture were removed by the early 2000s. Barbier, “Trade in Timber-Based Forest Products” (accessed November 18, 2015); FAO, “Uruguay Round Agreement in the Asia Pacific,” April 1997.

¹³⁷ Almost all lines in the HTS were bound during the Uruguay Round. However, the two U.S. crude petroleum subheadings, HTS 2709.00.10 and 2709.00.20, were not bound and remain unbound today. Although this means that the United States could raise the tariff rates on these two line items at any time, the current import tariffs applied to MFN countries on these imports are extremely low at 5.25 and 10.5 cents/barrel. WTO, Tariff Download Facility (accessed January 11, 2016).

¹³⁸ GATT 1947 includes some exceptions for natural resources, such as article XX(g), which shields national measures “relating to the conservation of exhaustible natural resources.” These exceptions are also included in later trade agreements. General Agreement on Tariffs and Trade, art. XX, https://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm#articleXX.

¹³⁹ NAM, written submission to the USITC, November 17, 2015, 2.

¹⁴⁰ WTO, “Historic Development of the WTO” (accessed February 25, 2016).

¹⁴¹ See, e.g., American Iron and Steel Institute (AISI), “Steel Industry Group Criticizes WTO Decision,” 2014. For the definition of “zeroing,” see USITC, *The Year in Trade 2013*, 2014, 91, note. “Cross-cumulation” refers to the aggregation of the volume and effect of dumped and subsidized imports from all countries subject to simultaneous antidumping and countervailing duty investigations for purposes of assessing material injury. Government of the United States, “Other Appellant Submission of the United States in United States—Countervailing Duty Measures on Certain Hot-Rolled Carbon Steel Flat Products from India (AB-2014-7/DS436),” August 13, 2014, para. 93.

¹⁴² USITC, *The Year in Trade 2013*, 2014, 91, note.

porcelain tableware, ceramic tableware, and certain glass products have benefited from extended tariff staging in certain U.S. trade agreements.¹⁴³ The majority of the remaining duties in this sector have generally been negotiated to become duty free as soon as a given agreement entered into force (if they were not already MFN duty free), particularly under U.S. trade agreements with developing-country partners.¹⁴⁴

Other provisions specific to natural resources have been limited. The United States has included an exemption in all of its trade agreements (with the exception of the U.S.-Israel and U.S.-Jordan agreements) restricting U.S. exports of all species of logs.¹⁴⁵ Only two other U.S. agreements contain additional nontariff provisions that specifically apply to natural resource products: the U.S.-Chile agreement contains nontariff provisions for two additional products (copper and chinaware), and the U.S.-Peru agreement contains an annex on forest sector governance.¹⁴⁶

Impacts of Trade Agreements

Literature regarding the impact of U.S. trade agreements on natural resources industries is limited. U.S. advisory committee memos, issued as the agreement texts were being finalized, reflected certain U.S. industries' concerns about the potential effects of the agreements on natural resource sectors. Of note, the U.S.-Australia memo, issued in 2004 by ISAC 11 (the U.S. industry advisory committee for nonferrous metals and industrial minerals), expressed concern that tariffs below 5 percent had been characterized as "nuisance tariffs," arguing that even tariffs as low as 1 percent could impact the industry.¹⁴⁷ Other ISAC 11 memos noted the

¹⁴³ In fact, certain low-value glassware items retained their pre-URA MFN tariff rates of 20–30 percent. Stewart and Stewart, "Japan's Participation in the Proposed Trans-Pacific Partnership," June 7, 2013, attachment 1, 5.

¹⁴⁴ The CAFTA-DR, U.S.-Colombia, U.S.-Panama, and U.S.-Peru trade agreements all eliminated U.S. tariffs on imports of natural resources immediately.

¹⁴⁵ The URAs also do not include an exemption specifically allowing the United States to restrict log exports. Instead, this type of restriction is usually justified under the GATT 1947 Article XX (General Exception) provision regarding the conservation of exhaustible natural resources.

¹⁴⁶ Duty-free U.S. imports of copper from Chile were limited to 55,000 metric tons during the first year of implementation. U.S. duty-free imports of chinaware from Chile were staged for 10 years, giving duty-free entry to 10,000 dozens of units in the first year and increasing the number by 1,250 dozens of units in each successive year. U.S.-Chile FTA, Annex 3.3., U.S. Notes 15–16. For a further discussion of copper and U.S. agreements, see chapter 4 of this report. The Peru agreement's annex on forest sector governance covered illegal logging and illegal trade in wildlife; U.S.-Peru TPA, annex 18.3.4.

¹⁴⁷ ISAC 11, *Advisory Committee Report to the President*, March 2004, 4.

potential negative impact of duty-free copper imports into the United States from Chile, and of import-injury trade remedy practices related to steel imports under KORUS.¹⁴⁸

In a written submission to the Commission, a U.S. steel industry representative stated that U.S. trade agreements have had mixed impacts and that the long-term effects of the WTO dispute settlement decisions are still to be determined. The representative said that the industry has experienced favorable effects from NAFTA but negative effects from KORUS (for more discussion of the steel industry, see the case study in chapter 4).¹⁴⁹

U.S. exports of natural resources were also relatively unaffected by various trade agreements, including the URAs, according to previous Commission reports. The largest trading partners for most natural resources products before the Uruguay Round were Canada and Mexico, which already had reduced tariffs under NAFTA.¹⁵⁰ For these reasons, post-NAFTA U.S. bilateral and regional trade agreements have had only minimal effects on trade in natural resources.

Services

Services trade provisions in U.S. trade agreements have become substantially more complex, comprehensive, and transparent since their first appearance in the U.S.-Israel agreement. The U.S.-Israel text on trade in services consists of only two sentences, including a single provision obligating parties to “develop means for cooperation on trade in services pursuant to the provisions of a Declaration to be made by the Parties” (U.S.-Israel FTA, article 16). By contrast, services provisions in more recent agreements span several chapters. Among other things, they obligate signatories to open their markets to services suppliers of the other parties, except as specified in members’ lists of nonconforming measures (NCMs). The General Agreement on Trade in Services (GATS)—completed as part of the Uruguay Round—was pivotal, as it set up multilateral disciplines on services trade and called upon individual members to schedule horizontal and sector-specific commitments that serve as a baseline for further liberalization efforts.

¹⁴⁸ The ISAC 11 recommended staging the removal of the U.S. 1 percent duty on Chilean copper imports over a four-year period because of concerns about weakening U.S. production and the strength of the Chilean industry. In the end, a compromise limit of 55,000 metric tons of duty-free copper cathode imports into the United States for a single year was negotiated, with any imports above that limit subject to the 1 percent duty. ISAC 11, *Advisory Committee Report to the President*, February 2003, 4. Although KORUS did not change antidumping/countervailing duty (AD/CVD) statutes or law, the agreement did apply changes to the AD/CVD process that concerned industry. Changes highlighted by ITAC 12 included modifications of the pre-initiation notification requirements, the inclusion of undertakings (which might encourage the use of suspension agreements and the involvement of national governments), and the establishment of a bilateral Committee on Trade Remedies (which was unprecedented). ITAC 12, *Advisory Committee Report to the President*, April 27, 2007, 3–4.

¹⁴⁹ Bell, written submission to the USITC, November 17, 2015, 3–4.

¹⁵⁰ USITC, *The Impact of Trade Agreements*, 2003, 220, 257, 271; USITC, *Potential Impact on the U.S. Economy and Industries*, 1994.

The trade agreements completed before 2004—including the GATS—differ most notably in two areas: whether the agreements include national treatment and market access commitments, and whether commitments are scheduled on a positive list or negative list basis. National treatment commitments obligate parties to treat other parties’ service suppliers in the same way as domestic service suppliers, while market access commitments obligate parties to allow other parties’ services suppliers to enter their markets through various modes of supply. In positive list agreements, provisions apply only to services that are specifically identified by each party. In contrast, the scope of negative list agreements is limited only by those measures specifically identified in parties’ lists of NCMs, and as such, these agreements are generally considered more comprehensive and transparent than positive list agreements.

Services provisions in the trade agreements established in 2004 and later are largely similar. The most notable distinction among these agreements is the presence or absence of provisions on the temporary entry of business persons.

Uruguay Round Agreements

The General Agreement on Trade in Services (GATS)—a Uruguay Round agreement whose parties presently include all 162 members of the World Trade Organization (WTO)—was the first multilateral agreement on services trade.¹⁵¹ The agreement is comprised of several parts: general provisions, sector-specific annexes, and country-specific commitments and MFN exemptions.¹⁵²

The GATS’ general provisions apply to all services, with the exception of those provided under government authority. They include, among other measures, transparency obligations; an obligation to facilitate greater participation by developing countries; conditions for the establishment of trade and labor market agreements outside of the GATS; an obligation on the objective and reasonable application of domestic regulations; and provisions on monopolies, the recognition of certifications and licenses, and payments and transfers. One of the GATS’ more notable general provisions is the MFN treatment obligation, requiring members to extend nondiscriminatory treatment to services and suppliers from other member countries.¹⁵³

The GATS includes sector-specific annexes on air transport, financial services, and telecommunications that address various issues unique to these sectors.¹⁵⁴ Additionally, the

¹⁵¹ WTO, “General Agreement on Trade in Services: An Introduction,” January 31, 2013, 1; WTO, “Services: Rules for Growth and Investment” (accessed February 3, 2016); WTO, “Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations,” 7, https://www.wto.org/english/docs_e/legal_e/03-fa_e.htm.

¹⁵² WTO, “Services: Rules for Growth and Investment” (accessed February 3, 2016).

¹⁵³ Ibid.

¹⁵⁴ Ibid.

agreement includes an annex on the provision of services through the movement of natural persons. This annex specifically excludes measures pertaining to permanent residency or citizenship and does not prohibit members from regulating the entry and temporary stay of natural persons in their territories.

Individual members' schedules of commitments and MFN exemptions are also an integral part of the GATS agreement. Members' schedules include horizontal commitments—which apply to all sectors in which the country has made specific commitments—as well as sector-specific commitments on market access and national treatment. Market access commitments specify countries' restrictions, if any, on the entry of foreign service suppliers into their markets, while national treatment commitments indicate the extent to which foreign services suppliers receive the same treatment as domestic suppliers in certain countries. The GATS is a positive list agreement, and as such, it does not bind members to open services industries in which they have not undertaken specific commitments.

Individual countries' lists of MFN exemptions specify preferences that WTO members grant to service suppliers from certain other countries, thus deviating from the MFN non-discriminatory treatment principle. These exemptions are meant to be temporary, and a country cannot add any new exemptions beyond its initial list.¹⁵⁵

U.S. Bilateral and Regional Trade Agreements

Beginning with the U.S.-Canada agreement (1989), every U.S. trade agreement has included provisions requiring signatories to maintain some level of openness towards other parties' service suppliers. Services provisions in the agreements enacted before 2004 vary widely in their structure, approach, and coverage. Both U.S.-Canada and NAFTA services provisions include national treatment obligations. However, while the U.S.-Canada agreement is a “positive list” agreement with respect to services, the NAFTA is a “negative list” agreement, as the scope of its services provisions is limited only by the measures included in its list of NCMs. The U.S.-Jordan agreement's general provisions on services are more comprehensive than those of earlier agreements in that they include both national treatment and market access obligations; however, as a positive list agreement it limits coverage to the services listed in GATS-like schedules of commitments. All three agreements include provisions on financial services, telecommunications, and the temporary entry of businesspersons, either in the main text or in an annex to the agreement.

U.S. trade agreements established in 2004 or later, beginning with the U.S.-Chile agreement, address services trade in much the same way. All of these agreements contain chapters on

¹⁵⁵ WTO, “Services: Rules for Growth and Investment” (accessed February 3, 2016).

cross-border services trade which include market access, national treatment, and MFN obligations; provisions barring parties from requiring service providers to establish a commercial presence in their territory; and an obligation requiring regulatory transparency, among several other measures. The provision of services through a commercial presence is covered under these agreements' investment chapters, which are discussed in a subsequent section of this report.

These agreements also include separate chapters on financial services and telecommunications that address measures unique to the provision of these particular services. For example, measures on new financial services and the treatment of financial information are included in the agreements' chapters on financial services, while provisions on access and use and universal services can be found in chapters on telecommunications.

From the U.S.-Chile agreement (2004) onward, all U.S. trade agreements are "negative list" agreements, obligating member countries to completely open their markets to other parties' service suppliers except as specified in their schedules of NCMs. These NCMs cover measures that deviate from obligations under the agreements' cross-border services and investment provisions, and as such, determine the scope of members' services commitments under these agreements. As an example, one of Australia's NCMs limits foreign ownership in Telstra, the country's largest supplier of telecommunication services, and thus circumscribes that country's market access commitments on telecommunications services (U.S.-Australia FTA, Annex 1, 14).¹⁵⁶ NCMs generally appear in Annexes I, II, and III of these agreements: the first of these annexes lists existing measures that do not conform to a party's obligations under the agreement, the second specifies activities and sectors that a party could subject to new or more stringent limitations in the future, and the third lists NCMs relating to financial services.¹⁵⁷

Although the NCMs listed by the United States in these annexes change little from agreement to agreement, some significant differences exist. For instance, the United States included an Annex II cross-border services/investment NCM on cable television in only five of its trade agreements.¹⁵⁸ Another notable difference is the absence of certain Annex I NCMs from the

¹⁵⁶ Telstra accounts for approximately 62 percent of Australia's telecommunications market. While Telstra was once a wholly state-owned enterprise, the government gradually privatized the firm beginning in November 1997, and had divested all but 17 percent of its holdings by February 2007. Telstra webpage, "Our Company," <https://www.telstra.com.au/aboutus/our-company> (accessed April 11, 2016); Telstra, "The Telstra Story," <http://www.telstra.com.au/abouttelstra/company-overview/history/telstra-story/> (accessed April 11, 2016); Lancaster and Harpur, "Australia—Telco Company Profiles—Telstra, Optus and Vodafone," December 2015 (accessed April 11, 2016).

¹⁵⁷ E.g., U.S.-Chile FTA. In the U.S.-Singapore agreement, these NCMs appear in Annexes 8A, 8B, and 10B, respectively.

¹⁵⁸ Specifically, this NCM appears in the U.S.-Singapore, U.S.-Australia, CAFTA-DR, U.S.-Oman, and U.S.-Panama agreements.

U.S.-Bahrain agreement, including those on atomic energy; mining; the Overseas Private Investment Corporation; the Securities Act of 1933 and Securities Exchange Act of 1934; radio communications; and an NCM on air transportation covering cabotage, international air service, air freight forwarding, and passenger charters.¹⁵⁹ These NCMs, which appear in every other U.S. trade agreement established in 2004 or later, are all investment-related measures.¹⁶⁰

One of the most significant differences in the United States' post-2001 trade agreements is in the presence or absence of provisions on the temporary entry of businesspersons. Both the U.S.-Chile and U.S.-Singapore agreements include separate chapters on temporary entry. Among other things, these chapters obligate parties to allow businesspersons of the other party to enter their territory on a temporary basis (with certain exceptions) and call on parties to apply their regulations on the entry and temporary stay of natural persons in a way that does not unduly obstruct trade and investment between the parties.¹⁶¹ By contrast, all subsequent U.S. trade agreements contain no obligations on temporary entry, and four of these agreements include a side letter or understanding that specifically excludes immigration policies from coverage under the agreement.

Impacts of Trade Agreements

There has been some empirical work on the relationship between the existence of trade agreements and U.S. cross-border and affiliate trade in services. These analyses have produced mixed results: they suggest that trade agreements may have led to increase cross-border trade in some service industries, but an impact on foreign affiliate sales has not been observed. For example, while Kimura and Lee suggest that trade agreements may have a positive effect on cross-border services trade, Nordås and Rouzet find that the impact of trade agreements on cross-border services trade varies by industry, and Riker finds that the existence of trade agreements has had no significant impact on affiliate trade in services.¹⁶² An econometric analysis included in chapter 3 of this report finds that past U.S. trade agreements have not had a significant impact on U.S. affiliate sales and purchases.

Commission research has uncovered no literature analyzing the impact of discrete services provisions in specific U.S. trade agreements. In fact, a participant at the Commission's Services Roundtable held on November 5, 2015, said that it is difficult to attribute economic outcomes

¹⁵⁹ Cabotage refers to the ability of foreign-owned ships to provide domestic maritime transport service (e.g., between two ports in the same country).

¹⁶⁰ U.S. NCMs are not limited to those mentioned in this paragraph.

¹⁶¹ U.S.-Chile FTA.

¹⁶² Kimura and Lee, "The Gravity Equation in International Trade in Services," 2006; Nordås and Rouzet, "The Impact of Services Trade Restrictiveness," 2015; Riker, "The Impact of Restrictions on Mode 3," 2015.

to trade agreement provisions, as many agreements merely bind existing policies.¹⁶³ However, several participants at the roundtable—which included academics, industry representatives, and government officials—stated that certain services provisions have had a particularly important effect on the supply of services. For example, some industry representatives noted the importance of national treatment provisions included in the GATS and other U.S. trade agreements, indicating that discriminatory treatment of foreign suppliers, such as through unequal regulatory enforcement, is one of the more common types of barriers facing their businesses in overseas markets. Provisions that address competition issues, such as market participation by state-owned postal operators and other state-owned enterprises, were also seen as significant.

Other provisions and features highlighted at the roundtable included GATS commitments on cross-border supply (particularly given the growing importance of online service provision), the exceptions in GATS Article XIV, the negative list approach used in many U.S. trade agreements, and the data flow provision in KORUS.¹⁶⁴ Moreover, a number of industry representatives commented that the existence of these agreements increases transparency and market certainty, thus encouraging trade with partner countries. Case studies on the express delivery and telecommunications industries, in chapter 4 of this report, provide additional information on the way trade agreements have facilitated the delivery of services in foreign markets.

Technical Barriers to Trade

Technical regulations and standards are used by governments to protect national security, human health or safety, animal or plant life or health, and the environment, as well as to prevent deceptive practices.¹⁶⁵ These regulations and standards set out specific criteria for the size, shape, design, functions, and performance of a product, and for the way it is packaged or labeled. Complying with technical regulations and standards often involves significant costs for producers and exporters and can impact the competitiveness of certain firms.¹⁶⁶ Technical barriers to trade (TBT) provisions in trade agreements aim to ensure that these regulations and

¹⁶³ A summary of the Roundtable discussion will be included in the forthcoming USITC publication, *Recent Trends in U.S. Services Trade, 2016 Annual Report*, which is scheduled for release in September 2016.

¹⁶⁴ Article XIV of the GATS specifies a number of general exceptions to the agreement (see https://www.wto.org/english/docs_e/legal_e/26-gats.pdf). The KORUS data flow provision is included in article 15.8 of that agreement.

¹⁶⁵ Technical regulations are mandatory measures enforceable by law, while technical standards are voluntary measures. WTO TBT Agreement, Annex 1, https://www.wto.org/english/tratop_e/tbt_e/tbt_info_e.htm (accessed December 14, 2015).

¹⁶⁶ Costs often arise from the translation of foreign regulations, hiring of technical experts to explain foreign regulations, adjustment of production facilities to comply with the requirements, and proving that exported products meet foreign requirements. WTO, "Technical Information on Technical Barriers to Trade" (accessed December 14, 2015).

standards are prepared, adopted, and applied in a transparent and nondiscriminatory way, thus minimizing any trade-distorting effects.¹⁶⁷

The TBT Agreement, which entered into force in 1995, is the first and only multilateral trade agreement to address TBTs. The United States has built on its bilateral TBT commitments and obligations through its later bilateral trade agreements.¹⁶⁸

Uruguay Round Agreements

At the end of the Tokyo Round in 1979, 32 GATT contracting parties signed the plurilateral Agreement on Technical Barriers to Trade (or the “Standards Code”).¹⁶⁹ The Standards Code established the first international rules on the preparation, adoption, and application of technical regulations, standards, and conformity assessment procedures (procedures to gauge whether traded items comply with regulations or standards). Although the Standards Code played an important role as the foundation for the technical regulations provisions in later U.S. trade agreements, not all GATT contracting parties were signatories, and it lacked a binding enforcement mechanism.¹⁷⁰

The multilateral WTO TBT Agreement, which entered into force in 1995, significantly broadened WTO members’ commitments and rights.¹⁷¹ In addition to including most of the provisions from the Standards Code, the TBT Agreement also created new rules that specify “legitimate objectives” of technical regulations and included new notification requirements for draft measures at an “early appropriate stage.”¹⁷² The TBT Agreement also expanded commitments under the Standards Code regarding “equivalency” of technical regulations (i.e. on members

¹⁶⁷ As countries made agreements over the years to bring down import tariffs, TBTs became an increasingly common way of protecting domestic industries and thus distorting international trade flows. Members of the international community recognized the significance of this growing trend and agreed to the WTO TBT Agreement during the Uruguay Round.

¹⁶⁸ The U.S. trade agreement with Jordan was the only post-WTO TBT Agreement trade agreement which did not include additional TBT provisions.

¹⁶⁹ WTO, “Technical Information on Technical Barriers to Trade” (accessed December 14, 2015); Middleton, “The GATT Standards Code,” 1980, 201. Though the 1980 Standards Code Agreement falls outside of the direct scope of this report, it is included because it served as the foundation for the future WTO TBT Agreement, which is within the scope of this report and now serves as the foundation for all U.S. TBT provisions.

¹⁷⁰ Barton et al., “The Evolution of the Trade Regime,” 2006, 135. The lack of a binding enforcement mechanism in the Standards Code was later remedied in the Uruguay Round with the establishment of the Dispute Settlement Body. USDA, ERS, “Globalization of the Processed Foods Market,” April 1997, 140.

¹⁷¹ This broadening of commitments and rights involved both widening the coverage of the actual provisions and expanding the commitments to a multilateral level.

¹⁷² The term “legitimate objective” first appeared in a bilateral U.S. trade agreement in the 1989 U.S.-Canada Free Trade Agreement (CUSFTA), though the term's coverage was first established in the plurilateral 1980 GATT Standards Code. The term was then included in a multilateral agreement for the first time in the WTO TBT Agreement in 1995.

accepting other members' technical regulations as equivalent to their own) and broadened the scope of standards coverage to include process standards (standards for processes used to produce goods).¹⁷³ Of particular significance was the TBT's creation of the "Code of Good Practice," which requires standardizing bodies to use international standards, or the relevant parts of them, as a basis for the standards they develop, and encourages members to participate in formulating new international standards where none exist.¹⁷⁴

The TBT Agreement also created the WTO Committee on Technical Barriers to Trade, allowing members to consult on matters relating to the operation of the agreement. Over the years, the WTO TBT Committee has played an increasingly important role by issuing recommendations and decisions on the agreement's interpretation. These statements have been used afterwards during bilateral WTO dispute settlement proceedings.¹⁷⁵

At the same time, certain provisions and terminology that had been previously specified and defined within the plurilateral Standards Code agreement were left less specific or at times undefined in the TBT Agreement. For example, "international standard" was defined by the previous Standards Code agreement, but that definition was later excluded despite the TBT Agreement referencing "international standard" throughout the Agreement. Due to the TBT Agreement's omission of the definition of "international standard" in its text, the interpretation of the relevant TBT provisions has at times been highly contentious.¹⁷⁶

U.S. Bilateral and Regional Trade Agreements

Before the TBT agreement entered into force, U.S. trade agreements included several important provisions bearing on TBTs. The U.S.-Israel agreement (entered into force 1984) is the only U.S. agreement to specifically permit measures banning certain products on religious or ritual grounds—such as Israel's kashrut bans on the importation of non-kosher meat—as

¹⁷³ While the WTO TBT Agreement includes process standards, the Tokyo Round GATT Standards Code only covered product standards. USDA, ERS, *Globalization of the Processed Foods Market*, April 1997, 140.

¹⁷⁴ WTO, Agreement on Technical Barriers to Trade, Annex 3, 1995. The Code of Good Practice requires standardizing bodies to use international standards, or the relevant parts of them, as a basis for the standards they develop, except when such international standards or relevant parts would be ineffective or inappropriate. WTO, Agreement on Technical Barriers to Trade, Annex 3F, 1995.

¹⁷⁵ The TBT agreement also included stronger provisions to (1) ensure that conformity assessment procedures are not prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade; (2) limit information requirements to what is needed to assess conformity and determine fees; and (3) require the use of relevant guides or recommendations issued by international standardizing bodies for conformity assessment. Additionally, the agreement deals with areas such as packaging and labeling requirements, inspection, and certification procedures to protect the public and avoid deceptive practices. USDA, ERS, *Globalization of the Processed Foods Market*, 1997, 140.

¹⁷⁶ Staff comparison of Standards Code and WTO TBT Agreement provisions; Wijkström and McDaniels, "International Standards and the WTO TBT Agreement," March 19, 2013, 3.

long as these prohibitions are applied in accordance with the principle of national treatment. The U.S.-Canada agreement built on Standards Code provisions and set two important precedents that were carried forward in later agreements. First, it encouraged parties to harmonize their respective technical regulatory requirements and inspection procedures for trade in agricultural, food, beverage, and certain related goods. Second, it established working groups to further the implementation of the agreement.¹⁷⁷ NAFTA, too, goes beyond the Standards Code provisions in several areas, including transparency, harmonization, and conformity assessment procedures.¹⁷⁸ Further, NAFTA was the first U.S. trade agreement to include provisions specific to sectors other than agriculture and goods for consumption.¹⁷⁹

Following NAFTA, the WTO TBT Agreement became the foundation for all U.S. trade agreement provisions on technical barriers to trade. The U.S.-Chile agreement served virtually in its entirety as the post-WTO TBT baseline for all subsequent U.S. trade agreements.¹⁸⁰ However, a number of other U.S. trade agreements introduced important provisions that were carried forward into later agreements, further developing the model for U.S. agreements with respect to TBT (see appendix E, table E.3). In addition, KORUS extended certain commitments on technical regulations to local governments and substantially strengthened requirements about transparency.¹⁸¹ KORUS included detailed commitments regarding automotive standards and technical regulations, including a requirement that parties cooperate bilaterally to harmonize standards. Among other innovations, KORUS was the first U.S. trade agreement to define “good

¹⁷⁷ The U.S.-Canada FTA's Article 708:4 established eight separate working groups to implement Article 708 (dealing with regulatory harmonization, equivalence, accreditation, and consultations, among others). The group's focuses ranged from issues such as animal health to the packaging and labeling of agricultural food, beverages, and certain related goods for human consumption.

¹⁷⁸ NAFTA technical standards provisions are modeled primarily on the Standards Code because the negotiations were conducted in parallel to the Uruguay Round's TBT negotiations, and negotiators did not want to establish provisions that would conflict with the anticipated multilateral agreement. USITC, *Potential Impact on the U.S. Economy*, 1993, 3-9. As with the Standards Code, the standards provisions in NAFTA do not require parties to adopt specific standards or technical regulations. The provisions instead establish general principles for the process that parties are required to follow in adopting standards and technical regulations, and in certifying and testing products. USITC, *Potential Impact on the U.S. Economy*, 1993, 3-9.

¹⁷⁹ NAFTA's TBT chapter contains three sector-specific annexes on telecommunications standards, automotive standards, and labeling of textile and apparel goods. The U.S.-Singapore FTA, negotiated 10 years later, followed this precedent, including an annex on medical products. Similarly, KORUS included an automotive annex in 2012.

¹⁸⁰ The major exception to this is the U.S.-Singapore FTA. In addition, certain Technical Barriers to Trade Committee provisions were not included in the Chapter Coordinator provisions in the U.S.-Australia FTA.

¹⁸¹ “Each Party shall also take such reasonable measures as may be available to it to ensure that new technical regulations and amendments to existing technical regulations of local governments on the level directly below that of the central government that are in accordance with the technical content of any relevant international standards are published and notified through the inquiry point referenced in subparagraph (b).” KORUS, Art. 9.6:3. Specifically, KORUS for the first time required publishing the following in an official journal: (1) explanations of objectives of final measures and how the final measures address those objectives; (2) significant comments received on proposed measures; and (3) an explanation of substantive revisions made to proposed measures. KORUS is also the first trade agreement to require that parties give more information about the objective of and rationale for an adopted or proposed measure.

regulatory practices,” and the first to specifically allow the TBT committee to consult with nongovernment experts and stakeholders.

Impacts of TBT Provisions

Because TBTs are ubiquitous and may fuel myriad cost increases, time delays, and overall inefficiencies, it has been particularly difficult for economists to quantify their impact on trade flows. There is, however, wide recognition that the TBT provisions in trade agreements have significantly helped reduce unnecessary barriers and trading costs for the private sector.

Despite the difficulty in quantifying the provisions’ importance, U.S. government officials indicate that certain provisions have clearly had a significant positive impact on the U.S. economy.¹⁸² In particular, the following articles of the TBT Agreement have been beneficial for creating future bilateral TBT provisions, for helping to interpret the TBT Agreement, and for providing parties with binding dispute settlement resolution:¹⁸³ Article 2, Preparation, Adoption and Application of Technical Regulations by Central Government Bodies;¹⁸⁴ Article 5, Procedures for Assessment of Conformity by Central Government Bodies;¹⁸⁵ Article 13, The Committee on Technical Barriers to Trade; and Article 14, Consultation and Dispute Settlement. Moreover, the transparency commitments in the TBT Agreement and in bilateral U.S. trade agreements have significantly improved the international business environment for the U.S. private sector, offering U.S. investors and exporters a fairer chance to participate in the economies of the country’s bilateral trade agreement partners.¹⁸⁶

Intellectual Property Rights

Innovation is a primary driver of U.S. economic growth and national competitiveness.¹⁸⁷ Intellectual property and the legal rights associated with it—including patents, trademarks,

¹⁸² Because technical barriers can appear at every level of the trading, authorization, certification, registration, and marketing process for goods, the TBT provisions included in trade agreements are becoming ever more numerous and more specific as they focus on the increasingly diverse forms that barriers can take. Because of this, it is difficult to choose which provisions have offered the most beneficial impact for the U.S. economy, as they all work closely in tandem.

¹⁸³ U.S. government official, email to USITC staff, April 18, 2016; U.S. government official, email to USITC staff, April 15, 2016; U.S. government official, email to USITC staff, March 10, 2016.

¹⁸⁴ In particular, Article 2.1, Article 2.2, and Article 2.4.

¹⁸⁵ In particular, Article 5.1.

¹⁸⁶ U.S. government official, email to USITC staff, April 18, 2016; U.S. government official, email to USITC staff, April 15, 2016; U.S. government official, email to USITC staff, March 10, 2016.

¹⁸⁷ See, e.g., National Economic Council, Council of Economic Advisors, and Office of Science and Technology Policy, *A Strategy for American Innovation*, February 2011, 7.

copyrights, and trade secrets—provide incentives and a framework to innovate and bring innovations to market, and can play a key role in facilitating strategic market opportunities.¹⁸⁸

The United States has been a strong proponent of the inclusion of robust protections of intellectual property rights (IPR) in multilateral and bilateral trade agreements, in accordance with the negotiating objectives contained in the 2002 Bipartisan Trade Promotion Authority Act. This section of the report traces the evolution of IPR provisions in the trade agreements and then describes the effects of these provisions. Chapter 3 provides a related econometric estimate of the relationship between the strengthening of patent protections—as required by the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), the trade agreements, and other initiatives—and the growth of U.S. receipts for the use of intellectual property abroad (e.g., royalties and license fees). According to this estimate, U.S. intellectual property receipts were \$10.3 billion (12.6 percent) higher in 2010 than they would have been absent the increases in foreign patent protections over the 1995–2010 period.

The IPR provisions in U.S. bilateral and regional trade agreements have evolved and grown stronger over time.¹⁸⁹ This evolution can be seen easily in comparing the one-paragraph treatment of IPR in the earlier U.S.-Israel agreement with the 21 IPR-related articles and 4 annexes in NAFTA.¹⁹⁰ NAFTA provided the foundation for an even more comprehensive approach to IPR issues in TRIPS, negotiated as part of the Uruguay Round.¹⁹¹ Trade agreements since 1995 have clarified and built on the IPR requirements in TRIPS. They also contain provisions that seek to balance producers' interests in strong IPR protections with consumers' interests in access to innovative goods and services, particularly in the area of public health.

Uruguay Round Agreements

The TRIPS Agreement requires WTO members to protect a wide range of intellectual property, including copyrights, trademarks, geographical indications (GIs), industrial designs, patents, layout designs of integrated circuits, and undisclosed information (including trade secrets and regulatory test data). Generally, TRIPS establishes minimum standards for protecting each of these rights; prescribes the procedures and remedies to be made available to enforce the rights in civil and criminal proceedings and at the border; makes WTO dispute-settlement

¹⁸⁸ See Maskus, *Private Rights and Public Problems*, 2012, 65 (IPR are the legal means by which persons control the marketing of their inventions, whether through distribution, licensing, or simply selling the rights); Arora, Fosfuri, and Gambardella, *Markets for Technology*, 2001, 45-89 (secure and stable IPR support market transactions between inventors, specialized firms, technology brokers, venture capitalists, financial intermediaries, and other actors).

¹⁸⁹ Milestones in the evolution of IPR provisions are identified in appendix E, figure E.1. The evolution of selected provisions is also described in appendix E, table E.4.

¹⁹⁰ Compare U.S.-Israel FTA, Article 14, with NAFTA, Chapter 17 and Annexes 1701.3, 1705.6, 1710.9, and 1718.14.

¹⁹¹ Appendix E includes a comparison of key IPR provisions in NAFTA and TRIPS.

mechanisms available to address IPR-related disputes; and extends basic WTO principles such as national treatment, MFN treatment, and transparency to IPR matters.¹⁹²

TRIPS also requires that IPR protections promote technological innovation and the dissemination of technology for the mutual advantage of producers and users in a manner conducive to social and economic welfare.¹⁹³ It further permits members to adopt measures necessary to protect public health and nutrition; promote the public interest in sectors of vital importance to their development; or prevent IPR abuse or unreasonable restraints on trade or technology transfer, as long as such measures are consistent with the agreement.¹⁹⁴

Recognizing that some countries have few IPR systems in place, TRIPS offers developing and least-developed countries extended periods to implement IPR laws and enforcement mechanisms.¹⁹⁵ Currently, least-developed countries have until July 2021, or until they graduate from this category, to attain general TRIPS compliance. And in response to the concern that TRIPS could make pharmaceuticals more difficult and expensive to obtain, least-developed countries have until January 2033 to put full protections in place for pharmaceutical patents and clinical test data.¹⁹⁶

To further address the above concern, WTO members adopted the Doha Declaration on the TRIPS Agreement and Public Health in November 2001. The declaration committed members to interpret TRIPS to support public health and access to medicine for all. It also recognized flexibilities in TRIPS that allow governments to grant compulsory licenses authorizing the use of patented pharmaceutical products and to determine the circumstances under which such licenses could be granted.¹⁹⁷

¹⁹² WTO, “Legal Texts: The WTO Agreements,” Annex 1C, 319; Horan, Johnson, and Sykes, “Foreign Infringement of Intellectual Property Rights,” 2005, 9.

¹⁹³ WTO, “Legal Texts: The WTO Agreements,” Annex 1C, 323.

¹⁹⁴ *Ibid.*

¹⁹⁵ Countries that declared themselves to be “developing” when they joined the WTO were given a 5-year extension, until January 1, 2000, to bring their laws into compliance with most of TRIPS. For products that were not already covered by patent systems (particularly pharmaceuticals and agricultural chemical products), these countries were given an additional 5 years for compliance, until January 1, 2005. Akhtar and Fergusson, *Intellectual Property Rights and International Trade*, 2014, 15.

¹⁹⁶ WTO, “WTO Members Agree to Extend,” November 6, 2015.

¹⁹⁷ In 2003, WTO members agreed to waive the TRIPS requirement that production under a compulsory license had to be predominantly for the domestic market, enabling countries that are unable to manufacture such products to import them from other sources. Akhtar and Fergusson, *Intellectual Property Rights and International Trade*, 2014, 16–17.

U.S. Bilateral and Regional Trade Agreements

The U.S. bilateral and regional agreements negotiated since TRIPS reflect IPR objectives set forth by Congress in the 2002 Bipartisan Trade Promotion Authority Act.¹⁹⁸ The act requires that the agreements reflect a standard of IPR protection similar to the high standards found in U.S. law; protect IPR related to new technologies and distribution methods, including digital trade; eliminate discriminatory treatment in the use and enforcement of IPR; provide strong civil, administrative, and criminal IPR enforcement; secure fair market access opportunities for persons that rely on IPR protection; and respect the obligations of the Doha Declaration on the TRIPS Agreement and Public Health.¹⁹⁹

Based on these objectives, the agreements reaffirm provisions included in TRIPS and also establish enhanced or “TRIPS plus” standards of protection and enforcement in certain areas.²⁰⁰ For example, because TRIPS largely preceded the growth of the Internet, TRIPS-plus provisions incorporate new commitments made in the “Internet Treaties” of the World Intellectual Property Organization (WIPO).²⁰¹ These commitments seek to ensure that IPR protections extend to the digital environment and balance the obligations of content providers and digital technology companies with regard to online infringement.²⁰²

TRIPS-plus provisions in the area of trademarks include provisions that support the protection of GIs within the trademark system (as in the United States) rather than through a separate system (as in European and other countries).²⁰³ U.S. trade agreements include requirements that countries protect certification and/or collective trademarks, and set forth standards for determining priority between conflicting GIs and trademarks.²⁰⁴ TRIPS-plus provisions in the area of trademarks also include new protections against the bad-faith registration or use of

¹⁹⁸ Pub. L. No. 107-210, § 2102 (2002).

¹⁹⁹ Pub. L. No. 107-210, § 2102(b)(4), August 6, 2002; Maskus, *Private Rights and Public Problems*, 2012, 121.

²⁰⁰ Key TRIPS-plus provisions in each of the trade agreements are described in appendix E.

²⁰¹ The “Internet Treaties” are the WIPO Copyright Treaty and the WIPO Performance and Phonograms Treaty, adopted in 1996 and implemented in the United States through the Digital Millennium Copyright Act in 1998. The Internet Treaties entered into force in 2002, when the required minimum number of countries ratified them. Horan, Johnson, and Sykes, “Foreign Infringement of Intellectual Property Rights,” 2005, 11.

²⁰² The new obligations include provisions that extend copyright protections to temporary copies and digital transmissions; prohibit circumvention of the technological protection measures that rights holders use to thwart unauthorized access to copyrighted material; and provide immunity to liability for infringement to Internet service providers who comply with “safe harbor” provisions. Akhtar and Fergusson, *Intellectual Property Rights and International Trade*, April 2014, 25–26.

²⁰³ GIs are defined as indications, most commonly the name of a place, which identify goods as originating from that place and possessing qualities or a reputation that are essentially attributable to that place. (Vidalia onions, for example, may come only from the Vidalia area of the state of Georgia.) In the United States, GIs often are protected as certification or collective trademarks, although regular trademarks also may be used. USPTO, “Geographical Indication Protection,” n.d., 1 (accessed December 5, 2015).

²⁰⁴ See, e.g., U.S.-Korea FTA, Articles 18.2.2 and 18.2.14–.15.

domain names that are the same as or confusingly similar to trademarks, also known as “cyber-squatting.”²⁰⁵

TRIPS-plus requirements related to pharmaceuticals have been subject to criticism on the grounds that they may impede access to medicine.²⁰⁶ In response to these concerns, on May 10, 2007, the White House and Congress concluded a bipartisan agreement to modify language in the Peru, Panama, and Colombia agreements.²⁰⁷ The modifications clarify that the 5-year exclusivity period for clinical test data that supports the approval of new medicines in these countries generally will run concurrently with the U.S. period. The changes also make it discretionary, rather than mandatory, to lengthen patent terms for pharmaceutical products in cases where there have been delays in awarding patents or marketing approvals, requiring instead that countries make their best efforts to process documents expeditiously. Further, the modifications remove the obligation to prevent the marketing of a generic during the patent term of the innovator drug, requiring instead that the countries have procedures and remedies in place for the expeditious adjudication of disputes.²⁰⁸ Nongovernmental organization representatives who testified at the Commission’s hearing viewed these modifications, and the Doha Declaration on the TRIPS Agreement and Public Health, as positive developments in the trading system.²⁰⁹

Impacts of IPR Provisions

One of the major arguments that the United States and other developed countries made in favor of TRIPS was that a stronger and more harmonized global IPR system would improve incentives for the transfer of technology through trade in high-technology goods, foreign direct investment (FDI), and the licensing of intellectual property.²¹⁰ Recent empirical studies show

²⁰⁵ Parties must set up appropriate procedures for settling certain domain name disputes and offer online access to reliable and accurate contact information for domain name registrants to aid in dispute resolution. See, e.g., U.S.-Korea FTA, Articles 18.2.6 and 18.3.1–18.3.2.

²⁰⁶ Akhtar and Fergusson, *Intellectual Property Rights and International Trade*, April 2014, 20.

²⁰⁷ These modifications were not included in the U.S.-Korea FTA, which was under consideration during the same time period, because Korea was considered an industrialized country not in need of additional flexibilities. Akhtar and Fergusson, *Intellectual Property Rights and International Trade*, 2014, 20.

²⁰⁸ USTR, “Bipartisan Trade Deal,” May 2007, 3; U.S. Congress, “TPP Issue Analysis: Access to Medicines,” 2015, 4–5.

²⁰⁹ USITC, hearing transcript, November 17, 2015, 40 (testimony of James Love, Knowledge Ecology International) and 78–79 (testimony of Manon Ress, Union for Affordable Cancer Treatment).

²¹⁰ According to the submission of the Korea International Trade Association, for example, U.S. exports to Korea of IP-intensive products and services, including software, films, and television programming, have experienced significant growth. The association further states that many products manufactured in Korea, such as flat panel displays for companies like Samsung and LG, incorporate intellectual property designed and developed in the United States. Korea International Trade Association, written submission to the USITC, February 5, 2016, 12, 17. See also Maskus, “The New Globalisation of Intellectual Property Rights,” 2014, 276.

that IPR strengthening generally has had positive effects in developed and developing countries in each of these areas.²¹¹

Strong IPR protections also can directly stimulate innovation and investments in research and development (R&D). For example, the strength of a country's patent rights tends to have a positive and significant relationship to spending on R&D as a percentage of gross domestic product (GDP).²¹² IPR protection is particularly important to the biopharmaceutical industry because of high R&D costs, lengthy testing requirements, and strict regulations that raise the costs of bringing new medicines to market.²¹³

While hearing witnesses expressed concerns about the negative effects of enhanced IPR protections on access to medicine and prices,²¹⁴ some recent empirical studies suggest that patents have had relatively minor effects, particularly in developing countries. For example, a study by Duggan, Garthwaite, and Goyal finds that the 2005 implementation of patent protection for pharmaceutical products in India increased average prices only slightly, and also had little impact on quantities, due in part to regulatory flexibilities that India and other countries retained under TRIPS.²¹⁵ More negative effects, however, have been reported by others. For example, researchers found that extended data exclusivity periods in Guatemala and Jordan increased medicine prices and delayed generic competition in those countries.²¹⁶

There is less empirical research on the relationship between improvements in copyright protections under trade agreements and trends in international trade and investment. In a submission to the Commission on behalf of copyright-based industries (including publishing, entertainment software, movies, and music), the International Intellectual Property Alliance

²¹¹ See Maskus, "The New Globalisation of Intellectual Property Rights," 2014, 276 (more than 15 recent economic studies establish the positive effects of patent strengthening on inward trade in high-tech goods, FDI, and licensing); Smith, "Are Weak Patent Rights Barriers," 1999 (strong IPR protection has both a market-power and market-expansion effect on U.S. exports); Ivus, "Do Stronger Patent Rights Raise High-Tech Exports to the Developing World?" 2010 (TRIPS reforms resulted in a significant increase in developed countries' high-tech exports); Branstetter, Fisman, and Foley, "Do Stronger Intellectual Property Rights," 2006, 321 (U.S. firms expanded their sales, employment, investment, and production abroad in response to IPR reforms); Cavazos Cepeda, Lippoldt, and Senft, "Policy Complements," 2010 (increases in IPR protection are associated with increased FDI, trade, and domestic innovation in developed and developing countries).

²¹² Park and Lippoldt, "Technology Transfer," 2008, 12; Arora, Branstetter, and Chatterjee, "Strong Medicine," 2011, 22.

²¹³ USITC, hearing transcript, November 17, 2015, 51–52 (testimony of John Murphy, U.S. Chamber of Commerce); see also Diepeveen, Hassan, and Yaqub, "Intellectual Property and Developing Countries," 2010, 26.

²¹⁴ USITC, hearing transcript, November 17, 2015, 30–31 (testimony of Manon Röss, Union for Affordable Cancer Treatment) and 25 (testimony of James Love, Knowledge Ecology International).

²¹⁵ Duggan, Garthwaite, and Goyal, "The Market Impacts," 2016, 100–1. See also Kyle and Qian, "Intellectual Property Rights," December 2014, 26 (prices of patented products have not significantly increased and quantities have not significantly decreased with stronger patent protections, due in part to flexibilities retained under TRIPS).

²¹⁶ Shaffer and Brenner, "A Trade Agreement's Impact," 2009, 957; Malpani, "All Costs, No Benefits," 2009, 206.

IIPA) stated that foreign sales and exports of U.S. copyright materials have grown steadily with the proliferation of trade agreements. The IIPA reported that although it is difficult to distinguish the effects of trade agreements from other factors, copyright-related revenues rose from \$53.25 billion in 1995 (when TRIPS went into effect) to \$156.3 billion in 2013.²¹⁷

Investment

The Uruguay Round agreements contain very limited investment provisions. They are applicable only to specifically defined, trade-related investment measures, under the TRIMs agreement, and to certain services, under the GATS agreement. Beginning with NAFTA, U.S. bilateral and multilateral trade agreements have included much more extensive investment chapters, modeled on U.S. bilateral investment treaties (BITs). All of these chapters include investor protections, and most include an investor-state dispute settlement mechanism that permits investors to settle disputes directly with the host country government through binding arbitration.

Uruguay Round Agreements

There is no broad investment agreement in the URAs. Instead, investment is addressed primarily through the Agreement on Trade-related Investment Measures (TRIMs) and through the General Agreement on Trade in Services (GATS).

Under the TRIMs agreement, WTO members agree not to apply investment-related measures that violate GATT Article III (national treatment) or Article XI (quantitative restrictions), and agree to transparency in case of exceptions.²¹⁸ Examples of measures not permitted under the agreement—as outlined in an Illustrative List annexed to the agreement itself—include local-content or trade-balancing requirements.²¹⁹ The TRIMs agreement also establishes a committee to monitor the operation and implementation of these commitments.²²⁰

²¹⁷ IIPA, written submission to the USITC, November 30, 2015, 3–5.

²¹⁸ TRIMs agreement, Article 2 (national treatment and quantitative restrictions) and Article 6 (transparency).

²¹⁹ Local-content requirements require foreign investors to include local inputs in products they produce in foreign markets. Trade-balancing requirements either require limits on imports of inputs into local production, or exports of a prescribed share of local production.

²²⁰ WTO, "Agreement on Trade-Related Investment Measures (TRIMs)" (accessed November 2, 2015).

The GATS defines four modes of trade in services.²²¹ Mode 3 (commercial presence) is analogous to an established investment.²²² The GATS is a positive list agreement, meaning that particular service sectors and modes of delivery are covered only if a party chooses to include them in its GATS schedule of commitments. As a result, the extent of investment coverage depends largely on each country's schedule.

U.S. Bilateral and Regional Trade Agreements

Since NAFTA, each of the U.S. trade agreements has included an investment chapter based on the U.S. model bilateral investment treaty (BIT) in effect at the time of each agreement.²²³ The model BIT was updated in 2004 and again in 2012; each agreement follows the model BIT that was current at the time it was negotiated.²²⁴ In most U.S. trade agreements and BITs, investment provisions fall into two sections. The first offers protections for investment; the second outlines the investor-state dispute settlement mechanism (ISDS). Investment provisions typically include commitments to offer national treatment and MFN treatment to investors; a commitment to uphold a minimum standard of treatment of foreign investors (generally seen as in accordance with customary international law); a requirement to pay compensation in case of expropriation; and rules governing capital transfers, performance requirements, and nationality requirements for senior managers and boards of directors.

The ISDS section outlines the process by which an investor can submit a claim to binding international arbitration against the host country government, alleging that that government has violated the provisions of the investment chapter. Under ISDS, an arbitration panel decides whether a violation has occurred, and if so, the extent of damages to be paid to the investor. The ISDS arbitration process takes the place of pursuing a case in the host country's domestic court system or of initiating a government-to-government settlement under the auspices of the trade agreement.²²⁵ Beginning with NAFTA, all U.S. bilateral and multilateral trade agreements have included ISDS provisions, except for the U.S.-Australia agreement.

Unlike U.S. commitments under the WTO Uruguay Round, bilateral and regional trade agreements are negative list agreements, meaning that for the investment chapter, the provisions apply to all industries unless specific exceptions are listed by one of the parties.

²²¹ The GATS identifies four "modes of supply" for services trade—i.e., four ways that services can be traded: mode 1 (cross-border supply), mode 2 (consumption abroad), mode 3 (commercial presence), and mode 4 (temporary presence of natural persons). For more information on these four modes of supply, see USITC, *Recent Trends*, 2015, 27.

²²² The other three modes of supply apply to cross-border services trade, not investment.

²²³ The U.S.-Israel and U.S.-Jordan trade agreements do not contain investment provisions.

²²⁴ However, as each agreement is the result of negotiations between the parties, they do not exactly follow the model BIT.

²²⁵ There is no equivalent of the ISDS process for the WTO Uruguay Round agreements.

These exceptions are found in the annexes of nonconforming measures (NCMs). U.S. NCMs are mostly consistent from one agreement to the next, reflecting standard exceptions in U.S. law.²²⁶ U.S. negotiating partners each structure their lists of NCMs to reflect their particular interests and political sensitivities. For multilateral agreements (NAFTA and CAFTA-DR), the agreement includes a separate list of NCMs for each party.

Impacts of Investment Provisions

Empirical literature and Commission analysis on the impacts of trade agreements on FDI are reported in chapter 3. As the focus in both the literature and Commission analysis is the overall impact of trade agreements on investment, neither separates out potential effects of investment provisions alone. As discussed in greater detail in chapter 3, the literature indicates that bilateral and regional trade agreements reduce the cost of both U.S. FDI in partner countries and U.S. exports to those countries. Overall, the reduction in trade costs appears to outweigh the reduction in investment costs, leading to a generally negative effect on FDI. Similarly, the Commission's analysis—which focused on the effects of U.S. trade agreements on U.S. FDI—indicates that the trade agreements had a negative and statistically significant effect on U.S. outbound FDI when the FDI for all industries is combined. Results vary by sector. Negative and significant effects hold for the manufacturing sector, consistent with the impact on FDI of lower trade costs outweighing the impact of lower investment costs. However, the effects are not significant for the services sector, where decreased cross-border trade costs do not appear to offset the FDI-increasing effects of improved investment protections. Commission analysis also indicates the U.S. trade agreements do not have a statistically significant impact on inbound U.S. FDI.

There is considerable disagreement among industry observers and hearing witnesses as to the effects of the investment provisions in U.S. trade agreements. Some observers maintain that increasing investment protections for U.S. investors overseas, in combination with other provisions of U.S. trade agreements, has significantly contributed to the loss of manufacturing jobs in the United States, as U.S. businesses take advantage of new protections and lower wage rates abroad to make more products overseas. At the Commission hearing, for example, Josh Nassar of the International Union, United Automobile, Aerospace, and Agricultural Implement Workers of America (UAW) stated that NAFTA has contributed to an increase in foreign direct investment (FDI) in Mexico over the past 20 years, with auto parts manufacturing showing

²²⁶ For example, almost all U.S. trade agreements have national treatment exceptions, allowing differential treatment of foreign companies with regard to acquiring rights of way for oil and gas pipelines and for licensing of "nuclear utilization or production facilities." Exceptions are the U.S.-Israel and U.S.-Jordan agreements, which do not have investment provisions, and the U.S.-Bahrain agreement, which does not include a number of NCMs that appear in most U.S. trade agreements.

particularly strong growth, while the U.S. share of total NAFTA production has dropped by 10 percent. He cited several examples of auto parts firms closing factories in the United States and relocating to Mexico.²²⁷

In response, Linda M. Dempsey, representing the National Association of Manufacturers (NAM), stated that Mexico's ability to attract substantial investment into the auto parts sector is not solely due to NAFTA. Rather, Mexico's extensive network of trade agreements has made the country a preferred destination for foreign investors from many countries, because Mexico's access to many markets abroad gives it a privileged place in global supply chains. Further, she noted that much of the FDI in the United States comes from countries with which the United States has no trade agreement, indicating that trade agreements should not be seen as the only reason that U.S. investors move operations from U.S. locations to our trading partners.²²⁸

Others maintain that U.S. firms with foreign affiliates have added positions in the United States to manage overseas operations, and that the investment provisions in U.S. trade agreements have made a positive impact on the U.S. economy. According to the testimony of John G. Murphy, representing the U.S. Chamber of Commerce at the Commission hearing, new trade agreements have led to more foreign investment in the United States, fostering additional U.S. employment in sectors noted for providing high-skill, high-wage jobs.²²⁹

There is also a robust debate about the effects of the ISDS mechanism. Some observers assert that ISDS provides valuable assurances to U.S. investors and thus promotes foreign investment by U.S. firms, allowing them to repatriate profits back to the United States.²³⁰ Others contend that ISDS instead gives foreign investors special rights not available to other groups affected by trade agreements, including labor and environmental groups. These observers state that ISDS can be used by corporate interests to undermine legitimate efforts by host country governments to impose environmental, health, and safety regulations in the public interest.²³¹

Electronic Commerce

WTO members had successfully concluded the ITA at the first WTO Ministerial meeting in December 1996, which helped countries build duty-free national information infrastructures. Recognizing its growing importance and unique commercial nature, official discussion by

²²⁷ USITC, hearing transcript, November 5, 2015, 111–12 (testimony of John Nassar, UAW).

²²⁸ USITC, hearing transcript, November 5, 2015, 150–51, 179 (testimony of Linda Dempsey, NAM).

²²⁹ USITC, hearing transcript, November 5, 2015, 35 (testimony of John Murphy, U.S. Chamber of Commerce).

²³⁰ Business and Industry Advisory Committee to the OECD (BIAC), "Investor-State Dispute Settlement," January 2015; USTR, "Investor-State Dispute Settlement (ISDS)," March 2015; U.S. Chamber of Commerce, "13 Myths about Investment Agreements," April 13, 2015.

²³¹ AFL-CIO, "What is ISDS?" 2016; Lester, "Does Investor State Dispute Settlement Need Reform?" May 11, 2015; Warren, "The Trans-Pacific Partnership Clause Everyone Should Oppose," February 25, 2015.

multilateral trade organizations about electronic cross-border trade in digital products began in 1998, when the WTO issued a declaration stating that offline trade barriers should not be replicated online. At the second WTO Ministerial meeting in 1998, ministers turned their attention to establishing the terms of trade for the global electronic commerce that the national information infrastructures would enable. The WTO also established the Work Programme on E-commerce in 1998. This program called on members to continue the practice of not imposing customs duties on electronic transmissions.²³² Subsequent U.S. bilateral and regional agreements have built on the issues raised by this program by incorporating e-commerce provisions within the text of the agreements. Since e-commerce was not initially addressed during the Uruguay Round, U.S. bilateral and regional trade agreements have been the primary method of advancing trade in digital products and services.

Post Uruguay Round WTO Discussions

As part of the Work Programme on E-commerce, the Council for Trade in Services (CTS) and other WTO councils raised core issues relating to e-commerce trade. These issues included the need to (1) establish a clear and permanent moratorium on imposing duties on electronic transmissions and their content; (2) confirm that GATS rules and specific commitments are indeed applicable to e-commerce and to electronically supplied services; (3) clearly classify electronically traded services as either GATS mode 1 (cross-border supply) or mode 2 (consumption abroad); and (4) further classify digital products as either goods governed by the GATT, services governed by GATS, or some unique category deserving of its own set of trade rules.²³³ Although the WTO was successful in initially mapping these key questions, no further progress has been made by negotiators at the multilateral level.²³⁴

U.S. Bilateral and Regional Trade Agreements

The various U.S. bilateral and regional trade agreements are largely similar in their treatment of e-commerce, with such agreements typically incorporating and building on the principles established by the WTO Work Programme on E-commerce. In general, relevant text—in agreement provisions or side letters—provides for nondiscriminatory and duty-free treatment

²³² WTO, “Work Programme on Electronic Commerce,” September 30, 1998.

²³³ Malkawi, “E-Commerce in Light of International Trade Agreements,” 2007, 156–58; Letvin, “The Growth of E-Commerce in International Trade,” n.d. (accessed December 8, 2016); Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 181–84, 186–87.

²³⁴ The WTO Secretariat has also consistently referenced e-commerce issues in WTO Ministerial Declarations. Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 180–81. Some digital trade issues have been resolved in specific services-related WTO dispute cases (*US-Gambling* and *China-Audiovisuals*) and in parts of the GATS. Malkawi, “E-Commerce in Light of International Trade Agreements,” 2007, 158–59; Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 180–81.

of all digital products and services, whether delivered electronically or in physical form. It frequently contains commitments on consumer protection and the facilitation of electronic authentication/certification in the signatories' respective markets, and it consistently includes principles that ensure consumers' reasonable access to the Internet to conduct electronic commerce.²³⁵

The U.S.-Jordan agreement, which entered into force in 2001, was the first U.S. bilateral trade agreement in which specific provisions on electronic commerce were included in a stand-alone chapter as well as a joint statement (see appendix E, figure E.2, for milestones in the evolution of e-commerce provisions).²³⁶ The provisions encourage cooperation between the parties to permit e-commerce to be an engine of economic growth. The chapter also states that neither party will impose duties on electronic transmissions or impose unnecessary barriers on trade in digital products. Finally, it encourages investment in new technologies that enhance productivity and streamline the distribution of products and services.²³⁷

Since the U.S.-Jordan agreement, the United States has followed a clear model in formulating its e-commerce chapters (see appendix E, tables E.5 and E.6).²³⁸ Six core elements have been consistent throughout: (1) the establishment of relevant digital trade definitions;²³⁹ (2) recognition of the applicability of WTO rules to e-commerce;²⁴⁰ (3) recognition of the applicability of trade rules to the electronic supply of services;²⁴¹ (4) establishment of a clear and applicable duty-free moratorium on electronic transmissions and their content;²⁴² (5) nondiscriminatory treatment for digital products;²⁴³ and (6) MFN treatment obligations for

²³⁵ Digital products or goods refer to digitally encoded content that can be transmitted electronically over networks (e.g., films, music, software, and computer/video games). For example, see U.S.-Australia FTA, Chapter 16.

²³⁶ Bieron and Ahmed, "Regulating E-Commerce," 2012, 548.

²³⁷ Malkawi, "E-Commerce in Light of International Trade Agreements," 2007, 159–63; Export.gov., "U.S.-Jordan Free Trade Agreement," n.d. (accessed December 8, 2015); American Chamber of Commerce in Jordan, "Jordan-U.S. Free Trade Agreement," June 2009. For example, see U.S.-Jordan FTA, Article 7.

²³⁸ Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 194–97. For example, see U.S.-Colombia TPA, Chapter 15, and KORUS, Chapter 15.

²³⁹ For example, the U.S.-Australia agreement Art. 16.8 and U.S.-Singapore agreement Art. 14.4. Since the definition of digital products refers to goods and services delivered both offline and online, the language aims to be technologically neutral.

²⁴⁰ For example, KORUS Art. 15.1 and U.S.-Colombia agreement Art. 15.1. Most e-commerce chapters recognize the applicability of WTO rules to e-commerce.

²⁴¹ For example, the U.S.-Panama agreement Art. 14.3 and KORUS Art. 15.2. The e-commerce chapters also affirm that the supply of a service using electronic means falls within the scope of the obligations of the relevant provisions in the cross-border trade in services chapter (including its rules, obligations, and NCMs).

²⁴² For example, the U.S.-Jordan agreement Art. 7.1 and U.S.-Singapore agreement Art. 14.3. Almost all e-commerce chapters specify that the parties must not impose customs duties, fees, or charges in connection with the import and export of digital products.

²⁴³ For example, the U.S.-Australia agreement Art. 16.4 and U.S.-Panama agreement Art. 14.3. Here the e-commerce chapters specify a national treatment obligation for digital products.

digital products.²⁴⁴ Notably, these elements make clear reference to the issues that went unresolved at the multilateral (WTO) level.

Additionally, after making their first appearance in the U.S.-Jordan agreement, pledges for cooperation in the area of information and communications technology (ICT) and language addressing e-commerce regulatory issues have become stronger and more common in U.S. bilateral and regional trade agreements. Such issues include minimizing burdensome domestic regulation on electronic transmissions; making laws, regulations, and other measures relating to e-commerce more transparent; giving protection to e-commerce consumers that is at least equivalent to the protection given to consumers using other forms of commerce; developing data protection standards; blocking spam; adopting digital signatures and other authentication technologies; and supporting and accepting electronically submitted trade administration documents. Unsurprisingly, the level of detail has risen markedly from the earlier agreements (e.g., the U.S.-Jordan agreement) to the most recent ones (e.g., KORUS) (see appendix E, tables E.5 and E.6 of this report).²⁴⁵

Several bilateral and regional trade agreements have recognized the importance of transparency in governing e-commerce by including a provision requiring signatories to publish any regulations related to e-commerce.²⁴⁶ Further, KORUS includes unique open-access provisions, which require the parties to refrain from imposing or maintaining unnecessary barriers to electronic information flows across borders.²⁴⁷

Impacts of Electronic Commerce Provisions

Most literature and industry views relate to the inability of certain e-commerce provisions to generate meaningful impacts, either because provisions have been adapted from general trade agreement provisions and are not specific enough; because they include significant exceptions; or because some important provisions are aspirational and not binding. The seven U.S. trade agreements that entered into force from 2000 to 2007 imported much of their overall framework from prior agreements and applied that framework to the field of e-commerce. For

²⁴⁴ For example, the U.S.-Chile agreement Art. 15.4 and KORUS Art. 15.3. The e-commerce chapters use very similar wording to specify an MFN obligation for digital products, including some caveats for rules of origin. For example, digital products may not be fully produced and exported via one of the parties of the bilateral trade agreements to benefit a non-party country. (U.S. trade agreements often use language noting that “each Party shall accord to service suppliers of the other Party treatment no less favorable than that it accords, in like circumstances, to service suppliers of a non-Party.”) Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 199–202.

²⁴⁵ Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 204–8.

²⁴⁶ Transparency provisions are included in the U.S.-Jordan FTA, CAFTA-DR, U.S.-Peru TPA, U.S.-Colombia TPA, and U.S.-Panama TPA.

²⁴⁷ Bieron and Ahmed, “Regulating E-Commerce,” 2012, 555–56. See KORUS, Art. 15.8.

example, Bieron and Ahmed note that only a few provisions in agreements that entered into force during that time recognize the unique aspects of e-commerce and seek to create dedicated regulations providing greater clarity and impact on those issues.²⁴⁸ The article specifically cites Article 14.3 of the U.S.-Singapore agreement, which binds both parties to treat foreign digital products in a manner that is nondiscriminatory, as insufficient.²⁴⁹ In the authors' view, this provision, covering all digital products including music, video, software, or text, simply adopts a classic principle of trade agreements—MFN treatment—and imports it to the realm of e-commerce. They contend that this provision can be improved by adding a national treatment clause, which would ensure that foreign digital goods are treated no less favorably than domestic digital goods.²⁵⁰ The article also notes that the U.S.-Chile agreement created an exception to the outright ban on nondiscriminatory treatment in Article 15.1, enabling parties to tax digital goods despite statements from retailers that this carve-out would be harmful to small e-commerce businesses.²⁵¹

The Tripartite Committee states that in both the U.S.-Chile and CAFTA-DR agreements, the parties included important nonbinding provisions that recognized the importance of e-commerce for small businesses; encouraged the sharing of information and experiences; and requested private e-commerce actors to self-regulate.²⁵² These provisions have also been included in more recent U.S. trade agreements.

Labor

Labor provisions in U.S. trade agreements are intended to ensure that trading partners establish and uphold certain labor standards in their own markets. A key objective of labor provisions in U.S. trade agreements is to ensure that domestic labor laws and regulations in partner countries are consistent with international labor standards based on fundamental International Labour Organization (ILO) principles. These principles include freedom of

²⁴⁸ Bieron and Ahmed, 2012, 545, 549–50; Weber, “The Expansion of E-Commerce,” September 10, 2015. See U.S.-Singapore FTA, Chapter 14.

²⁴⁹ “A Party shall not accord less favorable treatment to digital products first made available on commercial terms in the territory of the other Party than it accords to like digital products . . . first made available on commercial terms, in the territory of a non-Party.” Bieron and Ahmed, “Regulating E-commerce,” 2012, 550–51. See U.S.-Singapore FTA, Chapter 14.

²⁵⁰ Bieron and Ahmed, “Regulating E-Commerce,” 2012, 550–51.

²⁵¹ Article 15.1 states, “Nothing in this Chapter shall be construed to prevent a Party from imposing internal taxes, directly or indirectly, on digital products, provided they are imposed in a manner consistent with this Agreement.” U.S.-Chile FTA, Chapter 15; Bieron and Ahmed, “Regulating E-Commerce,” 2012, 551–52; Tripartite Committee, “A Comparative Guide,” n.d. (accessed December 8, 2015).

²⁵² The Tripartite Committee is a joint effort of the Inter-American Development Bank, the General Secretariat of the Organization of American States, and the UN Economic Commission for Latin America and the Caribbean. Tripartite Committee, “A Comparative Guide,” n.d. (accessed December 8, 2015); Bieron and Ahmed, “Regulating E-Commerce,” 2012, 552.

association; the effective recognition of the right to collective bargaining; the elimination of all forms of compulsory or forced labor; the effective abolition of child labor; and the elimination of discrimination in respect of employment and occupation.²⁵³

The Generalized System of Preferences (GSP) program in 1984, which referred to internationally recognized principles of worker rights, marked the first instance in which labor rights were mentioned in the text of an international trade agreement.²⁵⁴ Labor rights were not covered in the Uruguay Round agreements and were not included in the first two U.S. trade agreements with Israel and Canada.²⁵⁵ However, labor rights provisions were included in all subsequent U.S. trade agreements and have encompassed more obligations over time, evolving from relatively limited commitments in early agreements to more explicit obligations subject to dispute settlement and enforcement in more recent agreements. Recent trade agreements have also included greater levels of cooperation, covering technical assistance and capacity-building measures focused on strengthening U.S. trade partners' domestic institutions, such as labor ministries and courts.

Four Models for Labor Rights in U.S. Bilateral and Regional Agreements

The U.S. trade agreements covered by this report can be divided into four basic groups on the basis of the labor provisions they contain, with the agreements in each group providing similar levels of rights and obligations. The labor provisions in each group are based on a template that generally builds on the previous template, with stronger rights, obligations, and cooperation on labor matters appearing in successive agreements (table 2.5).²⁵⁶

Table 2.5: Models of labor provisions in U.S. bilateral and regional trade agreements

U.S. trade agreements (entry into force)	Key features
NAFTA (1994)	Labor rights are covered in a side agreement, the North American Agreement on Labor Cooperation (NAALC). Countries should enforce own labor laws. No reference to ILO standards. Enforcement limited to occupational safety and health, child labor, and wage standards
Jordan (2001)	Labor rights are covered in the main text of the agreement. First reference to internationally recognized labor rights—the 1998 ILO

²⁵³ ILO core principles were adopted in 1998. ILO, “Declaration on Fundamental Principles and Rights at Work,” <http://www.ilo.org/declaration/lang-en/index.htm> (accessed November 30, 2015).

²⁵⁴ An addition to the GSP statute referenced international workers' rights. GSP Renewal Act of 1984, <https://www.govtrack.us/congress/bills/98/hr6023>; Wedding, “The Evolution and Enforcement of Labor Provisions,” April 24, 2010; International Labor Rights Forum, <http://www.laborrights.org/about/history> (accessed February 16, 2016); Compra and Vogt, “Labor Rights in the Generalized System of Preferences,” 2011.

²⁵⁵ The WTO recognizes the ILO as the standards-setting body for worker rights. Labor rights provisions were also included in U.S. Textile Agreement with Cambodia (1999).

²⁵⁶ Also see appendix E, table E.7.

Chapter 2: Provisions of the Trade Agreements

U.S. trade agreements (entry into force)	Key features
	Declaration, which represents a reduction in the scope of coverage as compared to the NAALC. Labor rights technically enforceable, but not in practice.
Chile, Singapore, Australia, Morocco, Bahrain, Oman, CAFTA-DR (2004–09)	Full chapters on labor rights are included in trade agreement texts. Countries strive to ensure that ILO principles are recognized and protected in domestic laws. Increased cooperation and consultations. Enforcement limited to the obligation for parties to enforce their own labor laws.
Peru, Korea, Colombia, Panama (2009–12).	Building on the previous template, countries must adopt domestic laws and regulations consistent with ILO principles. All labor provisions are fully enforceable under trade agreement dispute settlement chapters.

Source: Compiled by USITC.

NAFTA marked the introduction of labor rights in U.S. trade agreements. A side letter to the agreement, the North American Agreement on Labor Cooperation (NAALC), went beyond the scope of labor rights in the GSP text, covering wages, equal pay for men and women, compensation for occupational injuries, and protection of migrant workers.²⁵⁷ Under NAALC, partners committed only to enforce their own domestic labor laws, and only certain labor principles (occupational safety and health, child labor, and wage standards) are subject to enforceable sanctions.²⁵⁸

The U.S.-Jordan agreement was the first U.S. trade agreement to cover labor rights in the main text. It committed both parties to strive to adopt domestic laws consistent with the 1998 ILO Declaration on Fundamental Principles and Rights at Work.²⁵⁹ Significantly, labor rights are subject to the same dispute settlement and enforcement procedures as commercial trade agreement provisions; however, both governments agreed in a side letter not to resolve disputes using trade agreement sanctions.²⁶⁰

The U.S.-Chile agreement marked the first instance in which a full labor rights chapter was included in the body of a U.S. trade agreement. This chapter includes consultations and bilateral cooperation on labor matters, compliance with fundamental labor standards, and an obligation to “strive to ensure” that ILO basic principles are “recognized and protected by domestic law.”²⁶¹ The agreement also includes a specific mechanism for cooperation and

²⁵⁷ The NAALC was signed in 1993 and entered into force in 1994. USDOL, “North American Agreement on Labor Cooperation: A Guide,” October 2005.

²⁵⁸ CRS, *Overview of Labor Enforcement Issues*, January 29, 2014, 3.

²⁵⁹ This narrowed the scope of labor rights to ILO principles, making labor rights more consistent with GSP labor provisions. Reference to the 1998 Declaration is included in all subsequent U.S. trade agreements. International Labour Organization, “ILO Declaration on Fundamental Principles and Rights at Work,” <http://www.ilo.org/declaration/lang-en/index.htm>.

²⁶⁰ CRS, *Overview of Labor Enforcement Issues*, January 29, 2014, 3.

²⁶¹ U.S.- Chile FTA, Art. 18.7.1.

consultations on labor matters. The same basic framework became a template for the labor chapters included in subsequent U.S. trade agreements that entered into force by January 2009, including Singapore, Australia, Morocco, Bahrain, Oman, and CAFTA-DR.²⁶²

In a bipartisan agreement concluded on May 10, 2007, the U.S. Congress and Executive branch agreed to increase the stringency of labor provisions included in U.S. bilateral and regional trade agreements. As a result, U.S. trade agreements finalized after 2007 include obligations to adopt domestic legislation consistent with core ILO labor standards and to subject all labor provisions to the same dispute settlement procedures and remedies as commercial obligations in the trade agreements (see appendix E, table E.7).²⁶³

Impacts of Labor Provisions

The gradual strengthening of labor rights protections, enforcement, cooperation, and capacity building in U.S. trade agreements has had a positive impact on workers, according to several sources. The Government Accountability Office (GAO) found that U.S. bilateral and regional trade agreement partners have taken steps to strengthen labor rights, including changing domestic labor laws, and that Colombia and Guatemala have “acted to address violence against union members.” GAO also found that spending on technical assistance has increased but that challenges remain, including a lack of enforcement capacity in many countries.²⁶⁴ Wedding finds that, because of the potential economic benefit of trade agreements, the United States is able to oblige countries to improve their domestic labor laws and practices pre-ratification. After ratification, he argues, labor commitments under trade agreements give more visibility to labor concerns, which can be raised by domestic stakeholders and nongovernmental organizations.²⁶⁵ Dewan and Ronconi found that agreements with Latin American countries led to increased enforcement of existing labor laws, including more labor inspectors and inspections, compared to non-trade agreement Latin American countries.²⁶⁶

On the other hand, despite extensive coverage and treatment in U.S. trade agreements, very few labor complaints (submissions) have been filed. Since 2008, the U.S. Department of Labor’s Bureau of International Labor Affairs has accepted only five formal submissions. Only one

²⁶² Concern in the United States over the lack of compliance in CAFTA-DR partner countries resulted in an emphasis on and a strengthening of technical assistance and capacity building in the agreement. Wedding, “The Evolution and Enforcement of Labor Provisions,” April 25, 2010, 6, 11.

²⁶³ USTR, “Bipartisan Trade Deal,” May 2007; ILO, “Free Trade Agreements and Labour Rights,” n.d. (accessed February 16, 2016).

²⁶⁴ GAO, *Free Trade Agreements: U.S. Partners*, November 2014.

²⁶⁵ Wedding, “The Evolution and Enforcement of Labor Provisions,” April 25, 2010, 11.

²⁶⁶ Dewan and Ronconi, “U.S. Free Trade Agreements and Enforcement,” 2014.

submission has resulted in the engagement of the dispute settlement process under agreement provisions.²⁶⁷

Environment

While the Uruguay Round agreements do not contain explicit provisions regarding the environment, U.S. bilateral and regional trade agreements do contain specific environmental obligations. These environment commitments have become stronger through time, with the four most recent agreements (Peru, Panama, Colombia, and Korea) incorporating the strongest environmental provisions to date.

Uruguay Round Agreements

The WTO Uruguay Round agreements do not include specific environmental provisions. However, Article XX of the GATT (General Exceptions) does permit members to maintain measures that restrict trade and protect the environment, so long as they are applied in a nondiscriminatory fashion, upholding the principles of national treatment and MFN treatment.²⁶⁸ Article XIV(b) of the WTO General Agreement on Trade in Services contains a similar exception. The WTO TBT and SPS agreements also recognize members' rights to protect animal or plant health and the environment at the level they choose, but seek to ensure that environmental regulations do not create unnecessary obstacles to international trade.²⁶⁹ A similar provision is found in the post-2007 U.S. bilateral trade agreements, as described below.

U.S. Bilateral and Regional Trade Agreements

In contrast to the Uruguay Round agreements, all U.S. bilateral and regional trade agreements beginning with NAFTA contain a commitment that the parties shall effectively enforce their own environmental laws.²⁷⁰ NAFTA environmental provisions were included in a side agreement (the North American Agreement on Environmental Cooperation). Following NAFTA, environmental provisions were included in the main text of every U.S. bilateral and regional trade agreement, but before 2007, the only enforceable environmental provision in these

²⁶⁷ The United States is engaged in a formal dispute settlement process with Guatemala under CAFTA-DR. USDOL, Bureau of International Labor Affairs, and Executive Office of the President, *Standing Up for Worker's Rights*, 2015. For more information on this labor dispute, see USTR, "In the Matter of Guatemala," n.d. (accessed February 16, 2016).

²⁶⁸ Specifically, Articles XX(b) and (g) allow WTO members to justify GATT-inconsistent measures either if they are necessary to protect human, animal, or plant life or health, or if the measures relate to the conservation of exhaustible natural resources, respectively.

²⁶⁹ WTO, "WTO, Environment and Trade," February 2012; WTO, "WTO Rules and Environmental Policies," n.d. (accessed February 16, 2016).

²⁷⁰ The U.S. trade agreements with Israel and Canada did not include environment provisions.

agreements continued to be the parties' obligation to enforce their own environmental laws. Appendix E, table E.8 summarizes the provisions that are included in each bilateral and regional trade agreement. In addition to the enforceable provisions included in the body of each trade agreement, some agreements have included side agreements under which the U.S. government has provided various forms of environment-related technical assistance and capacity building to partner countries. Outcomes have included new environmental laws and regulations in these countries, training for local populations, and better enforcement of existing laws.²⁷¹

As one example, the environment chapter of CAFTA-DR established an independent forum for public participation in the enforcement of environmental laws. The CAFTA-DR Secretariat for Environmental Matters accepts and reviews submissions from the public about enforcement of environmental laws, and any party to the trade agreement can request a public report from the secretariat on a specific issue. While not enforceable under the agreement, this public engagement can shed light on environmental problems and lead to changes.²⁷²

Following a bipartisan U.S. Congressional-Executive agreement concluded on May 10, 2007, U.S. bilateral trade agreements evolved to include additional environmental provisions, strengthening the commitment to environmental obligations and their enforcement. These new provisions—found in all four of the U.S. trade agreements concluded since 2007—require that U.S. trade agreement partners adopt and enforce new laws and regulations, both to fulfill their existing obligations under six multilateral environmental agreements and to promote conservation and the sustainable use of biodiversity (see appendix E, table E.8).²⁷³ In addition, under the provisions of the four agreements, all environmental obligations are subject to the same dispute settlement procedures as other obligations in these agreements, with the same potential for trade sanctions in the event of a violation.²⁷⁴ Post-May 2007 agreements also include a provision stating that parties may balance their obligations under multilateral environmental agreements with their obligations under these trade agreements, and that parties may maintain environmental measures so long as the primary purpose of such measures is not to impose a disguised restriction on trade.²⁷⁵

²⁷¹ For more information, see USTR, “Standing Up for the Environment,” 2015.

²⁷² USTR, “Standing Up for the Environment,” 2015, 32–33.

²⁷³ Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973); Montreal Protocol on Substances that Deplete the Ozone Layer (1987); Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships (1973), February 17, 1978, as amended; Convention on the Wetlands of International Importance Especially as Waterfowl Habitat (1971); International Convention for the Regulation of Whaling (1946); Convention for the Establishment of an Inter-American Tropical Tuna Commission (1949).

²⁷⁴ USTR, “Standing Up for the Environment,” May 2015, 3–4; CRS, *The U.S.-Panama Free Trade Agreement*, November 8, 2012, 26–27.

²⁷⁵ In KORUS, stated in Article 20.10[3].

To address concerns related to illegal logging in Peru, the U.S.-Peru agreement—which was signed in 2006 and ratified in 2009—also contains a unique annex focusing on forest sector governance. The annex includes specific obligations requiring Peru to strengthen its forestry laws and improve oversight and enforcement of regulations on illegal logging.²⁷⁶

Impacts of Environment Provisions

A primary objective of the environmental provisions in U.S. bilateral and regional trade agreements is to improve environmental conditions across borders and in U.S. partner countries.²⁷⁷ These provisions thus do not have significant direct economic impacts on the United States. However, they may impact the U.S. economy by inducing trading partners to implement or strengthen their environmental laws, thus raising production costs in those markets to a level closer to that of the United States and making U.S. goods more competitive.²⁷⁸

Environmental organizations have generally voiced support for the environmental provisions in U.S. bilateral and regional trade agreements, but have raised concerns about enforcement and implementation. Before the May 2007 agreement, there were concerns that the provisions were not enforceable. Since 2007, concerns have been raised as to whether the provisions would in fact be enforced through the state-to-state dispute settlement process, given that no party to a U.S. trade agreements has ever initiated a dispute settlement case under these environment provisions.²⁷⁹ According to a recent report by the U.S. GAO examining environmental outcomes in Chile, El Salvador, Guatemala, and Peru following U.S. trade agreements with those countries, all four countries have passed new environmental laws and established new governmental institutions to improve environmental protection following the implementation of these agreements.²⁸⁰ Although U.S. government monitoring of cooperation activities initiated under U.S. trade agreements has improved, U.S. funding for capacity-building activities—which have been instrumental in achieving positive environmental outcomes—has dropped since 2009.²⁸¹

²⁷⁶ USTR, “Standing Up for the Environment,” 2015, 3.

²⁷⁷ USTR, “Standing Up for the Environment,” 2015, 1.

²⁷⁸ World Wildlife Fund, “Natural Resource Trade and the Trans-Pacific Partnership,” February 2014; nongovernmental organization representative, telephone interview with USITC staff, March 7, 2016.

²⁷⁹ Center for International Environmental Law, “The Trans-Pacific Partnership and the Environment,” November 2015, 3–4.

²⁸⁰ GAO, “Free Trade Agreements,” November 2014, 9–12.

²⁸¹ For additional detail on funding levels under particular U.S. bilateral and regional trade agreements, see GAO, *Free Trade Agreements*, November 2014, 12–20, 28–33.

Government Procurement

Government procurement provisions in trade agreements typically encourage or require member countries to maintain open, transparent, and nondiscriminatory procedures that permit companies based in signatory countries to compete in government tenders on the same basis as local companies. Because government purchases typically account for up to 15 percent of an economy's GDP, obtaining equal access for U.S. suppliers in foreign markets has been a key U.S. goal in all trade agreement negotiations.²⁸²

Uruguay Round Agreements

During the Uruguay Round, government procurement was addressed through the establishment of a voluntary plurilateral agreement, the WTO Government Procurement Agreement (GPA).²⁸³ While most U.S. trading partners have not made specific commitments to provide nondiscriminatory treatment in government procurement under this agreement, the GPA serves as an important precedent. All U.S. bilateral and regional trade agreements include specific government procurement commitments modeled closely on those of the GPA.

The GPA includes several key elements. First, it includes national treatment and nondiscrimination obligations, requiring members to ensure that foreign companies are treated no less favorably than domestic companies in the government procurement process. Second, the GPA contains transparency obligations, which include detailed provisions concerning notices of upcoming procurements, information about the procurement system in the procuring country, technical specifications for the procurements, a system for companies to qualify as suppliers, information requirements for tenders, publication of award documentation, and availability of other procurement-related information (e.g., relevant statutes and regulations).

The GPA also includes individual members' commitments specifying the national and subnational agencies which will open procurements to foreign participation. At the same time, these commitments set threshold values ensuring that most larger procurements would not be open to foreign suppliers under the terms of the agreement.²⁸⁴

²⁸² Grier, "Government Procurement in the WTO," 2015; USTR, "TPP Made in America: Chapter 15," November 5, 2015.

²⁸³ The 1979 Government Procurement Agreement, one of the 1979 Tokyo Round Agreements, served as a model for the Uruguay Round GPA.

²⁸⁴ Uruguay Round Trade Agreements, Texts of Agreements, Implementing Bill, Statement of Administrative Action, and Required Supporting Statements, 1994, 368–73; WTO, "Government Procurement," n.d. (accessed March 16, 2016).

U.S. Bilateral and Regional Trade Agreements

The evolution of government procurement provisions in U.S. trade agreements is intertwined with the evolution of such provisions at the multilateral level in the GATT and WTO. The government procurement chapter of the U.S.-Canada agreement contained significant improvements over the existing GATT agreement in the areas of thresholds, entity coverage, and procedural norms.²⁸⁵ Additional improvements were introduced in NAFTA, which were related to negotiation of the GPA during the Uruguay Round.

All subsequent U.S. trade agreements have included government procurement chapters based on the norms of the GPA. Since many U.S. trade agreement partners are not members of the GPA, the incorporation of GPA principles into U.S. trade agreements constitutes a significant expansion of benefits and market access for U.S. suppliers into trading partners' markets. In the cases of Canada, Singapore, and Korea—all of which are GPA members—U.S. trade agreements have included higher standards in areas such as access to technical specifications, limited tendering, and timeliness of information.

The commitments contained in each U.S. trade agreement are summarized in appendix E, table E.9. This table indicates whether the government procurement provisions in particular agreements are largely identical to those of the GPA (marked as “GPA”), cover less (marked as “GPA-”), or include more than the GPA (marked as “GPA+”).

Impacts of Government Procurement Provisions

Commission research has uncovered no studies or industry views specifically bearing on the impact of these provisions on the U.S. economy. Two economic studies support the view that the enhanced procedures and transparency required by bilateral and regional trade agreements oblige U.S. trading partners to maintain more predictable procurement practices, diminish waste, and enhance fairness and access to their contracts, both for domestic and foreign suppliers.²⁸⁶ Two other studies found that trade agreements have had little impact on U.S. firms' ability to participate in foreign government procurements.²⁸⁷

²⁸⁵ Revised Tokyo Round Code on Government Procurement, 1987.

²⁸⁶ ADB, “Trade and Procurement,” 2013; OECD, “Public Procurement for Sustainable and Inclusive Growth,” n.d. (accessed March 11, 2016); Arrowsmith and Anderson, *The WTO Regime on Government Procurement*, 2011.

²⁸⁷ Public Citizen, “Backgrounder on International Trade Agreements' Constraints,” n.d. (accessed March 11, 2016); Rickard and Kono, “Think Globally, Buy Locally,” 2013.

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Additional Views of Commissioner Kieff

I appreciate the extensive and careful work of the staff and my colleagues, as well as the many helpful submissions by those participating in our hearing and the rest of our public process. I concur with the thoughtful discussion in this report of intellectual property (IP), in general, including patents in particular. I write here to further elaborate some ideas about the admittedly subtle and somewhat arcane nuances in the role IP can play in both domestic and foreign economies in the hope of helping all of us who are interested in analyzing the various options for approaching IP systems.

Many discussions of IP, including many offered by those testifying at our hearing, and many in the contemporary literature focus on the role IP can play on the one hand in providing beneficial incentives to create or invent, and on the other hand in enabling harmful concentration of market power leading to increased prices and reduced output. Such discussions often then focus essentially on how much of the good is enough, how much of the bad is too much, and tradeoffs between them.

In effect, those discussions highlight a direct tension between IP as causes of helpful incentives to create or invent and IP as causes of deleterious anticompetitive monopoly effects that can be especially harmful to the poor. They then offer various approaches to legal regimes to address both sides of the tension. One set of approaches includes the use of other inducements or rewards for creation or invention in the place of or in addition to IP, such as regulatory exclusivity, tax credits, grants, prizes, and the like. A second set of approaches exempts particular fields of technology from eligibility for IP protection, such as those having to do with healthcare, software, or finance, usually with the expectation of significant frequent and ongoing updates to the boundaries of these exempted fields. A third set of approaches decreases the remedies available for IP infringement, including damages, injunctions, and exclusion orders. A fourth set of approaches directly addresses interactions between IP owners and IP users, including heightened antitrust scrutiny, compulsory licenses, and governmental takings of IP licenses or the entire IP rights themselves. Many other ideas are also offered.

A common theme across these sets of approaches is to view IP more in the tradition of public law, or as regulatory entitlements, by focusing more on the use of more extensive interactions between governmental bodies and private parties. The overarching goals across perspectives in the literature are generally shared and laudatory: fostering access to creative or inventive technologies, competition, economic growth, and diverse and inclusive participation; improving both efficiency and fairness for all.

These shared goals also are championed by an intellectual approach to IP that is different than those briefly mentioned above. This different approach—a commercialization approach—has been embraced across the American political spectrum, including both the Carter

administration and the Reagan administration, as well as by celebrated jurists of the last century coming from diverse philosophical perspectives, including Circuit Judges Learned Hand, Jerome Frank, and Giles Rich, who saw it as important to helping the economy and society. The roots of a commercialization approach to patents, in particular, reach back even further into American history, including Abraham Lincoln's view that the patent system "added the fuel of interest to the fire of genius, in the discovery and production of new and useful things."²⁸⁸ Its study has also long extended far beyond our nation.

A commercialization approach to IP views IP more in the tradition of private law, as property rights, by focusing on the use of more extensive interactions between private parties, including contracts. Centered on the relationships among private parties, this approach to IP emphasizes a different target and a different mechanism by which IP can operate. Rather than target individuals who are likely to respond to IP as incentives to create or invent in particular, this approach targets a broad, diverse set of market actors in general. This broad set of target actors encompasses the creator or inventor as well as all those complementary users of a creation or an invention who can help bring it to market, such as investors (including venture capitalists), entrepreneurs, managers, marketers, developers, laborers, and owners of other key assets, tangible and intangible, including other creations or inventions. Another key difference in this approach to IP lies in the mechanism by which the IP and these private actors interact. This approach sees IP as tools for facilitating coordination among these diverse private actors, in furtherance of their own private interests in commercializing the creation or invention.

This commercialization approach sees property rights in IP serving a role akin to beacons in the dark, drawing to themselves all of those potential complementary users of the IP-protected-asset to interact with the IP owner and each other, exploring through the bargaining process the possibility of striking contracts with each other. Focusing on such a beacon-and-bargain effect can relieve the governmental side of the IP system of the need to amass the detailed information required to reasonably tailor a direct targeted incentive, such as each actors' relative interests and contributions, needs, skills, or the like. Not only is amassing all of that information hard for the government to do, but large, established market actors may be better able than smaller market entrants to wield the political influence needed to get the government to act, increasing risk of concerns about political economy, public choice, and fairness. Instead, each private party can bring its own expertise and other assets to the negotiating table while knowing—without necessarily having to reveal it to other parties or the government—enough about its own level of interest and capability when it decides whether to strike a deal or not.

²⁸⁸ Abraham Lincoln, "Second Lecture on Discoveries and Inventions" (February 11, 1859), 3, in *The Collected Works of Abraham Lincoln*, edited by Roy P. Basler, Rutgers University Press, 1953, 356, 363 (emphasis added and omitted).

Such successful coordination may help bring new business models, products, and services to market. It also can allow IP owners and their contracting parties to appropriate the returns to any of the rival inputs they invested towards developing and commercializing creations or inventions—labor, lab space, capital, and the like. At the same time, the government can avoid having to then go back to evaluate and trace the actual relative contributions that each participant brought to a creation’s or an invention’s successful commercialization—including, again, the cost of obtaining and using that information and the associated risks of political influence—by enforcing the terms of the contracts these parties strike with each other to allocate any value resulting from the creation’s or invention’s commercialization. In addition, significant economic theory and empirical evidence suggests this can all happen while the quality-adjusted prices paid by many end users actually decline and public access is high. In keeping with this commercialization approach, patents can be important antimonopoly devices, helping a smaller “David” come to market and compete against a larger “Goliath.”²⁸⁹

A commercialization approach thereby mitigates many of the challenges raised by the tension that is the focus of the other intellectual approaches to IP, as well as by their responses to that tension. Many of the alternatives to IP that are often suggested by other approaches to IP, such as rewards or tax credits, can face significant challenges in facilitating the private sector coordination benefits envisioned by the commercialization approach to IP. While such approaches often are motivated by concerns about rising prices paid by consumers and direct benefits paid to creators and inventors, they may not account for the important cases in which IP are associated with declines in quality-adjusted prices paid by consumers and other forms of commercial benefits accrued to the entire IP production team as well as to consumers and third parties, which are emphasized in a commercialization approach. In addition, a commercialization approach can embrace many of the practical checks on the market power of an IP right that are often suggested by other approaches to IP, such as antitrust review, government takings, and compulsory licensing, while at the same time showing the importance of maintaining self-limiting principles within each such check to maintain commercialization benefits and mitigate concerns about dynamic efficiency, public choice, fairness, and the like.

To be sure, a focus on commercialization does not ignore creators or inventors or creations or inventions themselves. For example, a system successful in commercializing inventions can have the collateral benefit of providing positive incentives to those who do invent through the possibility of sharing in the many rewards associated with successful commercialization. Nor does a focus on commercialization guarantee that IP rights cause more help than harm. Significant theoretical and empirical questions remain open about benefits and costs of each approach to IP.

²⁸⁹ See *Picard v. United Aircraft Corp.*, 128 F.2d 632, 643 (2d Cir. 1942) (Frank, J., concurring).

Additional Views of Commissioner Kieff

One size rarely fits all, and each approach typically involves benefits as well as costs. Nevertheless, there are good reasons to think that a rules-based trading system can embrace a combination of the many diverse approaches to IP explored here, and others, within a national economy, as well as across international borders. It can be attentive to concerns about efficiency and fairness. The brief discussion here is designed to shed some added light on an approach that has not been as thoroughly explored as other approaches in witness testimony at our hearing or in other contemporary literature. It takes no position on any pending or proposed governmental actions. It is offered in the hope it might help empower and enable ongoing analysis by those studying any IP system as they work to ensure the best fit for themselves.

Chapter 3

Estimates of the Economic Impact of the Agreements on the U.S. Economy

Introduction

According to economic theory, trade agreements can affect the economies of the partner countries in many different ways. The most direct effects are the removal of barriers to cross-border trade in goods and services and the facilitation of cross-border investment. The resulting changes in international trade and investment shift the pattern of specialization in each country's production toward products in which the country has a comparative advantage. This reshaping of the economy can increase productivity, encourage new investment, and reduce the prices consumers face.

The chapter presents estimates of the impact on the U.S. economy of trade agreements involving the United States ("U.S. trade agreements") that have been implemented since 1984. The analysis uses modeling methodologies developed in academic studies, updating and modifying the source models to specifically estimate the impacts of U.S. trade agreements on the U.S. economy.

The scope of agreements and economic outcomes addressed in this chapter is broad. The chapter includes estimates of the effects on the U.S. economy as a whole, as well as industry-specific results. The economic models address the multilateral Uruguay Round Agreements (URAs), including the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), the Information Technology Agreement (ITA), and the Agreement on Textiles and Clothing (ATC), as well as the entire set of U.S. bilateral and regional trade agreements.²⁹⁰

Broad Themes

Three broad themes emerge from the quantitative analysis presented in this chapter. The first is that the agreements have had economically significant effects on U.S. imports and exports of agricultural products, manufactures, and tradable services. They have increased bilateral flows

²⁹⁰ Figure 1.1 (chapter 1) lists the U.S. agreements covered in this report. Also see chapter 1 (footnote) for links to full texts of these agreements.

with the partner countries by 26.3 percent on average across the trade goods and services sectors. They have had much smaller effects on U.S. aggregate imports and exports: the agreements generally increased U.S. aggregate trade flows by about 3 percent. And the impact on the overall U.S. economy is smaller still: all of the U.S. bilateral and regional trade agreements combined increased U.S. real GDP and aggregate U.S. employment by less than 1 percent. The size of the estimated effects is in line with the academic literature reviewed in chapter 5. The effects on real GDP are not large compared to recent business cycle swings in the U.S. economy, but they still amount to billions of dollars per year. There has been a reallocation of workers across sectors of the economy, but only small effects on total employment and wages in the United States.

A second broad theme is that the agreements that focus on specific industries but apply to a large number of countries—including TRIPS, ITA, and the zero-for-zero agreements in the Uruguay Round—have had larger impacts on trade in targeted sectors than agreements that cover many products but are limited to one or a small number of partner countries.

A third broad theme is that the trade agreements have affected the U.S. economy in many ways—both positive and negative—beyond their direct impact on international trade flows. These include benefits to consumers from lower prices and increased product variety, increases in U.S. aggregate employment, an increase in the wage gap between higher- and lower-skilled workers, and increases in U.S. receipts for the use of U.S. intellectual property in other countries.

Analytical Approach

Econometric modeling is an analytical tool well suited to the task of estimating economic impacts after a trade agreement has entered into force.²⁹¹ Econometric models estimate the historical relationship between economic outcomes (like trade in goods and services, investment, and receipts for the use of intellectual property) and the trade agreements, while also accounting for other economic factors that are reflected in the historical data. The models do not try to assess the relative importance of all of the determinants of trade, investment, and

²⁹¹ The retrospective approach used in this chapter is different from the simulation modeling used in the Commission's prospective analysis of proposed trade agreements. In the Commission's prospective analysis, the models try to simulate the impact of the specific provisions of the proposed trade agreements. The modeling in the Commission's previous probable economy wide effects studies of agreements covered by this study was not intended to forecast what will happen to trade and output in the baseline or after full implementation of the specific provisions of the agreements. Rather, the modeling estimates the incremental effect on the economy, relative to the constructed baseline, of the removal or reduction of specific trade barriers identified in the agreement, with markets fully adjusted and holding other factors—including business cycle fluctuations, international financial flows, and exchange rates—constant. In contrast, the retrospective models in this chapter use data that reflect what happened to the U.S. economy after the agreements entered into force.

the other economic outcomes; instead, they isolate the *incremental* impact of the trade agreements, which is often statistically significant even when the agreements are not the most important factor determining the pattern of international trade and investment.

Retrospective analysis has its challenges. There are many coinciding economic events in the historical data, and it is difficult to isolate the economic impacts of the agreements. For example, the implementation of NAFTA coincided with a large depreciation of the Mexican peso, and both factors had a significant impact on trade between the United States and Mexico.

The quantitative estimates cover many trade agreements and different types of economic outcomes, but they are not comprehensive. They do not capture all of the economic benefits of the agreements, or all of the economic costs, due to limits on available data and analytic techniques.

Summary Estimates and Chapter Organization

Table 3.1 summarizes key findings of the Commission's estimates, listed sequentially as they appear in this chapter.

Table 3.1: Estimates from the Commission’s economic modeling of the effects of the agreements

Type of economic impact	Findings
Effects on bilateral trade	The bilateral and regional trade agreements increased bilateral trade with partner countries by 26.3 percent in 2012.
Effects on total exports and imports	The bilateral and regional trade agreements increased total U.S. exports by 3.6 percent in 2012. They increased total U.S. imports by 2.3 percent.
Effects on real GDP	The bilateral and regional trade agreements increased real GDP by \$32.2 billion (0.2 percent) in 2012.
Effects on U.S. labor markets	The bilateral and regional trade agreements increased total employment by 159.3 thousand fulltime equivalent employees (0.1 percent) and increased real wages by 0.3 percent in 2012.
Effects on U.S. receipts for intellectual property	Increases in patent protection since the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) entered into force increased U.S. international receipts for the use of intellectual property by \$10.3 billion (12.6 percent) in 2010.
Effects on international investment	The bilateral and regional trade agreements had a mixed effect on foreign direct investment, in some cases increasing and in other cases decreasing inbound and outbound investment flows.
Effects on bilateral trade balances	The bilateral and regional trade agreements had a positive effect, on average, on U.S. bilateral merchandise trade balances with the partner countries, increasing trade surpluses or reducing trade deficits by a total of \$87.5 billion (59.2 percent) in 2015.
Effects on U.S. consumers	The bilateral and regional trade agreements resulted in tariff savings of up to \$13.4 billion in 2014, with a significant part of these savings benefiting U.S. consumers, and also increased the variety of products imported by the United States.
Effects of the Information Technology Agreement (ITA) on U.S. information technology exports	The ITA increased annual U.S. exports of covered information technology products by \$34.4 billion (56.7 percent) in 2010.
Effects of the Uruguay Round and NAFTA tariff reductions on U.S. steel imports	These agreements are estimated to have increased annual U.S. steel imports by \$1.2 billion (14.7 percent) in 2000.
Effects on U.S. employment in the textile and apparel industries	Rising imports, due in part to the Agreement on Textiles and Clothing (ATC), accounted for most of the reduction in U.S. employment in the apparel industry between 1998 and 2014.

Source: USITC estimates.

Note: The estimates are reported for various years based on data availability or the time period over which an agreement was implemented or effects of agreements could be measured. **Estimated impacts in the table represent changes relative to the levels of economic outcomes that would have existed absent the agreements.**

The first section of this chapter presents estimates of the effects of the U.S. bilateral and regional trade agreements on the U.S. economy as a whole. The estimates are based on econometric models of the impact of these agreements on barriers to cross-border trade in goods and services and on simulations using a computable general equilibrium (CGE) model that translate these econometric estimates into economy-wide effects.

The next section presents estimates of the effects of the URAs and the bilateral and regional trade agreements on international investment, intellectual property, and bilateral merchandise trade balances. These estimates are based on the following: (1) econometric models of the

correlation of the increase in patent protection in the “TRIPS era”—the period following the entry into force of the TRIPS Agreement—and the increase in U.S. receipts for the use of U.S. intellectual property in other countries; (2) econometric models of the effects of the bilateral and regional trade agreements on U.S. foreign direct investment and foreign affiliate sales; and (3) econometric models of the effects of the bilateral and regional trade agreements on U.S. bilateral merchandise trade balances with partner countries.

The third section presents estimates of the consumer benefits of the U.S. bilateral and regional agreements. These estimates are based on econometric models of the effects of trade agreements on the variety of products imported into the United States, an analysis of firm-level data on product variety in U.S. imports from Korea, and a calculation of the tariff savings associated with each of the bilateral and regional trade agreements.

The final section in this chapter presents estimates of industry-specific effects of three parts of the URAs. An econometric model quantifies the impact of the ITA on U.S. exports of information and communication technology products. A second model quantifies the impact of NAFTA and Uruguay Round tariff reductions on U.S. imports of steel mill products. The third model estimates the impact of the increase in U.S. imports of textiles and apparel on the decline in U.S. employment in the textile and apparel industries between 1998 and 2014; the import increase coincided with the ATC but also with a period of rapid growth in output per worker.

Estimates of the Impact on the Economy as a Whole

The Commission used econometric analysis to estimate the effects of the bilateral and regional trade agreements on the U.S. economy as a whole. The estimates provide a macroeconomic view of the combined effects of these agreements on the real incomes of U.S. consumers and on the distribution of income in U.S. labor markets.

Impacts of the Agreements on Barriers to Cross-Border Trade in Goods and Services

The Commission combined an econometric model of trade with a CGE simulation model to estimate the impact of the bilateral and regional agreements on sector-level bilateral trade in goods and services. The models estimate the total tariff equivalents of the barriers to cross-border trade that are removed by the trade agreements, including both tariffs and nontariff measures. The tariff equivalents measure the sizes of the trade barriers that explain the

observed volume of trade between agreement partner countries, assuming that they can be approximately represented by an ad valorem tariff.

The econometric analysis is based on gravity models of trade that quantify the total effects of the agreements on trade flows.²⁹² They do not separately quantify the impacts of specific provisions of the agreements. The gravity models take into account other determinants of the pattern of international trade, including the level of aggregate expenditures and prices in each of the countries, how close the countries are to each other geographically, and whether they share a common language. Finally, the models allow for U.S. trade agreements to have larger (or smaller) effects on trade than non-U.S. agreements. Appendix F describes the details of the econometric models, including the data and methodology used.

Table 3.2 presents the Commission’s estimates of the impact of the U.S. bilateral and regional trade agreements on the tariff equivalents of the barriers to cross-border trade. “Impacts” here mean the agreements’ average effects on the size of barriers to imports, by sector.²⁹³ The U.S. agreements are associated with statistically significant reductions in trade barriers in the agricultural products, manufactures, and tradable services sectors. The estimated impacts, which include tariff reductions as well as reductions in nontariff barriers, are larger for agricultural products than for the manufacturing and services sectors.

Table 3.2: Estimates of the average impact of U.S. bilateral and regional trade agreements on barriers to cross-border trade

Groups of sectors	Percent reduction in the tariff equivalents of the barriers to cross-border trade	Percent increase in bilateral trade with partner countries
Grains and crops	6.6	31.8
Livestock and meat	6.1	37.9
Light manufacturing	4.9	31.9
Heavy manufacturing	4.3	25.1
Tradable services	3.5	9.8

Source: USITC calculations. The estimated impact on trade in mining and extraction sector is not significantly different from zero, and for this reason it is not included in the table.

The estimated percentage reductions in table 3.2 are averages for broad sectors of the U.S. economy. Some individual goods and services within these sectors started with much larger barriers to cross-border trade, while others had no barriers before the trade agreements entered into force. These reductions have significant economy-wide effects, because they apply to almost all sectors of the economies in the United States and its trading partners. The estimated percent increase in bilateral trade with agreement partner countries (26.3 percent in

²⁹² The models are based on Baier and Bergstrand, “Do Free Trade Agreements Actually Increase Members’ International Trade?” 2007.

²⁹³ These estimates are therefore narrower in scope than those in the academic literature, which represent averages across trade agreements whether or not they include the United States.

2012) is calculated as a trade-weighted average of the sector-specific percent increases in the final column in table 3.2.

Economy-Wide Effects of the Bilateral and Regional Trade Agreements

The trade agreements have direct effects on trade costs and trade flows. They have smaller, indirect effects on output and labor market outcomes in the U.S. economy. The estimates of economy-wide effects are based on simulations in the Global Trade Analysis Project (GTAP) CGE model of international trade. The simulations translate the impact on trade barriers in table 3.2 into impacts on macroeconomic outcomes in the United States, including GDP, aggregate trade flows, aggregate employment, and wages. The traditional GTAP model is extended to allow the aggregate labor supply in each country to respond to changes in real wages rather than remaining fixed, as it does in the traditional model. As a result, the trade agreements have an impact on U.S. aggregate employment levels in the simulations.

The first GTAP simulation gives a quantitative estimate of the impact on the U.S. economy in 2004 of the reductions in trade barriers achieved by the four U.S. trade agreements that had entered into force in 2004 or earlier (the U.S.-Israel FTA, NAFTA, the U.S.-Chile FTA, and the U.S.-Singapore FTA). The results of this first GTAP simulation are reported in the first column of estimates in table 3.3. All of the aggregate impacts were positive.²⁹⁴

Table 3.3: Economy-wide effects of the U.S. bilateral and regional trade agreements in force in 2004 and 2012

Aggregate economic impacts	Annual impact in 2004	Annual impact in 2012
Real GDP (percent increase)	0.13	0.21
Total U.S. exports (percent increase)	2.58	3.56
Total U.S. imports (percent increase)	2.77	2.30
Total employment of highly skilled workers (percent increase)	0.07	0.13
Total employment of less skilled workers (percent increase)	0.06	0.11
Real wages of highly skilled workers (percent increase)	0.17	0.32
Real wages of less skilled workers (percent increase)	0.15	0.29

Source: USITC calculations.

The second GTAP simulation quantifies the impact on the U.S. economy in 2012 of the reductions in trade barriers achieved by the U.S. bilateral and regional trade agreements that had entered into force by 2012. It includes the bilateral and regional trade agreements with

²⁹⁴ However, the GTAP simulation model does not capture the costs of employment transitions between sectors or the costs of temporary unemployment. For a discussion of the difficulties of modeling labor market transitions caused by trade agreements, see Riker and Swanson, "A Survey of Empirical Models of Labor Transitions," 2016.

Australia, Bahrain, Canada, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Israel, Jordan, Korea, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, and Singapore. This second simulation provides an estimate of the impact of the agreements on the U.S. economy in 2012. The results are reported in the second column of estimates in table 3.3.

In both simulations, the trade agreements had positive effects on U.S. consumers (reflected in the increase in real GDP), on U.S. labor markets (reflected in the increase in total employment and real wages), and on the volume of U.S. trade. The impacts on all of the aggregate measures of economy (other than total U.S. imports) are almost twice as large in 2012 as in 2004. This result is not surprising, since the later year includes many additional trade agreements.

Estimates of the Effects on International Investment, Intellectual Property, and Merchandise Trade Balances

This section presents estimates of the effects of the U.S. trade agreements on international investment, intellectual property, and bilateral merchandise trade balances. These are economic effects that are not explicitly included in the GTAP model and therefore are not quantified in the estimates of economy-wide effects presented in table 3.3. Since the effects on international investment and intellectual property are an important part of the trade policy debate, the Commission addresses these effects in a separate group of econometric models presented in this section. These include econometric models of the impact of the increase in patent protection in the TRIPS era on U.S. receipts for the use of U.S. intellectual property in other countries; econometric models of the effects of the agreements on U.S. foreign direct investment and foreign affiliate sales; and econometric models of the effects of the agreements on U.S. bilateral merchandise trade balances with partner countries.

Impacts of Foreign Patent Protection on U.S. Intellectual Property Receipts

With the founding of the WTO in 1995 and the “single undertaking” requirement that all members agree to the entire package of Uruguay Round rules, the countries that account for the vast majority of trade and investment now must meet the comprehensive intellectual property rights (IPR) requirements of TRIPS.²⁹⁵ TRIPS required a significant strengthening of

²⁹⁵ See chapter 2 for a description of the requirements of TRIPS and subsequent trade agreements, see also Maskus, “The New Globalization,” 2014, 267.

global norms, and subsequent U.S. bilateral and regional trade agreements built on and clarified these requirements.

As a global leader in innovation, the United States consistently has maintained a surplus in royalties, license fees, and other payments received for the use of intellectual property abroad (“IP receipts”). In 2010, for example, U.S. IP receipts were \$107.5 billion, compared to U.S. payments of \$32.5 billion. Most of these receipts (62.5 percent) were for the transfer of intellectual property between affiliated firms rather than transfers to unaffiliated firms or individual consumers. Partners in developed economies, particularly Europe, Japan, and Canada, were the largest sources of U.S. IP receipts in 2010.²⁹⁶

This section provides an econometric estimate of the effects of patent reforms abroad on U.S. IP receipts. The analysis finds that increases in foreign patent protection over the 1995–2010 period led to U.S. IP receipts that were \$10.3 billion (12.6 percent) higher in 2010 than they would have been without the addition patent protection.²⁹⁷

Changes in Patent Protection

The analysis focuses on a period that encompasses major international IPR reforms: 1995 to 2010. In particular, TRIPS required substantial reforms in the area of patents—for example, WTO members had to make patents available for new products and processes in all technology areas, with only limited exceptions, for a minimum period of 20 years.²⁹⁸ Additional patent reforms were spurred by the requirements of trade agreements negotiated by the United States and Europe during this period, as well as unilateral reforms. The United States entered into 16 bilateral and regional trade agreements during the period from 1995 through 2010, all with comprehensive IPR chapters.²⁹⁹ While it is not possible to identify all of the reasons that countries reformed their IPR systems during this period, scholars consider TRIPS, trade agreements, and internal policy decisions to be the main motivating factors.³⁰⁰

²⁹⁶ U.S. Bureau of Economic Analysis (BEA), “Table 2.1,” October 15, 2015.

²⁹⁷ Payments received by U.S. firms for the use of their IP abroad represent only one mode of IPR-sensitive trade. IP may be embedded in goods, such as pharmaceuticals and communications technologies; services; and foreign direct investment (FDI). This estimation does not address the effects of IPR protection on these other modes of IPR-sensitive trade and investment. It also does not address the prices of IPR-intensive goods or services. Literature and hearing testimony on this topic are described in chapter 2. Literature and hearing testimony on this topic are discussed in chapter 2. See also Maskus, *Private Rights and Public Problems*, 2014, 66–67.

²⁹⁸ Once TRIPS came into effect, developed countries had until 1996 to implement IPR changes, while transition periods for developing countries extended until 2005, and until even later for least-developed countries. Akhtar and Fergusson, *Intellectual Property Rights and International Trade*, 2014, 15.

²⁹⁹ U.S. trade agreements with Australia, Bahrain, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Morocco, Nicaragua, Oman, Peru, Singapore, and Korea entered into force during this period.

³⁰⁰ Maskus, “The New Globalization,” 2014, 271–73; Park, “International Patent Protection,” 2008, 763–64.

The effects of the trade agreements generally were different in developed and developing countries. Developed countries saw relatively modest increases in their measured levels of patent protection from 1995 through 2010, as many already had strong patent laws in place. By contrast, large developing countries that joined the WTO during this period—such as China, India, Mexico, and Brazil—made substantial reforms to their patent laws. U.S. trade agreement partners—including El Salvador, Guatemala, Jordan, Morocco, Nicaragua, and Peru—also substantially increased patent protections.³⁰¹ Some least-developed countries are still in the process of implementing reforms.³⁰²

The objective measure of the level of IPR-related legal protections most accepted in the literature is an index developed by Juan Ginarte and Walter Park (the GP Index).³⁰³ The GP Index measures patent protections at five-year intervals for a large group of countries over an extended period of time. Each country's patent laws are scored based on five broad categories: (1) scope of patent coverage; (2) membership in international treaties; (3) duration of coverage; (4) enforcement mechanisms; and (5) patent restrictions.³⁰⁴ These categories generally track many of the patent reforms required by TRIPS and other trade agreements.³⁰⁵

Table 3.4 reports changes in the GP Index for several groups of countries with different participation in trade agreements. The average value of the GP Index across all countries rose from 2.5 (out of 5) in 1995 to 3.3 in 2010. The average increase in patent protection for TRIPS members was larger than for nonmembers. In addition, the average increase was greater for TRIPS members with a bilateral or regional trade agreement with the United States than for those without. These facts suggest that patent reform correlated with participation in trade agreements during this period.³⁰⁶

³⁰¹ Park, "International Patent Protection," 2008, 763–64; Park, "Patent Index," n.d. (accessed April 19, 2016); and Maskus, "The New Globalization," 2014, 271–73.

³⁰² For example, measured levels of patent protection in Angola, Bangladesh, Burma, Burundi, Guyana, and Somalia were particularly low in 2010. Park, "Patent Index," n.d. (accessed April 19, 2016).

³⁰³ Maskus, *Private Rights and Public Problems*, 2014, 48–55 (summarizing studies using the GP Index to study the impact of changes in patent laws).

³⁰⁴ Scores in each category are equally weighted to yield values ranging from 0 to 5 for 122 countries during the period from 1960 to 2010. See Ginarte and Park, "Determinants of Patent Rights," 1997; Park, "International Patent Protection," 2008, 761; and Park, "Patent Index," n.d. (accessed April 19, 2016).

³⁰⁵ For example, TRIPS required members to make patents available for any inventions; join various international IPR treaties; provide a statutory term of protection of at least 20 years; make available various enforcement mechanisms; and limit restrictions on patents. See chapter 2 for a discussion of the requirements of TRIPS and provisions in U.S. trade agreements.

³⁰⁶ This correlation does not establish causation; for example, the United States may have entered into bilateral or regional trade agreements with countries that were already reforming to increase their IPR protection.

Table 3.4: Average increases in the GP index, 1995–2010

Countries	Index average		Increase in index	
	1995	2010	Index value	Percent
All countries	2.5	3.3	0.8	32
TRIPS members in 2010 who entered into a trade agreement with the United States since 1995	2.5	3.6	1.1	44
TRIPS members in 2010 who did not enter into a trade agreement with the United States since 1995	2.6	3.4	0.8	30
Countries who were not yet TRIPS members in 2010	2.0	2.4	0.4	23

Source: USITC calculations.

The rest of the Commission’s analysis focuses on the link between IPR protection and trade. As discussed in chapter 2, the academic literature generally has found a positive relationship between increased levels of IPR protection and IPR-sensitive trade and investment.³⁰⁷ For example, Park and Lippoldt find that stronger patent rights, as measured by the GP Index, had a positive effect on the licensing of technologies between unaffiliated firms in developed and developing countries in the 1990s.³⁰⁸ Likewise, Branstetter, Fisman, and Foley find that patent reforms increased royalty payments from foreign affiliates to their U.S. parents by more than 30 percent among patent-intensive firms over the 1982–1999 period.³⁰⁹ More recently, Briggs and Park measure the effects of patent reforms on firms during the 1982–2009 period, finding that patent rights are positively associated with developed country firms’ outward technology transfer through exports and licensing activities.³¹⁰ The following analysis adds to this literature by examining the effects of patent reforms abroad on U.S. IP receipts.

Effects of Changes in Patent Protection on U.S. IP Receipts

For the analysis in this section, the Commission developed an econometric model of U.S. IP receipts.³¹¹ Estimates indicate that increases in patent protection abroad have had a significant positive effect on U.S. IP receipts. In the econometric model, the dollar value of IP receipts from a particular country is explained by that country’s level of patent protection (measured by the GP Index value), the size of the economy of the foreign country (measured by its GDP), other country-specific factors that do not vary over time (represented by a set of country fixed

³⁰⁷ This literature does not specifically address the effects of the U.S. trade agreements, unlike the literature reviewed in chapter 5.

³⁰⁸ Park and Lippoldt, “International Licensing,” December 21, 2004, 3–4 (econometric estimate of the effects of IPR strengthening on licensing activities).

³⁰⁹ Branstetter, Fisman, and Foley, “Do Stronger Intellectual Property Rights,” 2006, 322 (analysis of U.S. firm-level data on royalty payments for technology transferred to affiliates at the time of IPR reforms in 16 countries).

³¹⁰ Briggs and Park, “There Will Be Exports and Licensing,” 2014, 3 (using microdata, the paper further finds that for developing-country firms, patent rights positively impact licensing activities but not exports).

³¹¹ Appendix F provides a technical description of the methodology and data sources. It also includes alternative specifications that can be used to consider whether there is omitted variable bias, the impact of the country’s level of rule of law, and the potential effects of a country’s status as a tax haven.

effects), and U.S. and global factors that do vary over time (represented by a set of year fixed effects).³¹² The model measures U.S. IP receipts from 30 individual countries in 2000, 2005, and 2010, using data published by the Bureau of Economic Analysis (BEA) in the U.S. Department of Commerce.³¹³ In 2010, the largest categories of U.S. IP receipts were for the licensing of industrial processes and computer software, both of which include payments for the use of patented technologies.³¹⁴

The econometric model is then used to examine the impact of historical changes in patent protection (table 3.5). Specifically, the model estimates how much higher U.S. IP receipts were in 2010 than they would have been if each country's GP Index had remained at its 1995 value, rather than rising to its 2010 value.³¹⁵ Over this 15-year period, there was an increase in the GP Index in most of the countries for which there are BEA data. The resulting increases in IP receipts ranged from zero percent from Australia, New Zealand, Switzerland, and the United Kingdom, whose GP Index scores were constant, to a 140 percent increase in receipts from India, which saw major reform. Percentage increases in receipts due to patent reforms were largest in countries making substantial changes and smallest in those countries that did not change their laws. The estimated dollar value of the impact on U.S. IP receipts from all 30 countries combined was \$10.3 billion in 2010, or 12.6 percent of total 2010 IP receipts from those countries (\$81.3 billion).

Table 3.5: Estimated increase in 2010 U.S. IP receipts due to increase in patent protection, 1995–2010

Country	Percent	Dollar value (million \$ 2010)
China	106.6	1,719.5
Brazil	96.7	1,562.5
Japan	9.1	880.2
Mexico	44.8	797.2
Taiwan	22.1	773.1
Germany	12.3	667.8
Canada	7.2	580.9
Korea	16.7	568.6
Singapore	11.9	422.7
India	140.1	417.2

³¹² For example, the country fixed effects control for differences in the tax regimes across the countries that do not change substantially over the estimation period, as well as international distance, common language, and colonial ties. The year fixed effects control for changes in the technology stock of the United States over time, through innovation, that are not country-specific but that affect U.S. IP receipts globally. See footnote 38.

³¹³ The 30 individual economies are Argentina, Australia, Brazil, Canada, Chile, China, France, Germany, Hong Kong, India, Indonesia, Israel, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, and the United Kingdom. USDOC, BEA, "Table 2.1," October 15, 2015.

³¹⁴ USDOC, BEA, "Table 2.1," October 15, 2015.

³¹⁵ This calculation could understate the increase due to TRIPS if there was already some adjustment in patent protection by 1995, in anticipation of the TRIPS obligations that entered into force for some of the countries in January 1996, or it could overstate the increase if the changes in patent protection are not solely due to TRIPS.

Country	Percent	Dollar value (million \$ 2010)
Spain	17.2	214.9
Argentina	54.3	212.5
Italy	12.3	200.0
Hong Kong	37	179.7
France	4.4	152.1
Netherlands	4.4	139.7
South Africa	25.3	133.8
Malaysia	40.6	89.3
Thailand	40.8	89.0
Philippines	58.3	83.6
Chile	30.5	81.3
Israel	40.6	77.2
Saudi Arabia	34.7	74.2
Indonesia	52.1	65.4
Norway	22.4	50.0
Sweden	4.4	42.9
Australia	0	0
New Zealand	0	0
Switzerland	0	0
United Kingdom	0	0
Total	12.6	10,275.3

Source: USITC calculations.

Impacts of the Bilateral and Regional Trade Agreements on Foreign Direct Investment

There is a common perception that U.S. bilateral and regional trade agreements have increased U.S. direct investment abroad, and the effects on outward foreign direct investment (FDI) are viewed as both a benefit and a concern of the trade agreements. The benefit to U.S. companies is that the agreements could increase access to foreign markets and provide a more stable and nondiscriminatory environment for direct investment. The concern is that increased direct investment and employment abroad could reduce employment in the United States. However, despite the common perception, there is only mixed evidence in the academic literature or in available FDI statistics that the trade agreements have had an effect on FDI.

This section briefly reviews the theory and economic literature on the impact of trade agreements on FDI. According to economic theory, U.S. bilateral and regional trade agreements could have either a positive or a negative impact on FDI. The investment provisions in the agreements make FDI less costly, and this could have a positive effect on FDI. On the other hand, the reductions in barriers to cross-border trade achieved by the agreements, such as tariff liberalizations, make exports a more profitable way to serve the foreign market than

before, and this could have a negative impact on FDI.³¹⁶ The total or net impact of the agreements on FDI combines these two types of effects, so the sign of the net impact depends on their relative importance.

The academic economics literature indicates that bilateral and regional trade agreements generally have had a *negative* effect on FDI. Bergstrand and Egger estimate a gravity model of FDI between the 17 most developed country members of the Organisation for Economic Co-operation and Development (OECD) for the period 1990–2000.³¹⁷ The authors estimate that the trade agreements in their estimation sample had a significant negative effect on FDI flows. Stein and Daude also estimate that trade agreements had a negative impact on FDI using their 1997–99 estimation sample, though the impact is not statistically significant in most versions of their econometric model.³¹⁸ Jang estimates a negative impact of the agreements on FDI between developed countries for the period 1982–2005.³¹⁹ Berger, Busse, Nunnenkamp, and Roy estimate an econometric model of FDI from 1978 to 2004 that distinguishes the specific provisions of the countries' bilateral trade and investment agreements.³²⁰ They find that the sign of the impact of the agreements on FDI depends on the strength of the investment provisions in the trade agreements, and that the agreements without strong investment provisions can have a negative impact on FDI. On the other hand, the literature that specifically focuses on the effects of NAFTA—discussed in the literature review in chapter 5—mostly finds that the agreement increased FDI in the NAFTA countries.

To investigate further, the Commission compared the average annual growth rates of U.S. FDI in each country before and after they entered into agreements with the United States. Table 3.6 reports these descriptive statistics.³²¹ Only 3 of the 10 partner countries in the table—Chile, the Dominican Republic, and Panama—experienced increased growth in direct investment from the United States after the trade agreements entered into force. In the other 7 countries, there was either a decline in the growth of direct investment from the United States or no change. These simple comparisons of growth rates do not isolate the effects of the agreements, because the growth rates do not account for the many other factors that can affect FDI.

³¹⁶ The reductions in trade barriers can lead to FDI being relatively more expensive than exporting as a means to access a foreign market.

³¹⁷ Baier and Bergstrand, “A Knowledge-and-Physical-Capital Model,” 2007.

³¹⁸ Stein and Daude, “Longitude Matter: Time Zones,” 2007.

³¹⁹ Jang, “The Impact of Bilateral Free Trade,” 2011.

³²⁰ Berge, Busse, and Nunnenkamp, “Do Trade and Investment Agreements,” 2013.

³²¹ The measure of U.S. outbound FDI is from the BEA. It is the U.S. direct investment position abroad on a historical cost basis. The table includes all countries that are individually reported in the BEA dataset and that entered into a bilateral or regional trade agreements with the United States since NAFTA.

Table 3.6: Growth in U.S. direct investment in partner countries (percent)

Partner country	Entry into force	Average annual growth rate before entry into force	Average annual growth rate after entry into force
Singapore	2004	26 (1999–2004)	12 (2004–2014)
Chile	2004	2 (1999–2004)	12 (2004–2014)
Australia	2005	11 (1999–2005)	11 (2005–2014)
Honduras	2006	28 (1999–2006)	0 (2006–2014)
Dominican Republic	2007	-3 (1999–2007)	10 (2007–2014)
Costa Rica	2009	18 (1999–2009)	-13 (2009–2014)
Peru	2009	9 (1999–2009)	1 (2009–2014)
Korea	2012	13 (1999–2012)	4 (2012–2014)
Colombia	2012	6 (1999–2012)	-1 (2012–2014)
Panama	2012	-7 (1999–2012)	0 (2012–2014)

Source: BEA, FDI database, U.S. Direct Investment Abroad, all industries combined (accessed April 8, 2016).

Finally, the Commission estimated a set of econometric models that update the estimates in the literature and specifically focus on U.S. FDI and U.S. trade agreements. The econometric models provide estimates of the impact of the agreements on FDI over the period 2005–14. The econometric analysis indicates that the trade agreements generally had a negative and statistically significant effect on U.S. outbound FDI when the FDI for all industries is combined.³²² The models imply that, absent the trade agreements, U.S. outbound FDI would be about 26 percent larger in the partner countries.³²³ These estimates may seem surprising, since partner countries generally have more FDI and more trade with the United States; however, this has typically been the case both before and after the agreement entered into force. The agreements are, after all, often signed with major trade and investment partners of the United States, including its neighbors.

The Commission's econometric models build on Bergstrand and Egger's gravity model of FDI, but modify it to focus exclusively on how U.S. bilateral and regional trade agreements have

³²² Statistical significance means that the estimate is precise enough to conclude that the effect of the agreements on FDI is different from zero. On the other hand, statistical insignificance indicates that the estimates are not precise enough to conclude that there is an effect.

³²³ The trade agreement partner countries included in the U.S. outbound FDI dataset are Australia, Canada, Chile, Colombia, Costa Rica, the Dominican Republic, Honduras, Israel, Korea, Mexico, Panama, Peru, and Singapore.

affected U.S. outbound FDI.³²⁴ The models focus on U.S. outbound FDI for the years 2005 through 2014. They take into consideration many economic factors that may affect FDI, including the size of the destination country and its geographic proximity to the United States. However, they do not try to assess the relative importance of all of the determinants of cross-border investment; instead, the models estimate the effects of the agreements based on changes in the stock of U.S. FDI and trade agreement status *within each country over time*.³²⁵ In this way, they try to isolate the incremental effects of the trade agreements, which in many cases are statistically significant even though the agreements are not the most important factors determining the pattern of international investment.³²⁶

The model of U.S. outbound FDI was also estimated separately for manufacturing industries and for services and mining industries, and the estimates for these groups of industries are very different from each other.³²⁷ The estimates suggest that the agreements had a significant negative effect on U.S. outbound FDI in the manufacturing industries but did not have a significant effect on FDI in the services and mining industries. In services and mining industries, there is relatively less cross-border trade, so the FDI-reducing effects of lower barriers at the border do not offset the FDI-increasing effects of improved investment protections, leading to results that are not significantly different from zero.³²⁸

In contrast, using a similar model of U.S. *inbound* FDI, the trade agreements do not have a statistically significant impact in either the manufacturing industries or the services and mining industries. This result reflects the fact that U.S. bilateral and regional trade agreements have generally liberalized the economy of the partner country more than they do the U.S. economy.

These econometric models have several advantages over simpler descriptive statistics, but they also have limitations. The econometric analysis is more reliable than simply looking at the

³²⁴ Baier and Bergstrand, “Do Free Trade Agreements Actually Increase Members’ International Trade?” 2007.

³²⁵ Because the econometric model estimates the impact of the agreements based on changes in agreement status within each country between 2005 and 2014, the estimated impacts do not reflect the effects of NAFTA, which entered into force before 2005.

³²⁶ It is true that China, which is included in the econometric model, does not have a bilateral trade agreement with the United States but does receive a large amount of U.S. direct investment abroad. But this fact does not drive the model results; dropping observations for China from the econometric model does not significantly change the estimated impacts. Appendix F gives more details about the econometric model, including the data and methodology used.

³²⁷ FDI in the services and mining industries is combined in the econometric analysis because there is less country coverage in the BEA FDI dataset at a more disaggregated industry level.

³²⁸ Although investment is very important in both manufacturing and services, the cross-border alternative is not economical for many services. For example, in the telecommunications industry, cross-border trade is limited to telephone calls; in legal services, cross-border trade is to providing advice on foreign laws; in banking and insurance, there are prudential requirements to be set up in country; in retail, cross-border is a recent phenomenon and is typically complementary to sales through physical shops.

trends in FDI, though both approaches suggest that the United States' bilateral and regional trade agreement did not have significant positive effects on FDI in the United States. The econometric models try to isolate the effects of the trade agreements by controlling for FDI factors that vary over time that would be expected to affect all outbound FDI in a similar way. Examples of these FDI factors include the parent company's costs of production in the United States and its technology-driven costs of coordinating its multinational operations. The model also controls for economic conditions in each of the host countries that are relatively constant over time, like the strength of its legal institutions. Even so, it is not possible to control for all other economic factors that are reflected in complex FDI decisions, and it is possible that the estimated effects of the trade agreements may capture other factors that the models do not address. For example, uncertainty about the costs of doing business in the host countries, in the short run and over the life of the investments, is an important determinant of the FDI that is very difficult to measure.

Finally, a separate econometric analysis that replaces the FDI measure with the value of U.S. foreign affiliate sales of services suggests similar conclusions: the estimated effect of the recent U.S. trade agreements on U.S. foreign affiliate sales of services, both inbound and outbound, are not statistically different from zero.

Effects on the Merchandise Trade Balance

The effects of the bilateral and regional trade agreements on the U.S. trade deficit are widely debated. Some policy makers, academics, and economists argue that the agreements have contributed to the worsening of the U.S. trade deficit, while others argue that they help to reduce bilateral trade deficits or have essentially no effect. However, the Commission's econometric analysis of the historical data estimates that the agreements improved bilateral merchandise trade balances on average.

Economic theory does not provide a clear prediction about the effects of future trade agreements on trade balances, but the effects of specific past agreements can be estimated using historical data. Trade data accessed via the Commission's DataWeb suggest that the U.S. bilateral and regional trade agreements have contributed to improvements, not declines, in U.S. bilateral merchandise trade balances. The average trade balances in 2015 were higher, and average trade deficits smaller, with trade agreement partner countries than with non-partner countries (table 3.7). In addition, the United States recorded a trade deficit with a smaller percentage of the trade agreement partner countries (26.3 percent) than non-partner countries (49.4 percent). However, the simple comparisons in table 3.7 also reflect other factors that are not related to the trade agreements, including differences in macroeconomic conditions in the two countries.

Table 3.7: Bilateral merchandise trade balances in 2015

Country groups	Average bilateral trade balance in 2015 (billion \$)	Share of countries with which the U.S. recorded a trade deficit in 2015 (percent)
U.S. bilateral or regional trade agreement partners	-3.1	26.3
Non-partner countries	-4.1	49.4

Source: USITC DataWeb/USDOC (accessed March 25, 2016).

Note: The trade balance is defined as the difference between the value of total exports to each country and the value of general imports from each country, aggregated over all commodities on an annual basis.

To better isolate the effects of the agreements from these other factors, the Commission estimated an econometric model using historical data on U.S. bilateral trade balances over the past 20 years, 1996–2015. The analysis uses panel estimation techniques to account for factors that coincided with the implementation of the trade agreements and are relevant to the trade balance.³²⁹ One version of the model estimates an average effect across all of the agreements and years, assuming that the effects of the different agreements are similar. A second, less restricted version of the model allows the estimated effects to vary with the size of the partner country’s economy. The econometric analysis based on the second version of the model estimates that the agreements had a significant positive effect on U.S. bilateral trade balances. The agreements increased U.S. bilateral trade surpluses or reduced bilateral trade deficits by \$4.4 billion per country per year on average, and by \$87.5 billion per year in total (59.2 percent) in 2015 (table 3.8).

Table 3.8: Estimated improvement by the U.S. trade agreements on bilateral merchandise trade balances in 2015 (billion dollars)

Partner country	Trade balance in 2015	Estimated trade balance in 2015 absent the trade agreement	Improvement in the bilateral trade balance in 2015	Improvement as a share of total bilateral trade in 2015
Australia	14.2	0.1	14.1	39.3
Bahrain	0.4	-0.4	0.8	36.4
Canada	-15.2	-32.9	17.7	3.1
Chile	6.7	3.6	3.1	12.7
Colombia	2.4	-1.0	3.4	11.1
Costa Rica	1.7	0.7	1.0	9.4
Dominican Republic	2.5	1.3	1.2	10.2
El Salvador	0.7	0.0	0.7	12.1
Guatemala	1.7	0.6	1.1	11.0
Honduras	0.5	-0.2	0.6	6.0
Israel	-10.9	-14.6	3.7	9.7

³²⁹ The econometric model uses “country fixed” effects to control for factors that are fairly constant over time but vary across countries, including structural differences that affect savings rates and the level of economic development. The model uses “year fixed effects” to control for factors that are not specific to the partner country but vary over time, including changes in macroeconomic conditions in the U.S. economy. Appendix F describes the details of the econometric specification and reports the parameter estimates.

Partner country	Trade balance in 2015	Estimated trade balance in 2015 absent the trade agreement	Improvement in the bilateral trade balance in 2015	Improvement as a share of total bilateral trade in 2015
Jordan	-0.1	-1.0	0.8	27.6
Korea	-28.3	-44.0	15.8	13.7
Mexico	-58.4	-71.6	13.2	2.5
Morocco	0.6	-1.0	1.6	61.5
Nicaragua	-1.9	-2.5	0.6	13.6
Oman	1.5	0.4	1.1	33.3
Panama	7.4	6.5	1.0	12.2
Peru	3.7	1.3	2.4	17.3
Singapore	10.4	6.8	3.7	7.9
Total	-60.4	-147.9	87.5	5.9

Source: USITC estimates.

Estimates of the Consumer Benefits of the Agreements

This section focuses on the impact of the U.S. trade agreements on U.S. consumers. Consumers benefit from the reductions in prices that result from the agreements and also from an expansion in product variety and consumer choice. These benefits can affect U.S. households differently depending on their spending patterns. The estimated increase in real GDP in table 3.3 includes the consumer benefits from reductions in prices; this section provides alternative and more detailed estimates of these price effects.

The section provides estimates of the expansion in product variety that results from the agreements but are not captured in the CGE simulation results reported in table 3.3. These are based on econometric models of the effects of trade agreements on the variety of products imported into the United States and an analysis of firm-level data on product variety in U.S. imports from Korea. Finally, the section provides estimates of the distribution of consumer gains across types of households, based on a calculation of the savings to U.S. consumers from the tariff reductions associated with the trade agreements. Though these estimates of consumer benefits are only illustrative, they make some headway in linking benefits to consumers to the specific trade agreements.

Impacts of the Agreements on the Variety of Products Imported into the United States

One potential benefit of the trade agreements for U.S. consumers is the increase in product variety, and therefore consumer choice, resulting from the decline in tariffs and other trade barriers. The lowering of trade barriers increases the probability that producers in other

countries will find it profitable to export to the United States. It can thus lead more countries to export a given product to the United States, expanding product variety along an “extensive margin” of international trade.³³⁰

Over the past 15 years, academic researchers have placed greater emphasis on changes in the extensive margins of trade. Some researchers have found evidence that trade agreements have a positive impact on the variety of products that countries export to their agreement partners, but overall the findings in the literature are mixed. In a study of the impact of NAFTA on trade flows, Kehoe and Ruhl find that growth in exports in the least traded products accounts for about 30 percent of the growth in bilateral exports following NAFTA.³³¹ Dutt, Mihov, and van Zandt estimate that WTO membership increases the extensive margin of exports between two member countries by 25 percent.³³² On the other hand, Debaere and Mostashari estimate that tariff reductions from 1989 to 1999 could only explain 5 percent of the increase in newly traded goods exported to the United States.³³³ Using firm-level data, Buono and Lalanna estimate that reductions in tariff rates as a country joined the Uruguay Round did not lead to more firms exporting to the country.³³⁴ Much of the diversity in the conclusions of these studies reflects differences in how the studies define extensive margins, what type of data is used, how much those data are aggregated, and the time frame investigated.

The Commission’s econometric analysis in this section contributes to this line of research by analyzing a longer series of data (1989–2014), accounting for all of the U.S. trade agreements implemented during that period, and using a definition of the extensive margin that focuses on product variety. The econometric models in this section assess whether the trade agreements have increased the probability that a country will export each product to the United States each year.³³⁵ Appendix F provides more detail about the findings for each agreement.

Depending on the industries and countries involved, an agreement could increase or reduce the variety of products imported into the United States. For example, lower import tariffs increase the profitability of importing from an agreement partner, by increasing the competitiveness of the imports at current foreign production costs. However, reductions in trade barriers for one product can move the resources of the exporting country toward specialization in that product,

³³⁰ Changes in the variety of products traded are referred to as changes in the extensive margin of international trade. Previous research on this topic highlights that trade agreements are likely to increase the variety of products imported. USITC, *The Impact of Trade Agreements: Effect*, 2003 estimates that increased product variety may account for as much as three-quarters of consumer welfare gain from U.S. tariff reductions (pages 341–52).

³³¹ Kehoe and Ruhl, “How Important Is the New Goods Margin?” 2013.

³³² Dutt, Mihov, and van Zandt, “The Effect of WTO on the Extensive and Intensive,” 2013.

³³³ Debaere and Mostashari, “Do Tariffs Matter for the Extensive Margin?” 2010.

³³⁴ Buono and Lalanna, “The Effect of the Uruguay Round,” 2012.

³³⁵ These agreements are the URAs (1994), NAFTA (1996), U.S.-Chile FTA (2004), U.S.-Morocco FTA (2004), U.S.-Singapore FTA (2004), U.S.-Australia FTA (2005), U.S.-Bahrain FTA (2006), U.S.-Colombia TPA (2006), U.S.-Oman FTA (2009), U.S.-Peru TPA (2009), U.S.-Jordan FTA (2010), KORUS (2012), and U.S.-Panama TPA (2012).

and this shift can raise the costs of producing other goods and services, reducing their competitiveness. Economists call this effect *crowding out*. In this case, the number of products that a country exports to the United States could decline even if trade in all of the products is liberalized.

Overall, there is only mixed evidence that specific trade agreements have increased the diversity of products imported into the United States, though there are several agreements, including NAFTA, that have. Of the 11 agreements, 4 increased the variety of products imported from the partner countries, 4 have had no statistically significant effect, and 3 decreased the variety of these products imported (table 3.9). The differences in these effects reflect differences in the content of each agreement, the industries covered, and the partner countries.

The estimated effects are consistent with Kehoe and Ruhl's conclusion that NAFTA has increased the product variety in U.S. imports from NAFTA partners (table 3.9). They also corroborate Buono and Lalanna's finding that the URAs did not have a significant effect on the variety of products traded between member countries.

Table 3.9: Estimated effects on product variety for all industries by agreement

Positive effect	Agreements
Positive effects	NAFTA, U.S.-Colombia TPA, U.S.-Peru TPA, U.S.-Jordan FTA
No significant effects	U.S.-Bahrain FTA, U.S.-Chile FTA, U.S.-Oman FTA, URAs
Negative effects	U.S.-Australia FTA, U.S.-Morocco FTA, U.S.-Panama TPA

Source: USITC calculations.

The Commission's analysis also addresses whether the trade agreements affected sectors of the economy differently by estimating a separate model for each sector. There is considerable variation across industries, but certain patterns emerge across the agreements. The agreements tended to decrease the probability of importing different chemicals and wood pulp products; had a mixed effect on the probability of importing live animals and animal products, vegetable products, base metals, machinery, and vehicles; and had no significant effect on all other industries.

Additional Evidence from Firm-Level U.S. Import Data

The econometric models discussed in the last section indicate that, in some cases, the trade agreements increased the probability that a partner country exported a product to the U.S. market, holding constant other factors that affect international trade. Such an increase implies an increase in product variety in the U.S. market that benefits U.S. consumers and U.S. firms

that use the imports as inputs in production. These econometric models covered a broad range of products and partner countries.

This section supplements those econometric models with a narrowly focused analysis of the increase in U.S. imports of certain products from Korea after KORUS entered into force in 2012. The analysis focuses on 7 U.S. import categories defined by the Harmonized Tariff Schedule of the United States (HTS) at the 4-digit level (HTS4 products) that increased in value following a reduction in average tariff rates between the year before KORUS entered into force (2011) and the year after (2013).

Table 3.10 lists the products in the 7 import categories that were investigated and reports their import values in 2011 and 2013.³³⁶ The table also reports whether the number of distinct Korean manufacturers increased as the trade agreement entered into force. The count of Korean manufacturers is based on the Commission’s analysis of firm-level U.S. import data from proprietary U.S. Customs Bureau (U.S. Customs) records for these years.³³⁷

For 1 of the 7 products, there was a decrease in the number of Korean suppliers. For 6 of the products, however, there was an increase in the number of Korean suppliers that coincided with the entry into force of the agreement in 2012. In these cases the expansion in imports appears to represent an increase in product variety.³³⁸

Table 3.10: Product-level analysis of the change in the number of Korean suppliers to the United States

Change in the number of suppliers	HTS4 Code	HTS description	U.S. imports from Korea (million \$)	
			2011	2013
Increased	0303	Frozen fish, excluding fish filets	32.2	35.7
Increased	0304	Fish filets and other fish meat	12.0	16.6
Increased	3401	Soap	2.9	5.8
Increased	4413	Densified wood products	0.0	1.0
Increased	6810	Articles of cement	19.3	35.2
Increased	7613	Aluminum containers for compressed or liquefied gas	0.0	3.3

³³⁶ The 7 products are illustrative, not a randomized sample. In the case of these 7 specific products, there was an increase in import values that coincided with the entry into force of KORUS, and the analysis investigates whether the increase in import values also reflects an expansion in the number of individual Korean suppliers that are exporting to the U.S. market.

³³⁷ The field in the U.S. Customs data that identifies the supplier is the name of the manufacturer or exporter. In an attempt to generate a more accurate count of the number of distinct Korean suppliers, Commission staff reviewed the names of each of the manufacturers or exporters and aggregated together records that appear to refer to the same supplier because they have only minor variations in their names, like differences in punctuation or abbreviation.

³³⁸ To assess the economic importance of these changes, it would be useful to also discuss the changes in the size of the Korean suppliers; however, the Commission cannot report these changes due to confidentiality restrictions on how the Commission publicly reports the information from these U.S. Census records.

Change in the number of suppliers	HTS4 Code	HTS description	U.S. imports from Korea (million \$)	
Decreased	0305	Dried, salted, or smoked fish	7.4	10.0

Source: The changes in the number of suppliers are from proprietary U.S. Customs records, and the total import values for each of the HTS 4-digit products are from the USITC's Trade DataWeb/USDOC.

Tariff Savings from the U.S. Bilateral and Regional Trade Agreements

The U.S. bilateral and regional trade agreements also benefited U.S. consumers by reducing the prices that they paid for imports. The analysis in this section quantifies the total tariff savings in 2014 that are associated with the agreements and that accrued in part to U.S. consumers.

These savings are defined as the difference between the applicable tariff rate absent the agreement and the tariff rate under the agreement (usually zero), multiplied by the value of imports that entered under the agreement in 2014.³³⁹ This simple calculation approximates the reduction in U.S. expenditures on imports that is due to the tariff rate reductions specifically available under the agreements.³⁴⁰ These reductions in tariffs are similar to tax cuts. Some of the reductions directly benefit U.S. consumers through reductions in the costs of the imports that they purchase for consumption. Some of the reductions lower the input costs of U.S. producers, and this indirectly benefits U.S. consumers through reductions in the prices of U.S. products.

The savings are calculated for each tariff line, source country, and trade agreement. The calculated total dollar value of savings from the tariff reductions was \$13.4 billion in 2014.

Table 3.11 reports the share of the \$13.4 billion of total savings associated with each trade agreement. These shares depend on the total value of the imports under the agreements and on the product composition of these imports, since the tariff rate reductions in the agreements vary by product. NAFTA accounts for the majority of the savings in 2014—78.4 percent—with a third of the NAFTA total associated with U.S. imports from Canada and two-thirds associated with U.S. imports from Mexico. CAFTA-DR is a distant second, accounting for 9.8 percent of the total dollar value of calculated savings in 2014, and KORUS is an even more distant third at 3.6 percent.³⁴¹

³³⁹ Appendix F describes the details of the econometric model, including the data and methodology used.

³⁴⁰ These calculations have several limitations, described below.

³⁴¹ CAFTA-DR ranks above KORUS due to the product mix of CAFTA-DR imports, which are relatively concentrated in apparel, a sector with relatively high tariffs.

Table 3.11: Estimated share of total tariff savings from each U.S. trade agreement in 2014 (in percentages)

Trade agreement	Millions \$	Share
NAFTA	10,529.3	78.7
CAFTA-DR	1,313.2	9.8
KORUS	483.0	3.6
Jordan FTA	285.8	2.1
Peru TPA	187.9	1.4
Israel FTA	142.7	1.1
Chile FTA	104.5	0.8
Colombia TPA	99.6	0.7
Australian FTA	75.3	0.6
Singapore FTA	63.7	0.5
Bahrain FTA	48.7	0.4
Oman FTA	28.8	0.2
Morocco FTA	20.3	0.2
Panama TPA	1.0	(a)
Total	13,383.7	100.0

Source: USITC calculations.

Note: Data sources and methodology are described in appendix F.

^a Less than 0.05 percent.

Table 3.12 reports these same savings by the use category of the U.S. imports. The table splits the total dollar value between savings on purchases of final consumer goods, intermediate goods, and capital goods. Savings on purchases of consumer goods most directly benefit U.S. consumers, but savings on purchases of intermediate and capital goods can indirectly benefit these consumers by reducing the prices of U.S. products.

Table 3.12: Estimated value of consumer savings in 2014 by type of good

Use category of the imports under the trade agreement	Billions \$
Consumer goods	5.8
Intermediate goods	4.6
Capital goods	3.0
All other categories	0.1

Source: USITC calculations.

Note: Data sources and methodology described in appendix F.

Table 3.13 reports these same savings by sector as classified in the HTS. U.S. imports of vehicles, textiles, and machinery and electronics account for the largest shares of the savings. Together, these three sectors represent 66 percent of total tariff savings. The last column of table 3.13 reports the savings as a share of the total value of U.S. expenditure on imports within each sector. The vehicles, textiles, and machinery and electronics sectors still stand out, but there are several additional sectors with savings that are large relative to the size of their total imports, including several food products (vegetable products; fats and oils; and prepared foods, beverages, and tobacco) as well as plastics and rubber products.

Table 3.13: Estimated share of tariff savings by HTS sector

HTS sector	Percentage of total tariff savings in 2014	Percentage of the total value of sector imports in 2014
I. Animal products	0.6	5.7
II. Vegetable products	5.3	23.9
III. Fats and oils	1.0	60.7
IV. Prepared foods, beverages, and tobacco	5.6	0.9
V. Mineral products	0.9	1.2
VI. Chemical products	3.0	8.2
VII. Plastics and rubber	7.9	20.1
VIII. Hides and leather	0.4	2.8
IX. Wood products	0.6	7.0
X. Textiles	17.3	14.0
XI. Footwear	0.6	2.1
XII. Stone and glass	1.1	6.9
XIII. Precious metals	0.5	5.0
XIV. Base metal	3.7	7.7
XV. Machinery and electronics	15.8	13.4
XVI. Vehicles	33.0	54.3
XVII. Optical and measuring equipment	0.8	6.0
XVIII. Arms	0.0	4.4
XIX. Miscellaneous manufacturing	1.5	3.3
XX. Special classification	0.0	0.1

Source: USITC calculations.

Note: Data sources and methodology described in appendix F.

Since the savings are concentrated in certain product groups, the benefits received by individuals or groups of consumers depend on the share of the consumers' spending that falls into the product groups most affected by the tariff reductions. Statistics from the Consumer Expenditure Survey of the U.S. Bureau of Labor Statistics provide useful information about the expenditure shares of households at different income levels. Table 3.14 reports the shares of consumers' total expenditures on the categories in which the savings are most concentrated, according to the sector analysis in table 3.13, for households at different income levels.³⁴²

³⁴² There is not an exact concordance between the HTS codes in table 3.13 and the consumer expenditure categories in table 3.14. For example, audiovisual equipment and appliances (consumer expenditure categories) are only part of HTS sector machinery and electronics categories.

Table 3.14: Expenditure shares of U.S. consumers by income level in 2014 (in percentages)

Expenditure categories in which tariff savings are concentrated	Income less than \$40,000	Income between \$40,000 and \$69,999	Income \$70,000 or more
Food	13.8	13.3	11.8
Appliances	0.6	0.6	0.7
Apparel	3.2	3.3	3.4
Vehicle purchases	5.3	6.8	6.3
Audio visual equipment	2.5	2.2	1.6
Tobacco products	1.1	0.7	0.4
Total	26.5	27.0	24.2

Source: USITC calculations.

Note: Data sources and methodology described in appendix F.

The Consumer Expenditure Survey data indicate that of the three income groups in table 3.14, the lowest-income group spends relatively more on food, audiovisual equipment, and tobacco products; the middle-income group spends relatively more on vehicle purchases; and the highest-income group spends relatively more on appliances and apparel. When all of the expenditure categories in table 3.14 are combined, the middle-income group has the largest combined expenditure and the lowest-income group has the second-largest combined expenditure share.

The expenditure categories in table 3.14 together account for \$10.6 billion of the estimated \$13.4 billion in total tariff savings in 2014. Assuming that the tariff savings in these categories are distributed to consumers in different income groups in proportion to the group's share of total expenditures on the category, the tariff savings to the lowest-income group are \$2.5 billion, or 0.16 percent, of their total expenditures. The tariff savings to the middle-income group are \$2.4 billion (0.17 percent), while those to highest-income group are \$5.7 billion (0.15 percent) of their total expenditures. This suggests that the middle-income and lowest-income groups benefit somewhat more from the savings associated with the tariff reductions.

These estimates are only approximations, but they provide some helpful information about the extent to which importers actually made use of the tariff reductions that they received under the trade agreements. Some caveats should be kept in mind. First, the calculations take as a given the customs value of the imports, and they do not adjust for the possibility that the prices of imports might not rise by the full amount of the increase in the tariff rates.³⁴³ In both cases, the savings calculations could overstate the impact of the trade agreements on U.S. spending on the imported goods. A second caveat is that these calculations represent savings to U.S. consumers, either directly or indirectly, but they also represent a reduction in U.S. federal government revenue.

³⁴³ For example, if the tariff reductions are not completely passed through into U.S. consumer prices and are not partly absorbed in the prices charged by foreign producers and importers, the pass-through is incomplete and the calculations in this section would overstate the benefits to U.S. consumers.

Estimates of the Impacts of Industry-Specific Agreements in the URAs

This section presents estimates of industry-specific effects of trade agreements in three categories: information technology (ITA); steel products provisions in NAFTA and the URAs; and textiles and apparel (ATC). Econometric analysis indicates that the agreements in the first two categories—ITA and steel product provisions in NAFTA and the URAs—had economically important effects on industry trade flows, increasing U.S. exports of information and communication technology products and (via tariff reduction) U.S. imports of steel products. U.S. employment in the textile and apparel industries declined under the ATC, though this study does not isolate the effects of the ATC from other changes in U.S. trade policy and in industry productivity over the last two decades.

Effect of the Information Technology Agreement on U.S. Exports

The ITA is a trade agreement that emerged from the Uruguay Round.³⁴⁴ Countries that joined the agreement, including the United States, eliminated tariffs on their imports of a large number of information technology products. These tariff reductions increased global trade in these products, including U.S. exports of the products to ITA member countries.

Anderson and Mohs analyzed the growth in global trade in ITA products between 1996 and 2008.³⁴⁵ The authors noted that global trade in covered products more than tripled between 1996 and 2008 and that there was a significant shift in the leading exporting countries over that time period, from the United States to Asia and Eastern Europe. They estimate that, despite this shift, U.S. ITA exports grew on average by 2 percent per year between 1996 and 2008.

While Anderson and Mohs calculated the growth of U.S. ITA exports, they did not estimate the part of that export growth specifically attributable to the agreement. For example, some of the total growth in exports is attributable to expansion in demand in the destination markets, and some is attributable to product innovation in the United States and other countries that probably would have occurred independent of the ITA. The econometric analysis in this section attempts to isolate the impact of the ITA. It quantifies the incremental effect of a country fully implementing the ITA tariff reductions on U.S. exports of covered products to ITA member countries in 2000, 2005, and 2010.

³⁴⁴ Additional details on the ITA appear in chapter 2 and the case studies of chapter 4.

³⁴⁵ Anderson and Mohs, “The Information Technology Agreement,” 2010.

The data for the econometric analysis come from several different sources. The U.S. export data are from the Commission's DataWeb. They are the annual free alongside ship (FAS) values of domestic exports in 2000, 2005, and 2010, listed by HTS 6-digit code and destination country. The estimation sample includes the 50 countries that accounted for the largest shares of U.S. manufacturing exports in 2000, which together accounted for 97 percent of the U.S. manufacturing exports. The estimation sample includes all U.S. manufacturing exports, listed in Harmonized System (HS) chapters 16 through 24, and 28 through 99.³⁴⁶

One challenge in setting up the analysis was that the ITA was negotiated and finalized using 1996 HS classifications. There is no WTO agreed-upon list that accounts for the subsequent and significant 2002 and 2007 amendments to the Harmonized System. Anderson and Mohs used proxies based on World Customs Organization transposition tables and WTO working documents. The analysis in this section uses the ITA HTS codes identified by Anderson and Mohs and further refined by the Commission using similar sources. There are 124 HTS 6-digit codes that fall within the ITA agreement, according to the 2007 classifications.

The effective date is the year that the member country fully implemented the ITA, if at all. The WTO provides schedules of implementation for each of the ITA participants. There is normally a phase-in period between the time each participant signs the ITA and the time it fully implements the ITA. For example, Australia signed the ITA in 1997, and gradually phased out its tariffs by 2000. The analysis in this section uses the full implementation date—the date on which all ITA items receive full tariff-free treatment—even though this date may underestimate the impact of the ITA on U.S. exports. Of the United States' 94 ITA trade partners, 22 had fully implemented the ITA agreement in 2000, 33 in 2005, and 39 in 2010.

The econometric analysis estimates the incremental effect on U.S. exports of ITA products to ITA countries, while accounting for country and product factors using a fixed effects methodology.³⁴⁷ The analysis suggests that the ITA had a positive and statistically significant impact on U.S. exports of the covered products to the ITA member countries. The estimated impact on U.S. exports was \$34.4 billion in 2010 (a 56.7 percent increase relative to the baseline).³⁴⁸

³⁴⁶ The list of HTS codes covered by the ITA was developed by Anderson and Mohs (2010) and further refined by the USITC.

³⁴⁷ Appendix F describes the details of the econometric model, including the data and methodology used.

³⁴⁸ These estimates may overstate the impact of the agreement on U.S. exports, because the model assumes that the ITA covers the entire set of products classified in each relevant HS 6-digit category, but that is not always the case.

Effects of the Trade Agreements on U.S. Steel Imports

As part of the zero-for-zero agreements in the Uruguay Round, the general rate of duty on U.S. imports of steel products was eliminated.³⁴⁹ This liberalization, as well those under CUSFTA and NAFTA, contributed to the expansion of U.S. imports of steel mill products in the 1990s. The Commission used an industry-level econometric model to estimate the impact of the changes in tariff rates over the 1990s on U.S. steel product imports from 44 WTO member countries. The industry-level model uses data on U.S. bilateral imports of steel mill products from 1990 to 2000. It uses the variation in import values by steel product, source country, and year to estimate the incremental effect of changes in import charges, which include freight costs as well as tariffs. At the same time, the model accounts for factors that vary by product and year but are not specific to the source country of the imports (like conditions in the domestic steel industry) and for factors that vary by product and country but are relatively fixed over time (like product-specific manufacturing capacity in the source countries).³⁵⁰

These econometric estimates were used to calculate the change in steel product imports that are specifically attributable to the tariff reductions. The calculations indicate that the annual value of U.S. steel product imports from these countries was \$1.2 billion (14.7 percent) higher in the year 2000 than it would have been due to the elimination of the tariffs after 1990.

Employment Changes in the U.S. Textiles and Apparel Industries

Over the past two decades, there have been significant changes in U.S. imports and exports of textiles and apparel that have coincided with persistent declines in U.S. employment in these industries. The Agreement on Textiles and Clothing, implemented as part of the URAs, as well as other changes in trade policy over the period including bilateral and regional trade agreements, likely accelerated the growth of U.S. imports of textiles and apparel and contributed to some of the declines in U.S. industry employment.³⁵¹ Several non-trade factors also appear to have contributed to the declines in industry employment, including productivity increases in the U.S. domestic industries. The economic analysis in this section uses a growth

³⁴⁹ Additional details on the effects of these agreements on the U.S. steel industry are provided in one of the case studies in chapter 4.

³⁵⁰ Appendix F describes the details of the econometric model, including the data and methodology used.

³⁵¹ Harrigan and Barrows, "Testing the Theory of Trade Policy" (2009); Nordås, "The Global Textile and Clothing Industry Post" (2004); Kowalski and Molnar, "Economic Impacts of the Phase-Out in 2005" (2009). The changes in industry imports also reflect other changes in trade policy over the period. For example, these effects are also discussed in the case study on the impact of CAFTA-DR on the U.S. textiles industry in chapter 4.

accounting framework to break down the year-to-year changes in employment in the U.S. textile and apparel industries into the contributions of these trade and non-trade factors.

The year-to-year changes in an industry's employment reflect changes in (1) output per worker in the industry; (2) total U.S. consumption of the products of the industry; (3) U.S. exports of the products of the industry; and (4) U.S. imports of these products. The growth accounting framework quantifies the relative contributions of each of these four factors—in some cases positive, in others negative—to past reductions in industry employment.³⁵²

The estimates in table 3.15 show that the average annual percent changes in employment for the period 1998–2014 were negative for all three subsectors: textiles (a 7.6 percent decline), made-up textile articles (4.3 percent decline), and apparel (11.2 percent decline).³⁵³ For the textiles and made-up textile products subsectors, there was a large increase in output per worker over the period that accounted for more than half of the declines in industry employment. For example, in textiles, the increase in output per worker accounted for 4.6 percent of the total 7.6 percent decline in industry employment.

Table 3.15: Contributing factors to the decline in U.S. industry employment in textiles and apparel (average annual percentage changes between 1998 and 2014)

Industry employment and factors	Textiles ^a	Made-up textile products ^b	Apparel ^c
Industry employment	-7.6	-4.3	-11.2
Output per worker	-4.6	-3.4	-2.1
Exports	0.6	0.2	-0.6
Total consumption	-3.5	2.0	2.0
Imports	-0.4	-3.4	-10.8

Source: USITC calculations. The estimates quantify how much industry employment would change if one of the contributing factors changed as it did over the historical period but all of the other factors remained fixed.

Note: Data categorized under the North American Industry Classification System (NAICS) are available starting from 1998.

^a The U.S. textile industry produces yarn, thread, and fabric as classified under NAICS code 313, textile mills.

^b The U.S. textile product industry produces made-up, non-apparel textile articles such as sheets and towels under NAICS code 314, textile product mills.

^c The U.S. apparel industry produces cut-and-sew and knit-to-shape apparel under NAICS code 315, apparel.

In made-up textile products, there was a negative contribution from imports that was mostly offset by the increase in total consumption in the U.S. market. Specifically, the increase in imports contributed 3.4 percent of the total decline in industry employment, but the increase in total consumption offset 2.0 percent of the decline. The increase in total consumption reflects overall growth in the economy and potentially also the reduction in the price of imports. There was a small positive contribution from the increase in exports that offset 0.2 percent of the decline in industry employment.

³⁵² Appendix F describes the data sources and methodology.

³⁵³ The textile and apparel industries correspond to NAICS codes 313, 314, and 315.

In textiles, on the other hand, there was not a significant direct contribution from imports of textiles, but there was a large indirect effect from increased imports of downstream apparel products that is reflected in the reduction in total consumption of the textile products in the U.S. market. The direct effect of textile imports is only a 0.4 percent reduction in textile industry employment, but the contribution from the reduction in total consumption of textiles, which reflects the reduced use of textiles as an input to the domestic downstream apparel industry, is a 3.5 percent reduction in textile industry employment.

The average annual decline in employment in the apparel industry was 11.2 percent over the period. The negative contribution from the increase in apparel imports accounts for almost all of the decline in industry employment. The increase in output per worker also contributed to the decline in industry employment, though this effect was mostly offset by the increase in total consumption of apparel products in the U.S. market.

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Chapter 4

Case Studies on the Economic Impact of Trade Agreements on Selected Industries

This chapter contains 10 case studies that analyze the effect of U.S. multilateral, regional, and bilateral trade agreements (“U.S. trade agreements”) on specific industries.³⁵⁴ These case studies cover various sectors, trade agreements, and types of provisions and illustrate the effects of some of the agreements on specific industries. They are not intended to be a representative sample of the benefits or costs to the U.S. economy from the agreements. Most case studies focus on what the Commission deemed the most significant trade agreement(s) for a particular industry and assess the provision(s) with the most relevant effects. Although the case studies consider a range of economic impacts, including effects on employment, investment, productivity, output, and regulatory environment, the emphasis tends to be on exports and imports, and the focus throughout is the impact on the United States.

The 10 industries, together with the agreements analyzed, the main provisions considered, and impacts identified, are listed in table 4.1. The agricultural case studies, on pork and two horticultural products (avocados and blueberries), focus on how committees established under the sanitary and phytosanitary (SPS) chapters of U.S. trade agreements can benefit consumers of imported goods and producers of exported ones.³⁵⁵ The supply chain studies, analyzing motor vehicles and textiles, examine the development of complex international supply chains in response to product-specific rules of origin in the agreements. Trends noted include rising exports, but also declining U.S. production and employment.

The case studies on copper, mining machinery, and steel analyze the extent and direction of effects on trade stemming from tariff reductions in various agreements. The services case studies, examining express delivery and telecommunications, assess how industry-specific provisions have improved regulatory environments, among other things. These improvements are making it possible to provide more services in foreign markets and, in the case of express delivery, are facilitating trade by small and medium-sized enterprises (SMEs).

³⁵⁴ Figure 1.1 (chapter 1) lists the U.S. agreements covered in this report. Also see chapter 1 (footnote) for links to full texts of these agreements.

³⁵⁵ These case studies also discuss the effects of tariff reduction or elimination.

Table 4.1: Industry case studies, relevant provisions, and main impact

	Industry	Agreement	Provisions	Main impact
1	Pork	U.S.-Colombia	Tariff reduction and SPS resolution	Substantially increased U.S. pork exports to Colombia
2	Avocados	NAFTA	SPS resolution	Permitted avocado imports from Mexico
3	Blueberries	KORUS	SPS resolution	Permitted fresh blueberry exports to Korea
4	Motor vehicle industry and parts	NAFTA	Tariff reduction, rules of origin, investment liberalization	Increased productivity and exports due to expansion of supply chain to include NAFTA partner countries; decline in U.S. production and employment
5	Textiles	CAFTA-DR	Yarn-forward rules of origin	Increased U.S. textile exports, as part of circular supply chain for U.S. apparel consumption, despite decline in U.S. textile production and employment
6	Steel	Uruguay Round and NAFTA	Tariff reduction and rules of origin	Increased exports to NAFTA partners, increased imports from the rest of the world
7	Copper	NAFTA, U.S.-Chile, U.S.-Peru	Tariff reduction	Increased imports from Chile
8	Mining machinery	U.S.-Chile and U.S.-Peru	Tariff reduction	Increased exports to Chile and Peru
9	Express delivery	U.S. bilateral and regional trade agreements	Customs administration and postal monopolies	Improved ability of U.S. providers to deliver express shipments; facilitated exports by small and medium-sized firms
10	Telecommunications	GATS, Agreement on Basic Telecom-munications, and U.S. bilateral and regional trade agreements (from U.S.-Singapore forward)	Telecom-specific and general provisions	Improved “best practice” regulatory environment and created certainty in partner countries

Source: compiled by USITC.

Note: NAFTA=North American Free Trade Agreement; KORUS=U.S.-Korea FTA; CAFTA-DR=Dominican Republic-Central America FTA (agreement partners are Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, and Nicaragua); GATS=General Agreement on Trade in Services.

The ability to attribute changes experienced by industries over time to trade agreements varies from one case study to the next. For example, it is clear that trade agreements generated specific changes in the pork and horticulture industries, while it is difficult to distinguish trade agreement effects from other national and global changes in natural resources and mining equipment. Further, over the past couple of decades the motor vehicles and textiles industries have undergone significant developments that are often associated with trade agreements, yet whether and to what extent those changes would have emerged absent the trade agreements is unclear.

Given the differences in the measurable effects of trade agreements across case studies, it is important to examine these developments in context. Each case study therefore provides basic background facts for and describes significant patterns in the U.S. industry involved. The information provided often includes a discussion of trade and other relevant trends, such as technological changes, natural resource prices, and expansion of foreign production and export capability.

The information compiled for these cases studies derives from diverse sources—including official U.S. trade and employment data, interviews with industry representatives, information provided at the Commission’s hearing, and academic analyses—and varies across case studies based on availability. For example, since the express delivery and telecommunications industries lack detailed export and import data across trade agreement partner countries, the discussions of these services are largely based on interviews with industry representatives.

Case Study 1: Pork

By lowering tariffs and resolving a dispute over sanitary requirements, the U.S.-Colombia agreement has benefited U.S. producers and exporters of pork.³⁵⁶ The agreement appears to have led to a substantial increase in U.S. pork exports and helped maintain the United States’ position as the largest source of Colombia’s pork imports. Between 2011 (the last full year before implementation) and 2014, U.S. pork exports to Colombia more than tripled in value, increasing more rapidly than Colombia’s pork imports from any other source.³⁵⁷ Colombia’s other major sources of imported pork are Canada and Chile, both of which have trade agreements with Colombia. Without the U.S.-Colombia agreement, U.S. pork producers would be at a tariff disadvantage in Colombia’s pork market.

Industry Overview

The United States is a major producer and exporter of pork. In 2015, the United States was the world’s third-largest producer of pork, behind China and the European Union (EU), and was the second-largest pork exporter by volume, behind the EU.³⁵⁸ Over the past 25 years, U.S. pork production has increased about 45 percent in quantity, and throughout the period has accounted for a relatively consistent share of global production.³⁵⁹ Production increases have

³⁵⁶ National Pork Producers Council, “Comments on National Trade Estimates Report,” November 15, 2012.

³⁵⁷ National Pork Producers Council, written submission to the USITC, December 1, 2015, 10–12; GTIS, Global Trade Atlas database (accessed December 14, 2015).

³⁵⁸ Data are in carcass weight. USDA, FAS, *Livestock and Poultry: World Markets and Trade*, 2015, 14–15.

³⁵⁹ USDA, Production, Supply, and Distribution (PSD) database (accessed February 18, 2016).

been driven by farmers' increasing concentration and specialization in swine production, integration of swine and pork production, and increases in efficiency.³⁶⁰

U.S. pork exports have increased much more rapidly than production, rising from about 2 percent of production in 1990 to more than 26 percent of production in 2014.³⁶¹ Exports add value to the U.S. pork industry both by increasing overall sales volume and by allowing sales of specific cuts (e.g., bellies and shoulder butts) to overseas markets that offer higher returns than the U.S. market.³⁶² Exports have increased most rapidly to trading partners with which the United States has a trade agreement. Currently, U.S. pork exports to its 20 trade agreement partners exceed exports to the rest of the world.³⁶³ In 2014, U.S. exports to its bilateral and regional trade agreement partners were valued at \$3.4 billion, or 54 percent of total U.S. pork exports of \$6.4 billion. While Japan, a non-partner, is the largest export market for U.S. pork by value, five trade agreement partners—Mexico, Canada, Korea, Australia, and Colombia—accounted for half the total value of U.S. pork exports in 2014.³⁶⁴

U.S.-Colombia Agreement

Like other U.S. trade agreements, the U.S.-Colombia agreement not only reduced or eliminated tariffs on most goods, it also laid the groundwork for resolving a wide range of differences in areas such as customs administration, sanitary measures, and technical barriers to trade. Since the agreement entered into force in 2012, Colombia has been one of the fastest-growing markets for U.S. pork, with imports of U.S. pork in 2014 more than triple the level in 2011. The National Pork Producers Council has largely attributed this growth to the agreement, which not only lowered tariffs on U.S. pork, but also led to the resolution of a sanitary issue that had weakened the price-competitiveness of U.S. fresh chilled pork in the Colombian market.³⁶⁵

³⁶⁰ Key and McBride, *The Changing Economics of U.S. Hog Production*, 2007, iii–iv; USITC, *Pork and Swine Industry and Trade Summary*, 2014, 27–29.

³⁶¹ National Pork Producers Council, written submission to the USITC, December 1, 2015, 1.

³⁶² Oh and See, "Pork Preference for Consumers," 2012, 143–50. A study by the U.S. Meat Export Federation found that U.S. pork exports (of about \$2.1 billion) in 2004 received a premium of \$270.6 million over prevailing U.S. prices. U.S. Meat Export Federation, "Value of Pork Exports" Study Underscores Significance, n.d. (accessed December 2, 2015).

³⁶³ National Pork Producers Council, written submission to the USITC, December 1, 2015, 2.

³⁶⁴ GTIS, Global Trade Atlas database (accessed December 14, 2015).

³⁶⁵ National Pork Producers Council, *Capital Update for the Week Ending January 23, 2015*, 2015.

Tariff Concessions

The U.S.-Colombia agreement resulted in lower and more predictable tariff treatment for U.S. pork entering the Colombian market. As a member of the Andean Community customs union, Colombia maintains a common “price band” tariff system for many agricultural products, including pork. Before the agreement, U.S. pork was subject to this system, in which the tariff applied on imports was the sum of two duties: (1) a basic import duty rate, set annually, and (2) a variable duty rate that depended on the difference between the price band and an average international reference price, which is updated every two weeks.³⁶⁶ This complex system meant that the tariff facing U.S. pork in Colombia could change as often as every two weeks. Under the U.S.-Colombia agreement, U.S. pork is no longer subject to the price band system. Instead, each tariff line became subject to a set of transparent tariffs, which were reduced in equal annual stages. U.S. pork became duty-free in 2016, five years after the agreement entered into force.³⁶⁷

The U.S.-Colombia agreement also offset tariff preferences enjoyed by some third-country competitors in the Colombian market. Canada and the EU finalized their trade agreements with Colombia after the U.S.-Colombia agreement was negotiated but before it went into effect. The Canada-Colombia FTA entered into force in August 2011, and the EU-Colombia FTA entered into force in March 2013. Colombia already had trade agreements with Chile, El Salvador, Guatemala, Honduras, Mexico, and Uruguay. Colombia is also a member of the Andean Community Customs Union (with Bolivia, Ecuador, and Peru), and is a party to the Mercosur-Andean Community Agreement (with Brazil, Argentina, and Paraguay).³⁶⁸ It is especially important that U.S. exporters can now compete on an equal footing with Chile, Colombia’s third-largest supplier of pork in 2014, which has duty-free access to Colombia as a member of the Andean Community. U.S. pork exports can also better compete with those of Canada, Colombia’s second-largest supplier of pork, which has benefited from preferential tariff access to a specific import volume under a tariff-rate quota established by the Canada-Colombia FTA.³⁶⁹

³⁶⁶ If the reference price in any two-week period is below the lower band price, an additional duty is applied on top of the basic duty rate. If the reference price is above the upper band price, then an amount is subtracted from the basic rate. If the reference price is between the lower and upper band price, then the duty is just the basic import duty rate.

³⁶⁷ U.S.-Colombia TPA, Chapter 2, Annex 2.3, and Agricultural Tariff Schedule of the Republic of Colombia. Tariffs on some edible offals were eliminated on entry into force.

³⁶⁸ USDA, FAS, *U.S.-Colombia Trade Promotion Agreement: Benefits for Agriculture*, 2012.

³⁶⁹ Canada-Colombia Free Trade Agreement, Chapter 2, National Treatment and Market Access for Goods, <http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/colombia-colombie/chapter2-chapitre2.aspx?lang=eng>.

Sanitary and Phytosanitary Matters

Before December 2013, Colombia had required that imports of U.S. pork be either frozen or subjected to another process sufficient to guarantee destruction of the *Trichinella spiralis* (trichinae) parasite, or if fresh or chilled, that it undergo costly tests for trichinae.³⁷⁰ In December 2013, Colombia recognized that commercially produced U.S. pork presents a negligible risk for trichinae and dropped the testing requirement for U.S. pork certified as being produced to industry guidelines.³⁷¹ Even though the change came about 18 months after the agreement was implemented, the National Pork Producers Council attributes this rule change to the U.S.-Colombia agreement and the bilateral forum it provides to resolve such issues.³⁷² Colombia's acceptance of U.S. chilled pork was reportedly the direct result of negotiations under the U.S.-Colombia agreement.³⁷³

Impacts of the Agreement

The U.S. share of Colombia's pork imports increased from 38 percent (in value) in 2007 to 48 percent in 2011 and to 78 percent in 2015 (table 4.2). Throughout this period, Canada, Chile, and the United States have continued to be Colombia's major import suppliers of pork, and imports from all three have increased since 2007, in both value and volume. However, since 2011, Chile has lost market share to both Canada and the United States, and U.S. imports have increased more rapidly than imports from any other source.³⁷⁴ Overall, U.S. pork exports to Colombia increased in value by over 300 percent between 2011 and 2014 before declining in 2015.³⁷⁵ Since trade negotiations were concluded in 2011, Colombia has become the largest South American market for U.S. pork.³⁷⁶

³⁷⁰ *Trichinella spiralis* is a parasitic roundworm often associated with pork consumption in the past, though its prevalence in U.S. pork is now very low. Eating infected tissue leads to trichinosis, a serious disease. USDA, Agricultural Research Service, "Trichinae Fact Sheet," n.d. (accessed December 2, 2015).

³⁷¹ USDA, FSIS, "Export Requirements for Colombia," November 17, 2015. PQA Plus is a certification program for pork producers. Chile and Peru, also U.S. trade agreement partners, recognize the efficacy of the PQA Plus requirements, but still require verification by the U.S. Department of Agriculture (USDA). Colombia only requires certification by the exporter.

³⁷² National Pork Producers Council, "Comments on National Trade Estimates Report," November 15, 2012; National Pork Producers Council, *Capital Update for the Week Ending January 23, 2015* (accessed December 2, 2015). Not all FTAs lead to resolution of sanitary disagreements; U.S. pork exports to Australia, for instance, still face restrictions considered unjustifiable by industry representatives more than six years later, but the U.S.-Colombia agreement is a success story.

³⁷³ *Global Meat*, "U.S. Sees First Chilled Pork Shipment to Colombia," August 19, 2014.

³⁷⁴ GTIS, Global Trade Atlas database (accessed November 30, 2015); USITC calculations.

³⁷⁵ Since 2011, Colombia's domestic production and imports of pork have both increased. Imports have risen more rapidly, but from a smaller base. In 2015, Colombia's domestic pork production rose about 3 percent over 2014 and overall pork imports fell about 12 percent.

³⁷⁶ NPPC, *Capital Update for the Week Ending January 23, 2015*.

Table 4.2: Colombia's pork imports, by country, 2007–10 average and 2011–15 (million dollars)

Import source	2007–10					
	average	2011	2012	2013	2014	2015
United States	11.2	30.0	42.3	80.7	142.6	104.74
Canada	5.3	12.5	17.9	26.9	23.9	13.85
Chile	9.7	18.2	25.0	25.8	17.8	12.01
Other	1.0	1.7	1.5	2.0	2.9	3.21
World	27.2	62.4	86.7	135.4	187.3	133.81

Source: GTIS, Global Trade Atlas database (accessed May 4, 2016); imports under HS 020311, 020312, 020319, 020321, 020322, 020329, 020641, 020649, 021011, 021012, 021019, 160241, 160242, and 160249.

Case Study 2: Avocados

NAFTA negotiations not only helped end the United States' almost 80-year ban on Mexican avocados but also gradually eliminated tariffs on imports of avocados into the United States. From 1914 to 1993, the United States banned all imports of avocados from Mexico because of the presence of avocado seed weevils in Mexico.³⁷⁷ In the early 1970s, Mexican officials proposed lifting the ban; however, no progress was made until the early 1990s, when bilateral negotiations, conducted under the SPS provision of NAFTA, led to the resolution of this longstanding disagreement.³⁷⁸ NAFTA advanced efforts to resolve SPS issues in incremental steps, liberalizing avocado trade by loosening restrictive SPS measures and eliminating the tariff to the benefit of both U.S. consumers and industry. Almost a decade and a half after the first shipments of Mexican avocados were allowed into the state of Alaska (1993), market access expanded to include year-round sales of Mexican avocados to all 50 U.S. states in 2007.³⁷⁹

Industry Overview

There is high and growing demand for avocados in the United States. Consumption of fresh avocados surpassed 2 billion pounds in 2015, and domestic avocado consumption doubled between 2005, when Mexico was granted year-round access to most of the U.S. market, and

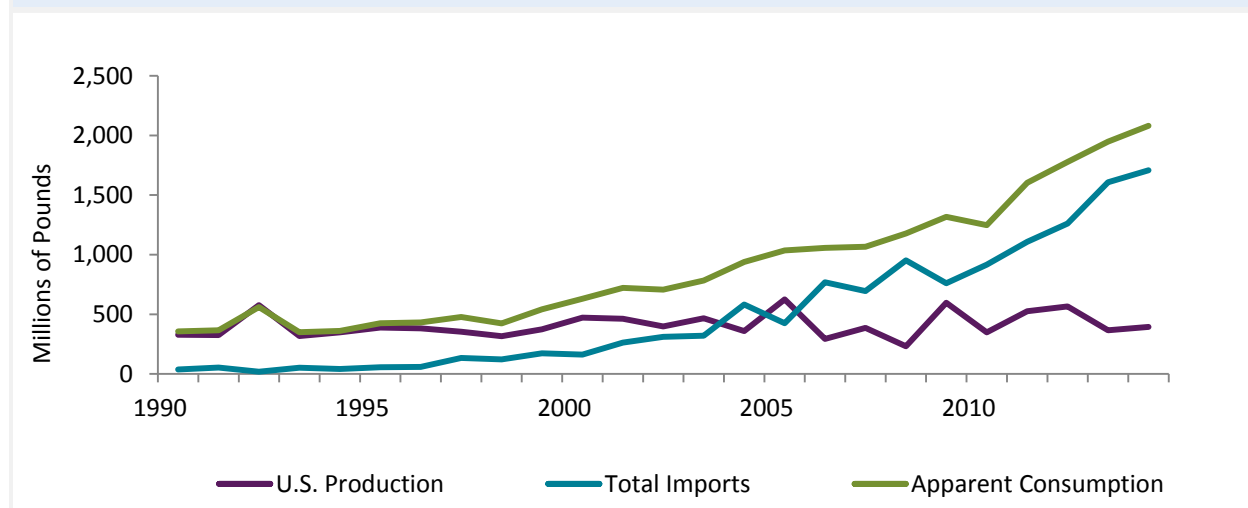
³⁷⁷ In 1914, there were no known chemical or natural controls for certain pests prevalent in Mexico but not the United States. Orden, "Mexico-U.S. Avocado Trade Expansion," 2002; USDA, APHIS, *Proposed Rule for Mexican Hass Avocado Import Program Expansion*, October 2001.

³⁷⁸ Avocados dominated the agenda of many negotiations and meetings of a joint NAFTA Phytosanitary Working Group, where scientists from USDA and Mexico's plant health directorate, the Dirección General de Sanidad Vegetal, compared data requirements, research design, and data results. Orden, "Mexico-U.S. Avocado Trade Expansion," 2002; Bredahl, "Trade Liberalization under NAFTA: Trade in Avocados," 2001, 218; Peterson and Orden, "Avocado Pests and Avocado Trade," 2008.

³⁷⁹ Factors such as better cold storage facilities and changes in supply chain management have helped to overcome some of the perishability issues that affect fruit crops, making it possible to increase trade flows. Other factors such as WTO and trade agreement commitments, agricultural reforms, and advances in production methods have encouraged increased output, while population demographics, growing incomes, and educational campaigns promoting the health benefits of consuming fresh produce, including avocados and blueberries, have also bolstered the consumption of these commodities in the off season.

2015 (figure 4.1).³⁸⁰ Domestic avocado consumption is now almost 6.5 pounds per person annually, compared to only 1.4 in 1990.³⁸¹ Increased trade, through the resolution of phytosanitary issues, helps meet U.S. consumers' growing demand for avocados.³⁸²

Figure 4.1: Growing U.S. demand for avocados 1990–2014



Source: USDA, ERS, 2015 Fruit and Tree Nuts Yearbook, October 30, 2015 table G-3. 2014 data are preliminary. Corresponds to appendix table I.4.

The United States is among the world's top 10 avocado producers, producing between 160,000 and 270,000 tons of avocados annually. However, despite a 24 percent increase in production between 1990 and 2013, the domestic industry has not been able to fill domestic demand.³⁸³ Avocados grow in tropical and subtropical climates, and the bulk of commercial domestic production is limited to certain coastal regions in California, which supply over 90 percent of U.S. commercial production.³⁸⁴ Currently, about 82 percent of apparent domestic consumption is supplied by Mexico, the world's largest producer of avocados.³⁸⁵ Mexico grew almost 1.5 million tons of avocados in 2015,³⁸⁶ with the state of Michoacán accounting for about

³⁸⁰ California, Florida, and Hawaii were off limits to Mexican avocados until February 1, 2007, due to phytosanitary concerns. USDA, ERS, 2015 Fruit and Tree Nuts Yearbook, October 30, 2015, table G-3.

³⁸¹ USDA, ERS, 2015 Fruit and Tree Nuts Yearbook, October 30, 2015, table G-3.

³⁸² USDA, ERS, "Phytosanitary Regulations Shape Fruit and Vegetable Trade," April 1, 2008.

³⁸³ USDA, ERS, 2015 Fruit and Tree Nuts Yearbook, October 30, 2015, table B-9.

³⁸⁴ USDA, ERS, 2015 Fruit and Tree Nuts Yearbook, October 30, 2015, table B-9. About 90 percent of commercial production is in California. Minor commercial production also occurs in Florida, and to a lesser extent, Hawaii (however, the thin-skinned West Indian varieties grown in Hawaii and Florida are considered weak substitutes for the Hass variety). Borriss, Brunke, and Kreith, "Avocados," January 2013.

³⁸⁵ Calculation based on USDA, ERS, 2015 Fruit and Tree Nuts Yearbook, October 30, 2015, table B-9; USITC DataWeb/USDOC (accessed February 16, 2016).

³⁸⁶ The overwhelming majority of avocados (more than 80 percent in all years) are consumed in the national market as fresh fruit. In a typical year with normal weather, 5–10 percent are exported and 3–5 percent are converted to processed products. USDA, FAS, "Mexico Avocado Annual," November 26, 2012.

80 percent of production.³⁸⁷ As in the United States, most Mexican production is of Hass avocados, due to their longer shelf life and demand for the variety in Mexico's main markets.³⁸⁸

With domestic demand for avocados increasing, U.S. companies are investing in technological innovations like preconditioning facilities that increase the availability of ripe fruit. In addition, technological advances allow ripe fruit to be identified with a sticker, limiting shoppers' propensity to squeeze and thus bruise avocados, which in turn reduces spoilage.³⁸⁹ Some U.S. companies have also begun investing in Mexico. Much of the export-oriented avocado production in Mexico is managed directly by packers, many of whom have significant U.S. investments.³⁹⁰

In addition to technological innovation and greater market access for imported avocados, factors such as advertising, availability, information about nutritional benefits, and the growing popularity of Hispanic foods have also contributed to rising avocado demand.³⁹¹

NAFTA Provisions

The first breakthrough in ending the avocado import ban was made in 1993, during the run-up to NAFTA, when the United States allowed the first shipment of fresh Mexican avocados since 1914. This first shipment was limited to Alaska. Pre-NAFTA, the most-favored-nation (MFN) rate on imports of avocados into the U.S. was 13.2 cents/kg.³⁹² Under NAFTA, the United States

³⁸⁷ Currently, 24 Michoacán municipalities are certified to export to the United States. USDA, FAS, *Mexico: Mexican Avocado Industry*, November 24, 2015. The local industry believes that there is little room for expansion of production in Michoacán, while production in Jalisco is expanding rapidly. Jalisco is currently the second-largest avocado-producing state in Mexico, accounting for about 6 percent of total Mexican production. Jalisco is also currently under consideration for eligibility to export to the United States under the Animal and Plant Health Inspection Service (APHIS) SPS protocols. USDA, FAS, *Mexico: Mexican Avocado Industry*, November 24, 2015.

³⁸⁸ USDA, FAS, "Mexican Avocado Exports Continue to Grow," November 2014.

³⁸⁹ Burfield, "Avocado Conditioning Can Help Boost Sales," August 16, 2015.

³⁹⁰ Growers in Michoacán generally sell their fruit on the spot market to a packer on a pesos-per-kilogram basis. Generally speaking, product that does not meet contracted export specifications is sent to the domestic market. USDA, FAS, *Mexico: Mexican Avocado Industry*, November 24, 2015. California-based Calavo Growers, a significant U.S. avocado grower and shipper, recently announced that its new fresh-avocado packing operation in Jalisco should open in the second quarter of 2016. Nelson, "Calavo Adding Avocado Packing House in Jalisco," March 17, 2015; Calavo website, "Company History," <http://www.calavo.com/store/history.html>.

³⁹¹ Nelson, "Demand Booming," November 2, 2015. For example, in 2015, the Hass Avocado Board's "Avocados from Mexico" became the first fresh produce brand featured in a Super Bowl commercial, promoting the consumption of guacamole as a Super Bowl snack. Nelson, "Avocado Consumption Expected Up 13%," December 28, 2015.

³⁹² In 1993, avocado imports into the United States under the Caribbean Basin Economic Recovery Act and the Andean Trade Preference Act entered duty free; imports from Israel were 1.3 cents/kg and imports from Canada were 6.6 cents/kg. USITC, *Harmonized U.S. Tariff Schedule Archives*, 1993.

gradually reduced its tariff on avocados from Mexico from 11.8 cents/kg in 1994 to free in 2003.³⁹³

NAFTA also created a mechanism and process for SPS measures. Since NAFTA prohibits the use of SPS measures as a trade barrier, a primary achievement of the NAFTA Agricultural Committee Working group was putting in place the “regionalization” approach to SPS issues. Under regionalization, certain regions of countries can be declared pest or disease free, clearing them for trade.³⁹⁴ This approach was eventually adopted by the U.S. Animal and Plant Health Inspection Service (APHIS) to allow the export of avocados from the Mexican state of Michoacán. After beginning a risk assessment to identify economic and environmental damage that pests associated with avocados might cause, APHIS eventually adopted an extensive systems approach to deal with SPS concerns pertaining to avocados from Mexico. This approach includes requirements for orchard certification, a limited production area, trace-back labeling, preharvest orchard surveys, orchard sanitation, postharvest safeguards, fruit cutting and inspection at the packinghouse, port-of-arrival inspection, and clearance activities.³⁹⁵

In the first few years after NAFTA entered into force, Mexico was slowly granted increased market access. But it continued to face a host of restrictions on its avocado exports to the United States, which could be shipped only from approved municipalities in Michoacán, only during the winter, and only to certain northeastern U.S. states (figure 4.2). In 1997, the U.S. Department of Agriculture (USDA) extended market access by approving the export of Mexican Hass avocados from Michoacán to 19 northeastern states and the District of Columbia from November to February.³⁹⁶ These months were selected because cold weather in the approved states would likely kill any pests that slipped through pest-control safeguards.³⁹⁷

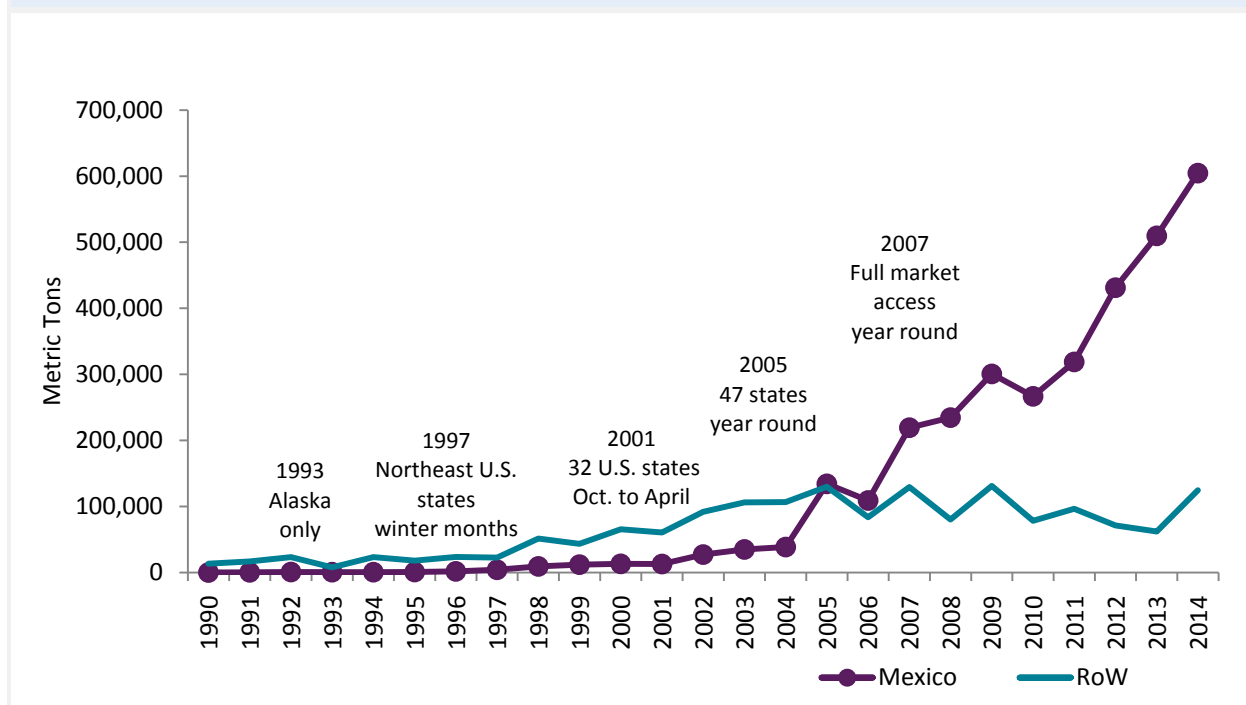
³⁹³ NAFTA Text, U.S. staging schedule; USITC, *Harmonized U.S. Tariff Schedule Archives*, HTSA Supplement 1994.

³⁹⁴ USDA, ERS, *Effects of North American Free Trade Agreement*, 2002.

³⁹⁵ 80 Fed. Reg. 8561 (February 18, 2015). <https://www.federalregister.gov/articles/2015/02/18/2015-03289/mexican-hass-avocado-import-program>.

³⁹⁶ Peterson and Orden, “Avocado Pests and Avocado Trade,” 2008.

³⁹⁷ USDA, ERS, *Effects of North American Free Trade Agreement*, 2002.

Figure 4.2: Evolution of U.S. market access for Mexican avocados and U.S. imports 1990–2014

Source: GTIS, Global Trade Atlas database (January 14, 2016); 69 Fed. Reg. 69748 (November 30, 2004). Corresponds to appendix table I.5.

In 2000, the Mexican government requested year-round access to all 50 states, but this was slow in coming. In 2001, APHIS extended the export window to October through April, and Mexico was now allowed to ship to 32 states plus the District of Columbia. By 2004, APHIS had completed its draft risk assessment and noted that an examination of 10 million program fruit had not revealed any pests in six years of fruit cutting and inspection, giving APHIS the confidence that the systems approach in place provided adequate safeguards against avocado pests.³⁹⁸ APHIS also estimated that replacing geographical and seasonal restrictions on Mexican avocados with a regional systems approach would lead to annual net benefits of \$70 million to the United States.³⁹⁹ Accordingly, in 2005, market access was expanded to 47 non-avocado-producing states (excluding California, Florida, and Hawaii), and imports were permitted year

³⁹⁸ 69 Fed. Reg. 69748 (November 30, 2004).

³⁹⁹ USDA, ERS, *Phytosanitary Regulations Shape Fruit and Vegetable Trade*, 2008.

round.⁴⁰⁰ However, it was not until 2007 that Mexico was finally granted year-round permission to ship Hass avocados from Michoacán to all U.S. states.⁴⁰¹ Most recently, APHIS has shifted away from a regional approach and agreed to allow the importation of Hass avocados from all Mexican states.⁴⁰²

Impacts of the Agreement

U.S. consumption of avocados has increased significantly since the successful resolution of SPS issues under the auspices of NAFTA, growing by almost 10 percent annually between 1999 and 2013.⁴⁰³ While imports from Mexico were negligible from 1993 through 2001, when they could enter the United States only during the winter months and go only to a few states, imports increased significantly when year-round market access to the continental United States was granted in 2005. Once they gained full access to all 50 U.S. states in 2007, avocados from Mexico began to rapidly outpace imports from the rest of the world, particularly Chile.⁴⁰⁴ Average annual U.S. avocado imports from all sources reached 420,954 metric tons in 2010–12, a 2,214 percent increase since 1990–92. While total import market share accounted for only 11 percent of apparent U.S. consumption in 1990, by 2015, total imports accounted for 82 percent of U.S. avocado consumption.⁴⁰⁵

Despite the sharp rise in imports, domestic production, driven by demand growth, has increased overall since NAFTA was implemented. Average U.S. production increased by 13 percent in 2009–15, when it was 447 million pounds, from 1990–95, when it was only 310 million pounds.⁴⁰⁶ Even though total U.S. avocado acreage has declined, the number of

⁴⁰⁰ Export eligibility is a two-step process. First the Mexican Secretariat of Agriculture, Livestock, Rural Development, Fishery and Food (SAGARPA) must declare a municipality ready to export to the United States after repeated area surveys and inspections of orchards and processed fruit. Then APHIS initiates its own procedures to corroborate SAGARPA's findings. Mexico's ability to export avocados to the U.S. is limited, therefore, to the USDA-approved Mexican municipalities. USDA, FAS, "Mexico Announces Tacambaro," August 16, 2004; 69 Fed. Reg. 69748 (November 30, 2004).

⁴⁰¹ In early 2015, APHIS proposed an amendment to the Mexican Hass Avocado Import Program to allow the importation of fresh Hass avocados from all of Mexico, beginning with the state of Jalisco, provided each state meets the APHIS systems approach requirements. 80 Fed. Reg. 8561 (February 18, 2015).

⁴⁰² The new rule will be implemented as of June 27, 2016, and is based on the current systems approach with a few minor revisions. Revisions include a requirement that the avocados be imported in commercial consignments and accompanied by a phytosanitary certificate with an additional declaration stating the systems approach has been followed. Exports from Mexican states can begin once an approved operational work plan is in place. 81 Fed. Reg. 33581 (May 27, 2016).

⁴⁰³ Bellamore, "The Imperative of Sustaining Demand," 2014; USDA, ERS, *Fruit and Tree Nuts 2015 Yearbook*, table G-3.

⁴⁰⁴ Before 2005, Chile was the leading supplier of imported avocados to the United States. USDA, ERS, "Imports Contribute to Year Round Fresh Fruit Availability," December 2013.

⁴⁰⁵ USDA, ERS, *2015 Fruit and Tree Nuts Yearbook*, October 30, 2015, table G-3.

⁴⁰⁶ A five-year average was used to smooth out crop fluctuations. The pre-NAFTA period was compared to the most recent five-year period (2010–14). USDA, NASS, *Noncitrus Fruits and Nuts Summary*, all issues, 2011–15.

California's avocado orchards has increased, rising from 4,801 in 2002 to 5,602 in 2012.⁴⁰⁷ In addition, the domestic industry has benefited from price increases as U.S. demand for avocados remains strong. The value of total U.S. production increased by 71 percent between 1990 and 2015, and the domestic industry recently noted that its fruit commanded a premium and stable price in 2014/2015.⁴⁰⁸

Part of this relative price stability may be because imports of Hass avocados from Michoacán peak in the winter months and decline in the summer months, which is California's main season.⁴⁰⁹ The successful relationship between imported and domestic crops may also be attributable in part to the U.S. Hass Avocado Board (HAB), which contributes to the orderly marketing of avocados throughout the year.⁴¹⁰ The U.S. industry has acknowledged that the current avocado import program has functioned relatively well. In January 2014, the California Avocado Commission joined forces with the Mexican avocado exporters association in proposing that the USDA take a staged approach to expanding the Mexican avocado import program to include all of Mexico.⁴¹¹

Case Study 3: Blueberries

The U.S. trade agreement with Korea allows fresh blueberry exports from Oregon to Korea. In addition, Korea is now reviewing a request to expand import market access for blueberries to additional U.S. states.⁴¹² Exports of fresh blueberries from the United States into Korea were prohibited until 2011 due to phytosanitary concerns, and even afterwards faced a high tariff rate of 45 percent ad valorem. Between 2001 and 2011, USDA worked closely with Korean government officials to negotiate the limited removal of Korea's ban on imports of fresh

⁴⁰⁷ USDA, APHIS, "Retrospective Analysis of Significant Rules: Avocados," July 23, 2015.

⁴⁰⁸ Bellamore, *California Avocado Commission 2014–2015 Annual Report*, 2015.

⁴⁰⁹ Actual shipment data recorded by the Hass Avocado Board show that more than 75 percent of total domestic shipments occurred between May and September during 2011–14, and 68 percent of imported avocados arrived between October and April during 2011–2014.

⁴¹⁰ The Hass Avocado Promotion, Research, and Information Act of 2000, administered by the HAB with oversight by the USDA's Agricultural Marketing Service, became effective on September 9, 2002. This program is funded by assessments on domestic and imported fresh Hass avocados, and one of its primary objectives is to increase demand for and consumption of avocados; AMS, Hass Avocado Board website, 2013 <https://www.ams.usda.gov/rules-regulations/research-promotion/hass-avocado>. AMS found that the HAB's promotion programs have significantly helped to increase demand and maintain orderly marketing; Carman, Li, and Sexton, "An Economic Evaluation of the Hass Avocado," March 2009.

⁴¹¹ Bellamore, "The Imperative of Sustaining Demand," 2014.

⁴¹² U.S. Agricultural Trade Office, U.S. Embassy Seoul (accessed January 14, 2016).

blueberries from the United States.⁴¹³ Korea's phytosanitary issues concerned maximum residue limits (MRLs) and foreign pests found in blueberry imports.⁴¹⁴

Industry Overview

Following the resolution of certain SPS issues and the gradual lowering of tariffs, U.S. blueberry producers have increased exports to Korea significantly since 2011. The United States is the world's leading global producer and exporter of blueberries, and fresh blueberries represent a large and growing fruit crop in the United States. In 2014, total U.S. fresh blueberry production reached 334 million pounds, and was worth \$645 million.⁴¹⁵ U.S. fresh blueberry production increased by 55 percent between 2007 and 2014, and total U.S. blueberry harvested acreage increased by 37 percent.⁴¹⁶ In 2014, Oregon was the fourth-largest cultivated blueberry producer in the United States, behind Michigan, Georgia, and Washington.⁴¹⁷

Korea is a lucrative market for U.S. blueberry producers.⁴¹⁸ Korea has limited domestic agriculture in general, and Korean blueberry production is not only limited but also fairly new.⁴¹⁹ In 2013, Korea produced about 11 million pounds of blueberries, though it is expected to triple that amount in the future.⁴²⁰ Because of its restrictive SPS measures, Korea has been traditionally seen as a market for frozen blueberries, which do not face any SPS restrictions. The United States is its primary import source of frozen blueberries, despite a significant tariff.⁴²¹ Recent increases in U.S. exports of frozen blueberries reflect rising blueberry demand in Korea. Between 2010 and 2015, the value of U.S. frozen blueberry exports grew

⁴¹³ On September 21, 2011, the Ministry for Food, Agriculture, Forestry, and Fisheries (MIFAFF) Notice 2011-158 provided an exemption for "Oregon fresh blueberries" from the import-prohibited list. The exemption allows the import of fresh blueberry (*Vaccinium corymbosum* and *V. virgatum*) commercially produced in the state of Oregon.

⁴¹⁴ Thomson, "The Oregon Blueberry Industry and South Korea," September 2014.

⁴¹⁵ USDA, ERS, Noncitrus Fruits and Nuts 2014 Summary, July 2015, 34-35; USDA, NASS, Statistics by Subject Database: Blueberries (accessed February 16, 2016). Maine is the top blueberry producer in the United States; however, it produces wild rather than cultivated blueberries. Over 99 percent of wild blueberries are further processed instead of being sold in the fresh market. USDA, ERS, U.S. Blueberry Industry Data (accessed February 16, 2016).

⁴¹⁶ USDA, NASS, Statistics by Subject Database: Blueberries (accessed February 16, 2016).

⁴¹⁷ USDA, ERS, Noncitrus Fruits and Nuts 2014 Summary, July 2015, 33.

⁴¹⁸ Burfield, "First Oregon Blueberries Shipped to South Korea," July 20, 2012.

⁴¹⁹ Thomson, "The Oregon Blueberry Industry and South Korea," September 2014.

⁴²⁰ In 2014, Chaesup Rim, CEO of Very Berry Korea Corp., noted that "Korean production will continue to grow because the planted area of 1,500 hectares will produce roughly 15,000MT when the blueberry bushes reach a mature stage." According to Rim, Korean fresh production was "5,000MT in 2013, combined with Oregon State which exported 350MT of fresh blueberries in 2013, and Chile which sent 650MT." In 2013 Korea reported only 45 kilograms of exports under HS 0810.40 + total imports = 6,000 mt consumed. Based on these figures, U.S. imports accounted for 6 percent of Korean apparent consumption. FreshFruitPortal.com, "Q&A: South Korean Blueberry Market Snapshot," March 21, 2014; GTA, Global Trade Atlas database (accessed January 12, 2016).

⁴²¹ FreshFruitPortal.com, "Q&A: South Korean Blueberry Market Snapshot," March 21, 2014. Korea is the second-largest export market for frozen blueberries for U.S. producers; GTIS Global Trade Atlas database (accessed February 16, 2016).

from \$3.5 million to \$14.7 million, an increase of 317 percent.⁴²² Based on the success of frozen blueberry exports and the success of fresh blueberry exports in other Asian markets, the U.S. industry sees an opportunity to gain market share in the fresh market.

Korean demand for blueberries has increased, driven partly by interest in the berries' health benefits as well as improving quality, year-round availability, and the country's growing middle class. In addition, the cold chain management system organized by Oregon growers allows them to get fresh blueberries from farm to market in Korea within 48 hours of picking.⁴²³ With the expanded import supply, the Korean price has come down to a level where most Korean consumers can afford to eat blueberries.⁴²⁴

U.S. fresh blueberry exports compete with Korean-produced fresh blueberries mainly due to an overlap in the harvest season. Chile is the only other country allowed to export fresh blueberries to Korea. While it has duty-free access to the Korean market, Chile does not compete with U.S. blueberries because its blueberry harvest is during the winter months of the Northern Hemisphere, which are opposite to those of the U.S. blueberry harvest.⁴²⁵ Figure 4.3 below illustrates the counterseasonal nature of fresh blueberry imports, as well as the growing demand in Korea for imported fresh blueberries year round.

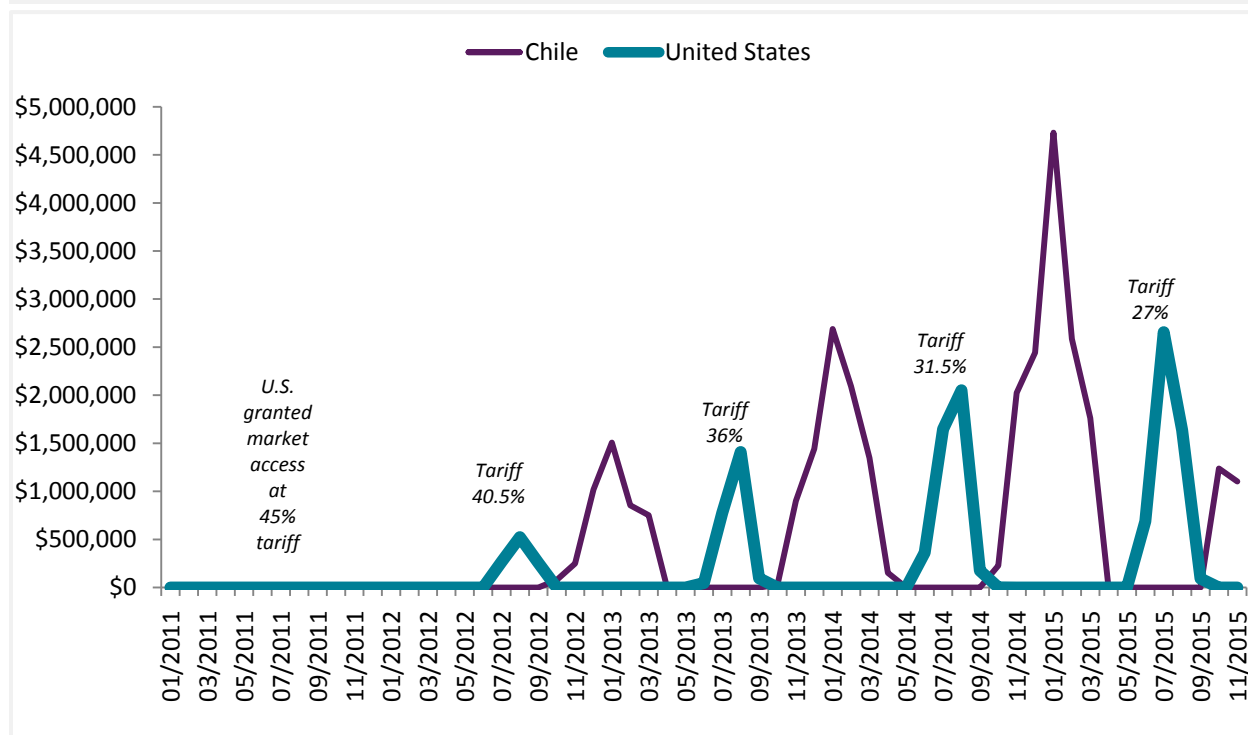
⁴²² GTIS, Global Trade Atlas database (accessed February 16, 2016); export statistics for HTS 0811.90.2028 represent "Blueberries, Cultivated, Frozen, Uncooked or Cooked by Steaming or Boiling in Water, Whether or Not Containing Added Sugar or Other Sweetening Matter." Korea's import data reflect a similar increase in sales from the United States; however, Korea's import data include frozen blueberries in a basket category. Korean import data show a 95 percent increase in imports from the United States, from \$11.9 million in 2010 to of \$23.3 million in 2015 based on HTS 0811.90.9000, "Fruit, Neso, and Nuts, Uncooked or Cooked by Steaming or Boiling in Water, Whether or Not Containing Added Sweetening, Frozen, Other."

⁴²³ A cold chain management system maintains temperature-controlled storage and transportation of a given product. Lies, "Blueberries Ready to Storm Korea," October 14, 2011.

⁴²⁴ FreshFruitPortal.com, "Q&A: South Korean Blueberry Market Snapshot," March 21, 2014.

⁴²⁵ Farmers in South America begin harvesting blueberries in November as the North American harvest winds down, and their harvest ends in March as the North American harvest begins. Brux, "Fresh Blueberries from Chile," 2013. Moreover, 81 percent of Chilean blueberries are harvested between December and January; USDA, FAS, *Argentina Blueberries Voluntary*, 2006.

Figure 4.3: Korea’s monthly imports of fresh blueberries from Chile and the United States



Source: GTIS, Global Trade Atlas database (accessed January 12, 2016). Corresponds to appendix table I.6.

KORUS Provisions

Reductions in tariffs and an agreement on SPS issues enabled U.S. blueberry farmers to increase exports of fresh blueberries to Korea. Under KORUS, tariffs on fresh blueberries (HS 0810.40) will be phased out in 10 equal stages, from the 2011 MFN rate of 45 percent ad valorem to free in 2021. The 2016 tariff rate on U.S.-originating blueberries is 22.5 percent. While the tariff rate is applicable to all U.S. blueberries, in practice only blueberries from the state of Oregon are permitted to be imported into Korea.

The 2012 entry into force of KORUS places fresh blueberries from Oregon under the jurisdiction of the trade agreement’s Committee on Sanitary and Phytosanitary Matters. This committee promotes cooperation and consultation on SPS matters and facilitates agricultural trade between the United States and Korea.⁴²⁶ USDA continues to work with the committee to remove or revise some of the growing, shipping, and packing regulations facing U.S. fresh blueberry exports to Korea. While these measures reflect WTO standards established in the Uruguay Round, they also impose onerous growing and packaging regulations on U.S. producers, including added field inspections and the segregation of blueberries bound for Korea

⁴²⁶ Thomson, “The Oregon Blueberry Industry and South Korea,” 2014, 153–171.

from those destined for other markets.⁴²⁷ Korea’s SPS measures go beyond international norms applied in other importing markets in Asia, such as Hong Kong, Japan, and the Philippines.⁴²⁸

Under Korea’s import protocol, Oregon blueberries must come from orchards and packing houses that are registered and inspected by APHIS, which must inspect packing houses before export and supervise them to maintain sanitary conditions. APHIS is required to inspect for the presence of diseases and certify that there were no outbreaks.⁴²⁹ APHIS must also maintain a low occurrence or nonoccurrence of multiple fungi and insects and take measures to certify that five additional pests do not exist in Oregon.⁴³⁰ If sudden oak death is detected during the inspection, the blueberries will be rejected, and fresh blueberries from the producing orchard will be banned from exporting for that season.⁴³¹ Under the import protocol, the South Korean Quarantine and Inspection Agency (QIA) and APHIS conduct joint on-site audits in Oregon every year at the expense of the domestic industry. At the July 2015 U.S.-Korea bilateral meeting, Korea agreed to reduce the frequency of the on-site audit to a biennial visit effective in 2016.⁴³² Oregon growers are required to carry out trapping programs and field surveys to make sure the berries are healthy and free of insects, and to maintain extensive records, increasing their costs.⁴³³

Impacts of the Agreement

During the first year that fresh blueberries were eligible for import into Korea, 50 growers and nine blueberry handlers reported exporting slightly less than 500,000 pounds of blueberries.⁴³⁴ Since then, Korea’s imports of fresh blueberries from the United States have increased

⁴²⁷ Burfield, “First Oregon Blueberries Shipped to South Korea,” July 20, 2012; Thomson, “The Oregon Blueberry Industry and South Korea,” 2014, 153–71.

⁴²⁸ Thomson, “The Oregon Blueberry Industry and South Korea,” 2014, 153–71.

⁴²⁹ These pathogens originally included *Phytophthora ramorum* (sudden oak death), tobacco ringspot virus, and tomato ringspot virus. In the July 2015 U.S.-Korea bilateral meeting, Korea agreed to remove the official field inspection requirement for tobacco ringspot virus and tomato ringspot virus. Oregon Blueberry Commission, “Oregon Blueberries to Korea,” April 11, 2016.

⁴³⁰ The fungi and insects include *Monilinia vaccinii-corymbosi* (mummy berry), *Argyrotaenia citrana* (orange tortrix), *Choristoneura rosaceana* (oblique-banded leafroller) and *Grapholita packardi* (cherry fruitworm moth). Required mitigation measures include trapping, monitoring, and treating as needed. Oregon Department of Agriculture, “Exporting Blueberries to the Republic of Korea,” June 21, 2011. The five pests include *Conotrachelus nenuphar*, *Rhagoletis mendax*, *Rhagoletis tabellaria*, *Acrobasis vaccinii*, and *Epiphyas postvittana*.

⁴³¹ *Phytophthora ramorum* (sudden oak death) is a fungus-like pathogen that can cause a blight in some *Vaccinium* species. Because *P. ramorum* can infect evergreen huckleberry and other species related to blueberries, Korea is concerned that sudden oak death could spread to their country on fresh fruit. USDA, “Republic of Korea: Korea Import Protocol,” October 7, 2011; Postman, Oliphant, and Hummer, “Plant Diseases,” March 1, 2009.

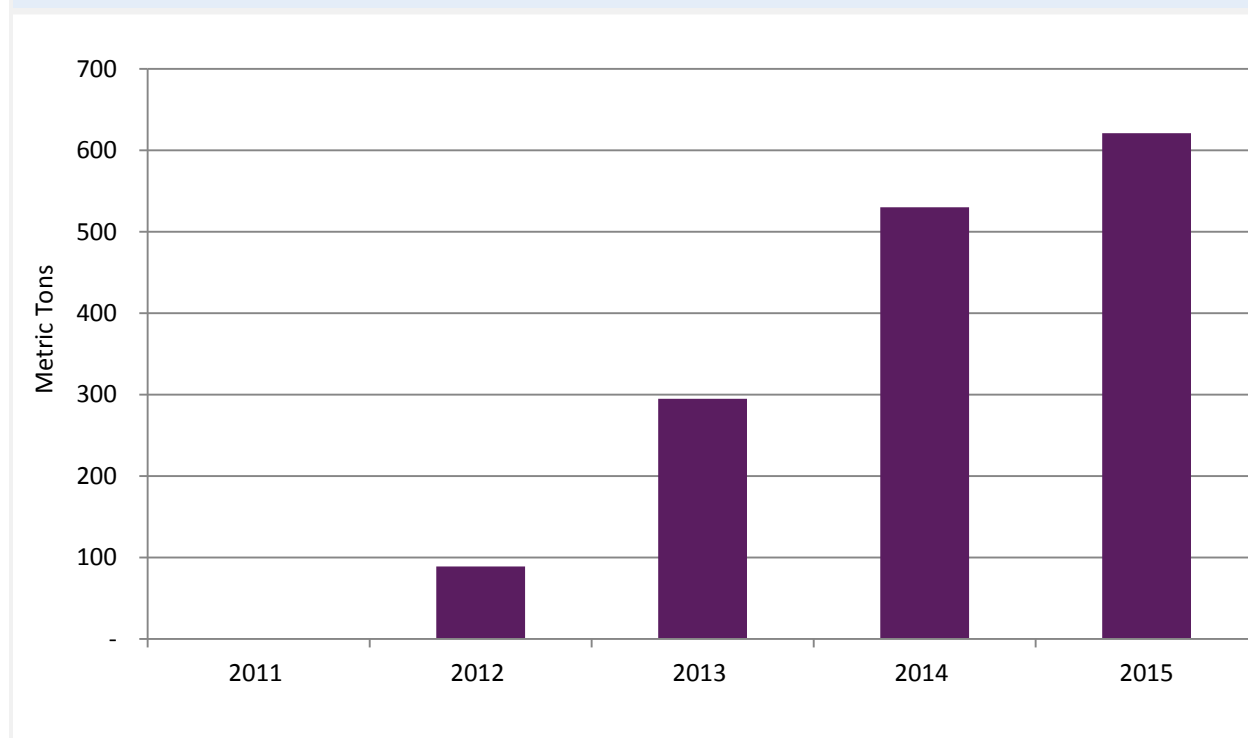
⁴³² Oregon Blueberry Commission, “Oregon Blueberries to Korea,” April 11, 2016.

⁴³³ Burfield, “First Oregon Blueberries Shipped to South Korea,” July 20, 2012.

⁴³⁴ *Oregon Blueberry Update*, “Smooth Move into Korea” (accessed February 16, 2016). Oregon’s blueberry exports to Korea, all of which were shipped by air, totaled 488,401 pounds, which was very close to the 500,000-pound target.

dramatically. Entirely supplied by Oregon, per the agreement, these imports grew by almost 600 percent from 2012 to 2015. By 2015, Korea reported importing about 1.4 million pounds (621 metric tons) of a basket category including both blueberries and cranberries from the United States, and the U.S. reported exporting about 1.3 million pounds (579 metric tons) of fresh blueberries (figure 4.4).⁴³⁵ In 2015, U.S. (Oregon) exports were worth \$3.85 million, and Korea reported over \$5 million in imports of blueberries and cranberries.⁴³⁶

Figure 4.4: Korea’s imports of U.S. fresh blueberries, cranberries, and related fruits, 2011–15 (metric tons)



Source: GTIS, Global Trade Atlas database (accessed May 2016). Corresponds to appendix table I.7.

Note: Korea’s import data for 0810.40 include imports of fresh cranberries, blueberries and other fruits of the genus *Vaccinium*. U.S. exports of 0810.40.0024, 0810.40.0026 and 0810.40.0029 represent exports of fresh, cultivated, wild and organic blueberries to Korea. U.S. export data show the same increases in sales volumes as the Korean import data.

Case Study 4: Motor Vehicles

In the two decades after NAFTA entered into force, the North American automotive supply chain has changed significantly, with Mexico producing a larger share of parts and vehicles than

⁴³⁵ GTIS, Global Trade Atlas database (accessed January 12, 2016). Korea’s import data for HS 0810.40 include imports of fresh cranberries, blueberries and other fruits of the genus *Vaccinium*. U.S. exports of HTS 0810400024, 0810400026, and 0810400029 account for U.S. exports of fresh, cultivated, wild, and organic blueberries to Korea. U.S. export data show same trend.

⁴³⁶ GTIS, Global Trade Atlas database (accessed January 12, 2016).

it did before the agreement.⁴³⁷ Despite increased U.S. motor vehicle and parts exports, the value of U.S. motor vehicle and parts production has declined, as have employment and the U.S. share of value added in U.S. exports. The effect of NAFTA is difficult to separate from other factors that affected the industry. These factors include increasing production by transplants (plants in the United States owned by non-U.S.-headquartered manufacturers), coupled with transplants' preference for home country suppliers, increased U.S. imports of auto parts from China, and increased efficiency in U.S. plants.

Industry Overview

Since NAFTA entered into force, U.S. production in the motor vehicle and parts manufacturing sector has declined in value, in volume, and as a share of North American production. Employment in this sector has declined as well. As just mentioned, many factors contributed to these declines. The volume of U.S. vehicle production fell by 500,000 units from 1994 to 2014, but at the same time North American production rose by 1.7 million units.⁴³⁸ Further, plants in other countries now supply much of the content that was previously supplied by U.S. parts production, which has declined in real terms.⁴³⁹

From 1990 to 2000, including the first 6 years of NAFTA, U.S. motor vehicle and parts employment rose from 1 million to 1.3 million, and then began to fall. In 2014, U.S. employment in motor vehicle and parts manufacturing totaled nearly 877,000, a decline from the late 1990s, but an increase from 2009 (figure 4.5).⁴⁴⁰ The decline in employment was spread relatively evenly across motor vehicle manufacturing and motor vehicle parts manufacturing.⁴⁴¹

⁴³⁷ Due to previous agreements between the United States and Canada, U.S.-Canada vehicle and parts trade was largely duty-free before NAFTA entered into force. Additionally, before NAFTA, Mexico's maquiladora parts producers could use duty drawback provisions to make imported inputs essentially duty-free if the final part was exported.

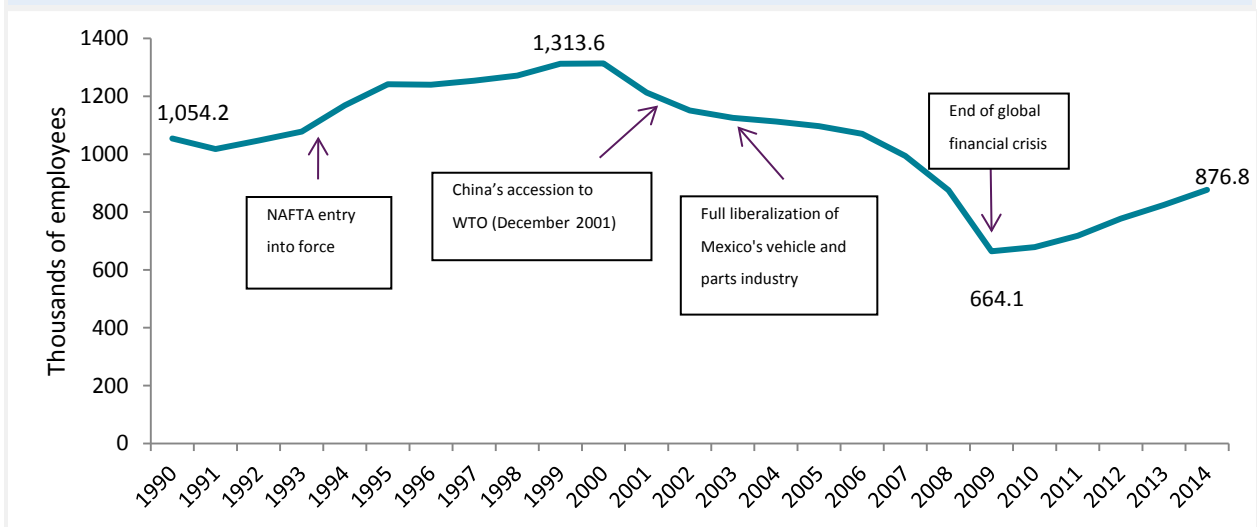
⁴³⁸ Binder, *Ward's Automotive Yearbook 2015*, 2015.

⁴³⁹ This decline can be seen in OECD TiVA data, where U.S. value-added in U.S. motor vehicle and parts exports declined from 78 percent in 1995 to 65 percent in 2011. 1995 is the earliest year for this data, and 2011 is the most recent. OECD, Origin of Value Added in Gross Exports, Trade in Value Added (TiVA) database (accessed December 3, 2015). USITC calculation using U.S. Census, ASM Shipments of NAICS 3363 Motor Vehicle Parts 1997 and 2014 (accessed December 2, 2015); White House, *2015 Economic Report of the President*, 2015, table B-3.

⁴⁴⁰ Where available, data going back to 1990 are used. However, some of the data used are available only from 1994, 1997, or even later.

⁴⁴¹ Motor vehicle manufacturing employment declined from 271,000 in 1990 to 199,000 in 2014 (27 percent). Motor vehicle parts employment declined from 653,000 to 536,000 (18 percent). However, motor vehicle body and trailer manufacturing employment increased from 130,000 in 1990 to 141,000 in 2014 (8 percent). DOL, BLS, "Current Employment Statistics" (accessed December 15, 2015).

Figure 4.5: Annual U.S. employment in motor vehicle and parts manufacturing, 1990–2014



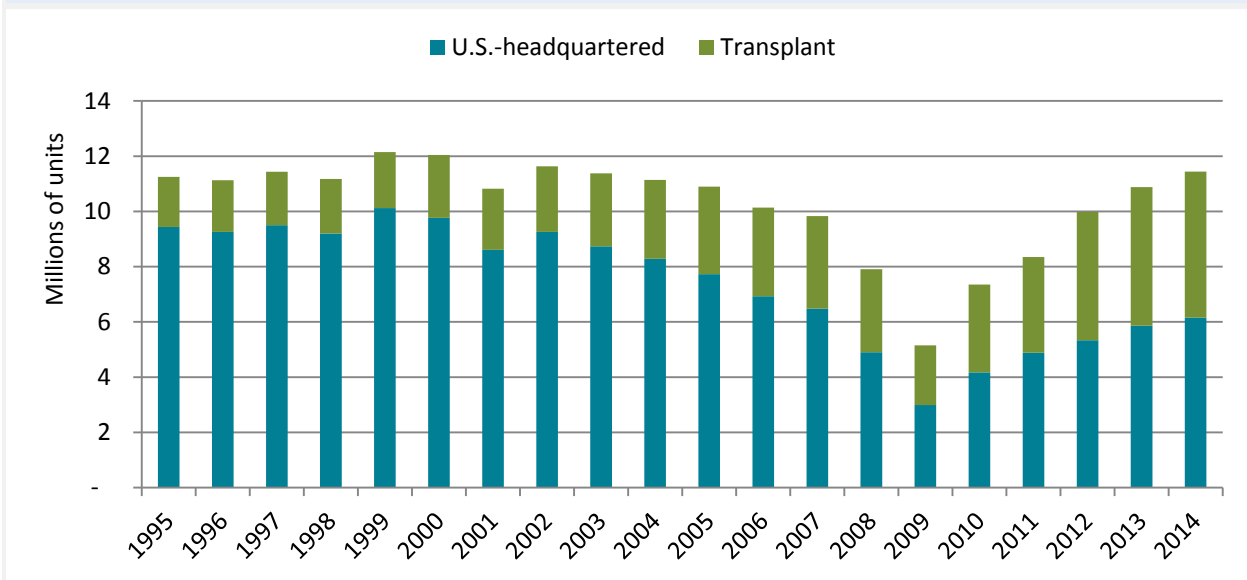
Source: U.S. DOL, BLS, “Current Employment Statistics” (accessed November 6, 2015). Source: DOL, BLS, “Current Employment Statistics” (accessed November 6, 2015). Corresponds to appendix table I.8.

Note: The figure includes markers for some, but not all, important events that affected the motor vehicles and parts sectors over the depicted time period.

Transplant Production in North America

Since the early 1990s, European and Asian motor vehicle manufacturers have increased their share of U.S. vehicle production, expanding it from less than 16 percent of production in 1995 to 46 percent in 2014 (figure 4.6).⁴⁴² This increase has partially offset the decline in production and employment that has occurred among U.S.-headquartered motor vehicle manufacturers in the United States.

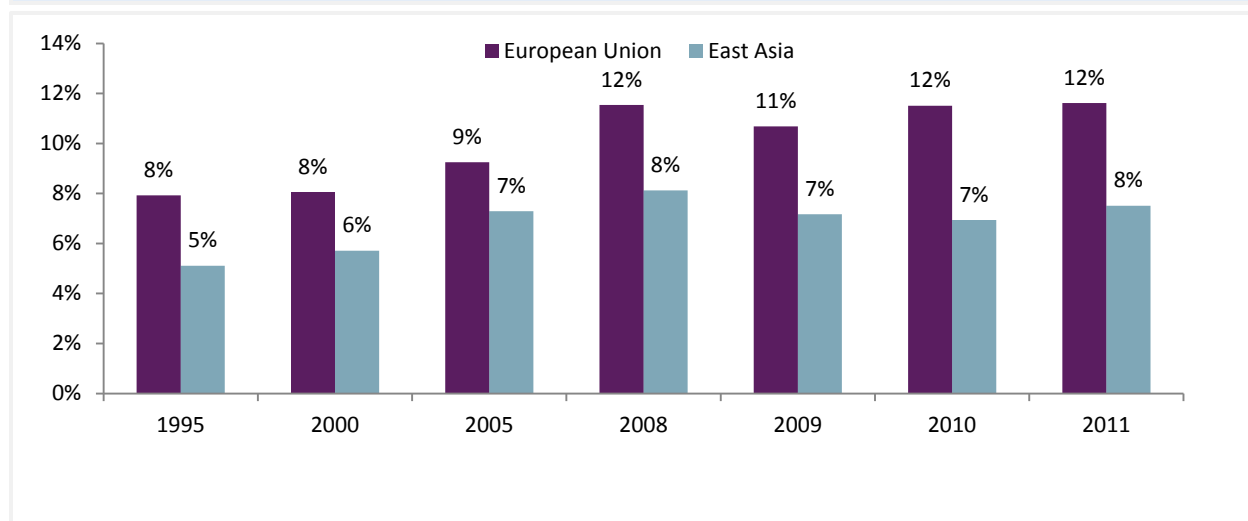
⁴⁴² USITC calculation using the following data from Binder, *Ward’s Automotive Yearbook 2015*, 2015: “Canadian Production by Manufacturer”; “Mexican Production by Manufacturer”; “U.S. Production by Manufacturer.”

Figure 4.6 U.S.-headquartered and transplant production in the United States, 1995–2014

Source: Binder, Ward's Automotive Yearbook 2015, "U.S. Production by Manufacturer," 2015. Corresponds to appendix table I.9.

Increased transplant production in the United States and North America followed an increase in U.S. market share for European and Asian manufacturers, which reached 54 percent in 2014. These manufacturers sought to produce vehicles in plants closer to the U.S. market. Increased production by these non-U.S.-headquartered manufacturers has also led to increased Asian and European content in U.S. exports of motor vehicles (figure 4.7).⁴⁴³

⁴⁴³ Transplants often continue to source content from their supplier base in their home countries. Coffin, *Passenger Vehicle Industry and Trade Summary*, 2013, 21. It should also be noted that domestic content varies greatly from model to model, and some vehicles produced by transplants in the United States have higher U.S./Canada content than some vehicles produced by U.S.-headquartered manufacturers. USDOT, NHTSA, "Part 583 American Automotive Labeling Act Reports 2016" (accessed April 14, 2016).

Figure 4.7: European Union and East Asian shares of value added in U.S. exports of motor vehicles, parts, and trailers, 1995–2011

Source: OECD, Origin of Value Added in Gross Exports, Trade in Value Added (TiVA) database (accessed December 3, 2015). Corresponds to appendix table I.10.

Note: 2011 is the most recent available year for TiVA data.

Imports of Auto Parts from China

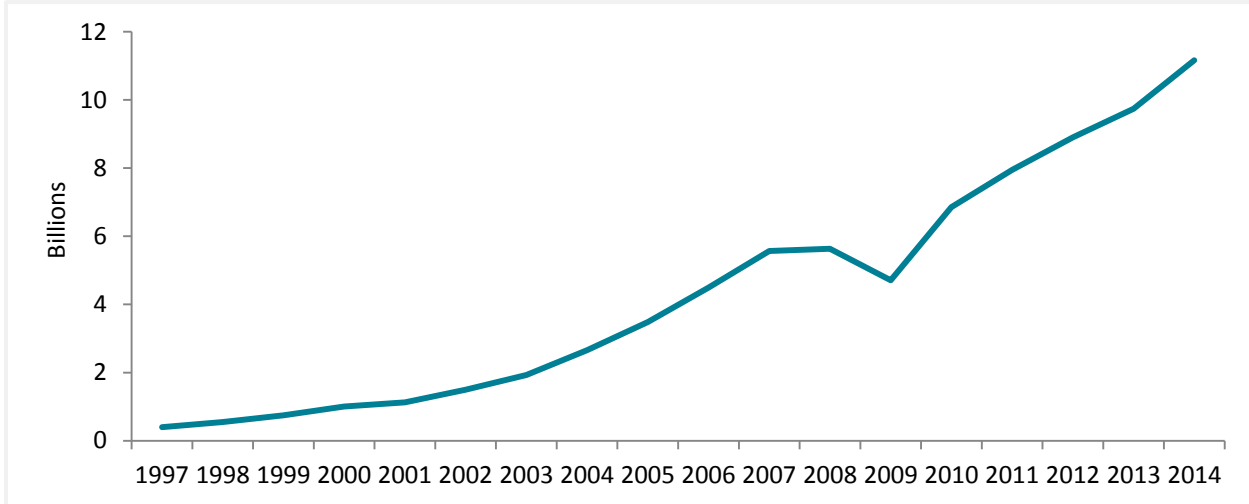
As noted above, increased imports of automotive parts from China likely contributed to the decline in U.S. parts production and employment. In 2014, China was the fourth largest supplier of U.S. automotive part imports, as categorized by North American Industry Classification System (NAICS) code.⁴⁴⁴ This level of imports is a significant increase from 1997, when China was only the 10th-largest supplier. During this time, U.S. imports of automotive parts from China increased from \$316 million (1 percent of U.S. automotive part imports) in 1997 to \$12.1 billion (11 percent) in 2014 (figure 4.8).⁴⁴⁵ Some have attributed increased imports from China to China's accession to the WTO in December 2001, which removed uncertainty related to tariffs on imports from China and appears to have been a significant factor in increasing investment in Chinese manufacturing.⁴⁴⁶ Further, parts from China tend to be relatively inexpensive.⁴⁴⁷

⁴⁴⁴ This sentence refers to NAICS code 3363 automotive parts, which includes some but not all automotive parts.

⁴⁴⁵ Many of these parts are believed to be "aftermarket parts," which are replacement parts. Industry representative, telephone interview by USITC staff, February 4, 2016.

⁴⁴⁶ One paper that analyzed industries at the NAICS 6-digit level found that the United States' granting of permanent normal trade relations to China and China's accession to the WTO had a negative and significant impact on U.S. manufacturing employment, including auto parts. USITC, hearing transcript, November 17, 2015, 113–14 (testimony of Josh Nassar, International Union, United Automobile, Aerospace, and Agricultural Implement Workers of America (UAW)); Pierce and Schott, "The Surprisingly Swift Decline of U.S. Manufacturing," 2014, 20.

⁴⁴⁷ USITC calculation from data in GTIS, Global Trade Atlas database (accessed April 29, 2016).

Figure 4.8: U.S. imports of automotive parts from China, 1997–2014 (constant 2009 dollars)

Source: USITC DataWeb/USDOC (accessed December 1, 2015); White House, *Economic Report of the President*, 2015, table B-3. Corresponds to appendix table I.11.

Institutional and Technological Changes

The period after NAFTA came into force saw the strengthening of trends that put downward pressure on employment and wages in the U.S. motor vehicle and parts industry. The first trend is the intensified use of technology in manufacturing. Heavier use of technology, including robots, has contributed to the increase in the ratio of vehicles produced in the United States to employees in the motor vehicle and parts industry, which rose from over 10 vehicles per worker in 1994 to nearly 13 vehicles per worker in 2013.⁴⁴⁸

The second trend is the vertical deintegration of the motor vehicle manufacturing industry. Historically, many U.S. motor vehicle manufacturers were relatively vertically integrated, producing many of the parts and components used as inputs for their motor vehicles. During the period from 1994 to 2014, however, many manufacturers deintegrated, spinning off their parts-making arms and moving more responsibilities to independent suppliers to reduce costs. The majority of work on a vehicle is now performed by parts suppliers, which tend to pay their employees less than motor vehicle manufacturers do.⁴⁴⁹

⁴⁴⁸ Graetz and Michaels, “Robots at Work,” February 27, 2015, 2–3; USITC calculation using *Ward’s Automotive Yearbook 2015*, 2015; DOL, BLS, “Current Employment Statistics” (accessed April 13, 2016); USITC, hearing transcript, November 17, 2015, 234 (testimony of Linda Dempsey, National Association of Manufacturers (NAM)).

⁴⁴⁹ This trend started in the 1980s with the arrival of transplants, but accelerated in the 1990s and 2000s. For example, two major U.S. manufacturers, Ford and General Motors, spun off much of their parts-making operations into two new companies, Visteon and Delphi (in 2000 and 1999). Direct (or tier one) suppliers often produce modules. USITC, hearing transcript, November 17, 2015, 232 (testimony of Josh Nassar, UAW); Klier and Rubenstein, *Who Really Made Your Car?* 2008, 46–52, 294–96; Sturgeon, Van Biesebroeck, and Gereffi, “The North American Automotive Value Chain,” 2009, 34–36.

Another trend negatively affecting wages is the increased use of temporary employees at assembly plants, who tend to receive lower wages than permanent employees directly employed by the manufacturer.⁴⁵⁰ Increased transplant production in the United States may also have reduced wages overall, because most Asian and European motor vehicle assembly and parts plants are non-union and pay lower wages on average than similar plants run by U.S.-headquartered companies.⁴⁵¹

NAFTA Provisions

The advent of NAFTA appears to have also had a significant effect on the U.S. motor vehicle industry, particularly via the cross-border integration of the industry in North America. Of special importance were three sets of NAFTA provisions: (1) rules of origin, (2) tariff removal, and (3) the liberalization of regulations governing investment in and manufacturing of motor vehicles and parts in Mexico. These changes appear to have allowed manufacturers to emphasize intra-NAFTA trade and to focus labor-intensive work in the lowest-wage country in the region: Mexico. The changes likely contributed to an overall decline in motor vehicle and parts production and employment in the United States.

First, the regional content requirements under NAFTA's rules of origin are relatively high. Under NAFTA, vehicles must have 62.5 percent originating content to be eligible to receive tariff-free treatment from any NAFTA member.⁴⁵² This rule gave U.S. manufacturers in the industry an incentive to source parts from within NAFTA, increasing integration of their production within the region and helping strengthen the North American regional supply chain for motor vehicle production.

Second, under NAFTA the United States, Canada, and Mexico removed tariffs on originating vehicles and parts. The United States removed its 2.5 percent tariff on Mexican-made cars and SUVs and its 25 percent tariff on light trucks and work vans from Mexico.⁴⁵³ Mexico also phased out its tariffs on U.S. motor vehicles and parts, with the last tariffs removed in 2003.⁴⁵⁴ Canada, for its part, phased out its tariffs on Mexican motor vehicles and parts (Canadian tariffs on U.S. motor vehicles and parts had been removed in a previous agreement).

⁴⁵⁰ Grabell, "The Expendables," June 27, 2013; USITC, hearing transcript, November 17, 2015, 110, 181 (testimony of Josh Nassar, UAW).

⁴⁵¹ USITC, hearing transcript, November 17, 2015, 181 (testimony of Josh Nassar, UAW); Klier and Rubenstein, *Who Really Made Your Car?* 2008, 275.

⁴⁵² Commercial vehicles only need 60 percent RVC; NAFTA, Chapter 4, Article 403, Paragraph 5.

⁴⁵³ Qualifying imports entered duty free, probably initially under the 1965 Auto Pact that was subsumed into the U.S.-Canada FTA.

⁴⁵⁴ Hufbauer and Schott, *NAFTA Revisited*, 2005, 370.

Finally, before NAFTA, Mexico's motor vehicle industry had restrictions on foreign direct investment (FDI), local-content requirements, joint venture requirements, and restrictions on maquiladoras. As part of NAFTA, Mexico agreed to eliminate most restrictions on motor vehicle and parts manufacturing and trade by 2004. In 1999 Mexico removed a 49 percent cap on FDI in motor vehicle parts manufacturing.⁴⁵⁵ Mexico then gradually phased out its trade balance, national value added, and national content requirements, completely eliminating them in 2004.⁴⁵⁶

Possible Impacts of NAFTA

Competitiveness of the North American Industry

With the removal of remaining tariffs among NAFTA partner countries (mostly between Canada and Mexico, and the United States and Mexico) and the liberalization of investment in the Mexican motor vehicle and parts industry, the North American motor vehicle industry became increasingly competitive globally, fueling higher U.S. vehicle exports. Exports of motor vehicles from NAFTA countries to non-NAFTA countries rose from \$10.7 billion in 1997 to \$54.9 billion in 2014, an increase of 411 percent (273 percent adjusted for inflation).⁴⁵⁷ At the same time, total trade (the sum of imports and exports) in motor vehicles and parts between the United States and NAFTA partner countries increased from \$144.3 billion in 1997 to \$203.8 billion in 2014 (figure 4.9).⁴⁵⁸ According to an analysis by the Peterson Institute, U.S. real value added per worker went up 41 percent during this period, due to a decline in the labor force combined with a slight increase in the value added by the vehicle manufacturing industry.⁴⁵⁹

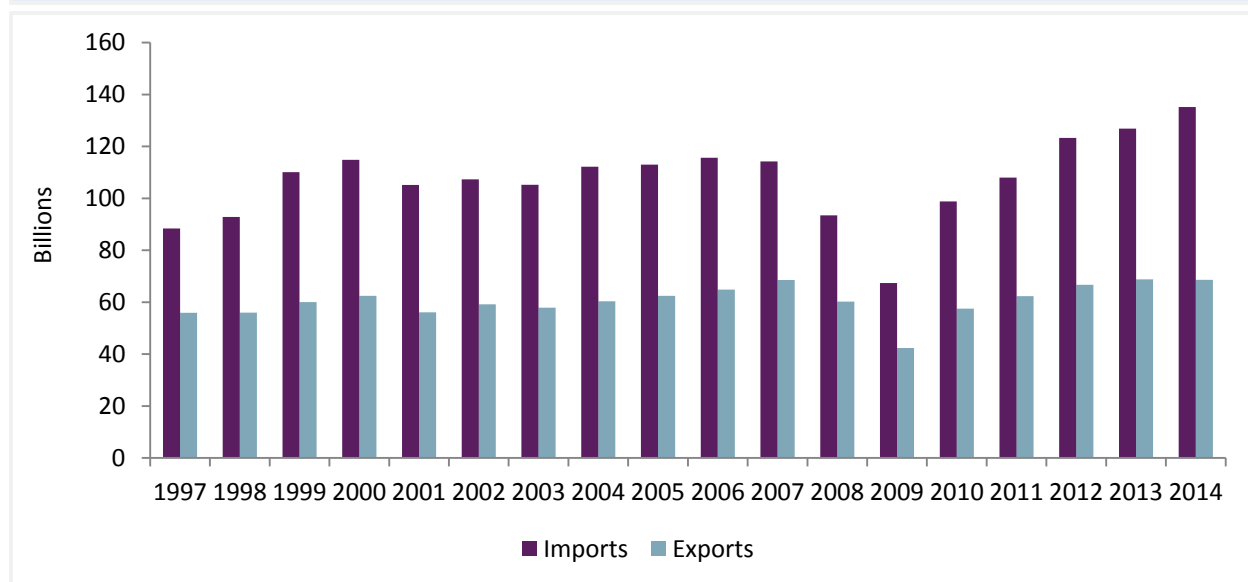
⁴⁵⁵ NAFTA, Annex 300-A.2, "Trade and Investment in the Automotive Sector: Mexico"; Hufbauer and Schott, *NAFTA Revisited*, 2005, 371.

⁴⁵⁶ Hufbauer and Schott, *NAFTA Revisited*, 2005, 370.

⁴⁵⁷ USITC calculation based on data from GTIS, Global Trade Atlas database (accessed December 30, 2015).

⁴⁵⁸ The year 1997 is used as a start date throughout much of this case study because NAICS only began to be used in 1997 for tracking of most types of trade, production, and employment data.

⁴⁵⁹ Hufbauer, Cimino, and Moran, "NAFTA at 20," May 2014, 10.

Figure 4.9: Total U.S. motor vehicles and parts^a trade with NAFTA partner countries, constant 2009 dollars

Source: USITC DataWeb/USDOC (accessed December 3, 2015); White House, *2015 Economic Report of the President*, 2015, Table B-3, 2015. Corresponds to appendix table I.12.

^a Includes NAICS codes 3361 Motor Vehicle Manufacturing, 3362 Motor Vehicle Body and Trailer Manufacturing, and 3363 Motor Vehicle Parts Manufacturing.

U.S. Motor Vehicle Production and Employment

As mentioned in the introduction to this case study, many factors contributed to changes in U.S. motor vehicle production and employment. However, the removal of restrictions on investment and imports in Mexico allowed companies to invest more heavily in Mexican motor vehicle and motor vehicle parts plants, likely leading to an increase in Mexican vehicle and parts production. From 1993 to 2014, of the 31 assembly plants built in North America, 10 were in Mexico.⁴⁶⁰ A detailed CGE model decomposing contributions of NAFTA and other factors on U.S. output from 1992 to 1998 found that U.S. motor vehicle and parts output was negatively affected by NAFTA, despite the increase in output that occurred during that period.⁴⁶¹

This liberalization enabled manufacturers to start viewing NAFTA as a single region and Mexico as an export hub, helping Mexico gain a larger role in the North American motor vehicle supply chain.⁴⁶² From 1993 (the year before NAFTA entered into force) to 2014, Mexican motor vehicle production increased from 1.1 million units to 3.4 million. Mexico's share of NAFTA vehicle

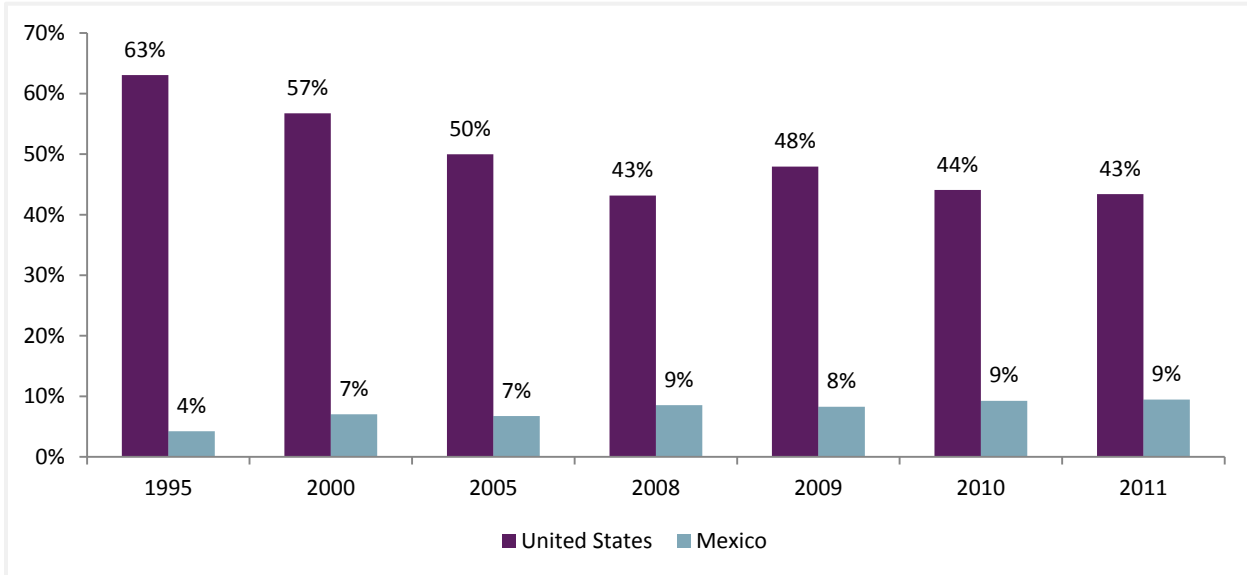
⁴⁶⁰ USITC estimates based on Binder, "Assembly Plant," 2015 and company plant information.

⁴⁶¹ During this time period, U.S. motor vehicle and parts output increased, but the model attributed that increase in output to other factors. Dixon and Rimmer, "Identifying the Effects of NAFTA," June 17, 2015, 9.

⁴⁶² Klier and Rubenstein, "The Changing Geography," April 2010, 13; USITC, hearing transcript, November 17, 2015, 111 (testimony of Josh Nassar, UAW).

production increased from 8 percent to 19 percent during the same period.⁴⁶³ At the same time, Mexico became a more important automotive parts producer for the North American market. Mexico's share of value-added content in North American final demand for motor vehicles, trailers, and semi-trailers⁴⁶⁴ from 1995 to 2011 (the most recent year available) increased from 4 to 9 percent, while U.S. content declined from 63 to 43 percent (figure 4.10).⁴⁶⁵

Figure 4.10: U.S. and Mexico shares of value-added content in North American final demand



Source: OECD, TiVA, Origin of Value-added in Final Demand (accessed December 2, 2015). Corresponds to appendix table I.13.

While parts and vehicle production in Mexico have increased, parts production has fallen in the United States. The value of U.S. parts shipments declined from \$241 billion in 2002 to \$226 billion in 2014 (constant 2009 dollars).⁴⁶⁶ Some of this decline in shipments has reportedly resulted from suppliers' directly moving production to Mexico.⁴⁶⁷ For example, after closing plants in the United States during bankruptcy proceedings, Visteon and Delphi (two of the largest U.S.-headquartered parts manufacturers) had more plants and employees in Mexico than in the United States.⁴⁶⁸ Union representatives asserted in their testimony before the USITC

⁴⁶³ OICA, "World Motor Vehicle Production by Country and Type," 1993–2014 (accessed December 2, 2015).

⁴⁶⁴ International Standard Industrial Classification (ISIC) Code 29—motor vehicles, trailers, and semi-trailers—is the code in OECD's TiVA database that includes the motor vehicles and parts discussed in this chapter.

⁴⁶⁵ ISIC Code 29—motor vehicles, trailers, and semi-trailers—is the code in OECD's TiVA database that includes the motor vehicles and parts discussed in this chapter. OECD, TiVA, Origin of Value-added in Final Demand (accessed December 2, 2015).

⁴⁶⁶ ASM 2002 and 2014, Shipments of NAICS 3363 Motor Vehicle Parts (accessed April 13, 2016); White House, *Economic Report of the President*, 2015, table B-3.

⁴⁶⁷ USITC, hearing transcript, November 17, 2015, 112 (testimony of Josh Nassar, UAW); Walsh, "American Axle will Close Detroit Manufacturing Complex," June 30, 2011.

⁴⁶⁸ Klier and Rubenstein, *Who Really Made Your Car?* 2008, 49–51.

that increased assembly in Mexico has depressed wages and eliminated jobs in the United States.⁴⁶⁹

The economic downturns in 2001 and 2008–09 appear to have accelerated the decrease in U.S. vehicle and parts employment, with plants closing and employees let go in the United States and growth in production in Mexico.⁴⁷⁰ The shift in employment may have also had an effect on wages, which have declined in real terms for each segment of the U.S. motor vehicle and parts industry since 2003.⁴⁷¹

Case Study 5: Textiles

The phaseout of global textile and apparel quotas from 1995 to 2005 challenged the U.S. textile industry, which faced increased competition from lower-cost producers, contributing to the longer term consolidation of the industry. (See chapter 2 for more details on textile- and apparel-specific provisions of the URAs and chapter 3 “Employment Changes in the U.S. Textiles and Apparel Industries”). Through preference programs and then trade agreements, the U.S. textile industry partnered with Western Hemisphere apparel producers to develop an integrated supply chain.⁴⁷² The U.S. industry exports U.S.-made yarn and fabric to CAFTA-DR countries for use as inputs into apparel, taking advantage of lower labor costs to assemble goods in the downstream apparel sector there.⁴⁷³ The apparel is then exported back to the United States for retail sale. Yarn-forward rules of origin (ROOs) under the Caribbean Basin Trade Partnership Act (CBTPA) and later CAFTA-DR helped create these regional textile and apparel supply chain linkages.⁴⁷⁴

⁴⁶⁹ USITC, hearing transcript, November 17, 2015, 112 (testimony of Josh Nassar, UAW).

⁴⁷⁰ Alvarez-Medina and Carrillo, “Restructuring of the Automotive Industry,” December 2014, 2128; Scott, “Heading South,” May 3, 2011, 11.

⁴⁷¹ One source stated that in negotiations, companies are able to use the proximity and low cost of producing in Mexico as leverage to keep wages at plants in the United States lower. USITC, hearing transcript, November 17, 2015, 155 (testimony of Josh Nassar, UAW). See also DOL, BLS, Current Employment Statistics; White House, *Economic Report of the President*, 2015, table B-3.

⁴⁷² Though CAFTA-DR entered into force in 2006, the United States already extended unilateral duty-free preferences for apparel from CAFTA-DR partner countries under the CBTPA in 2000, which also included yarn-forward ROOs. Thus, linkages between the U.S. textile industry and the Central American apparel industries date back to 2000. CBTPA was a modification to the Caribbean Basin Economic Recovery Act (CBERA); however, textiles and apparel were excluded from preferences in the initial CBERA program. For some products, duty-free preferences were subject to a cap. CBTPA extended benefits through September 2008, or until beneficiary countries completed an FTA with the United States. For more information on apparel preferences under CBTPA see USITC, *The Impact of the Caribbean Basin*, 2007, 1–10.

⁴⁷³ The parties sought to develop a supply chain in response to increased competition from countries like China following the quota phaseouts under the Agreement on Textiles and Clothing (ATC); Pan et al., “Welfare Analysis of CAFTA-DR,” 2008, 190. CAFTA-DR member countries include the United States, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and the Dominican Republic.

⁴⁷⁴ NCTO, “Trans-Pacific Partnership Textile and Apparel Provisions” (accessed January 4, 2016).

Though the U.S. textile industry has contracted over the past decade, U.S. exports of textiles remain stable and constitute an important market for domestic producers' shipments, accounting for roughly 30 percent of total U.S. shipments in 2014.⁴⁷⁵ Nearly three-quarters of total U.S. textile exports were to Western Hemisphere trade agreement partner countries in that year.⁴⁷⁶

Industry Overview

The U.S. textile industry transforms natural or synthetic fibers into intermediate yarn or fabric products that are used to manufacture finished products such as apparel, bedsheets, and towels.⁴⁷⁷ Significant downstream markets for the U.S. industry include automobiles, home furnishings, apparel, and, increasingly, the diverse sectors that use technical textiles.⁴⁷⁸ The U.S. textile industry has consolidated significantly over the past two decades.⁴⁷⁹ With sharply increased U.S. imports of apparel, the textile industry's domestic downstream apparel markets virtually disappeared.⁴⁸⁰ As domestic demand for apparel inputs decreased, textile firms diversified their offerings (e.g., moving into technical textiles) or automated production to cut costs.⁴⁸¹

⁴⁷⁵ U.S. Census, Annual Survey of Manufactures 2014 (accessed January 14, 2016); U.S. Census, "Shipments" (accessed February 19, 2016); USITC DataWeb/USDOC (accessed February 18, 2016).

⁴⁷⁶ NAFTA and CAFTA-DR were the largest export destinations for U.S. textiles, accounting for 73 percent of total U.S. exports in 2014. USITC DataWeb/USDOC (accessed February 18, 2016).

⁴⁷⁷ BLS, "Industries at a Glance," n.d. (accessed February 16, 2016). For the purposes of this analysis, the textiles industry refers to activities under NAICS 313, textile mills.

⁴⁷⁸ Technical textiles are engineered to perform an application, rather than for aesthetic purposes. Technical textiles are commonly divided into 12 functional areas: sports, agriculture, construction, apparel, geotextiles, industrial, home, hygiene, transportation, environmental, packaging, and protection/military. See *Techtextil* (International Trade Fair for Technical Textiles and Nonwovens), <https://techtextil.messefrankfurt.com/frankfurt/en/besucher/messeprofil/produktgruppen.html> (accessed February 11, 2016), and Carter, *Textile Mills in the US*, 2015, 7.

⁴⁷⁹ NCTO attributes the contraction of the industry to macroeconomic and policy factors. Macroeconomic factors include currency depreciation and undervaluation on the part of major Asian suppliers of apparel to the U.S. market (including Indonesia and China), which offered a "windfall" to U.S. importers. Policy factors include the end of the Multi-Fibre Arrangement (MFA) (see chapter 2 for more information) and China's and Vietnam's accessions to the WTO. Tantillo, "U.S. Textile Manufacturing Outlook," September 11, 2015.

⁴⁸⁰ The share of U.S. imports of apparel in total U.S. consumption grew from 53.8 percent in 1995 to 97.5 percent in 2013. Apparel is labor intensive, relative to textiles, and costs of labor in the United States are much higher than those of major global producers of apparel. The major sources for U.S. imports are lower-cost suppliers in countries such as China, Vietnam, Bangladesh, and Indonesia. Werner International, "Hourly Labor Cost," 2015; USDOC, OTEXA, "Major Shippers' Report," March 1, 2016; AAFA, *Apparelstats 2014, 2015*, 7; Carter, *Textile Mills in the US*, August 2015, 5.

⁴⁸¹ Apparel accounted for roughly 20 percent of U.S. textile industry revenue in 2015, compared to technical textiles, which accounted for 42 percent. Technical textiles are increasingly important to the U.S. industry as traditional downstream markets have moved offshore. Carter, *Textile Mills in the US*, 2016, 7.

U.S. textile shipments continued to decline overall during 2005–14, with 2014 shipments 26 percent below the 2005 level (table 4.3).⁴⁸² Shipments hit a low during the economic downturn in 2009, although they have since stabilized, growing 19 percent from \$26.4 billion in 2009 to \$31.3 billion in 2014 (figure 4.11).⁴⁸³ The number of establishments in the sector also shrank by 24 percent from 2005 to 2013.⁴⁸⁴

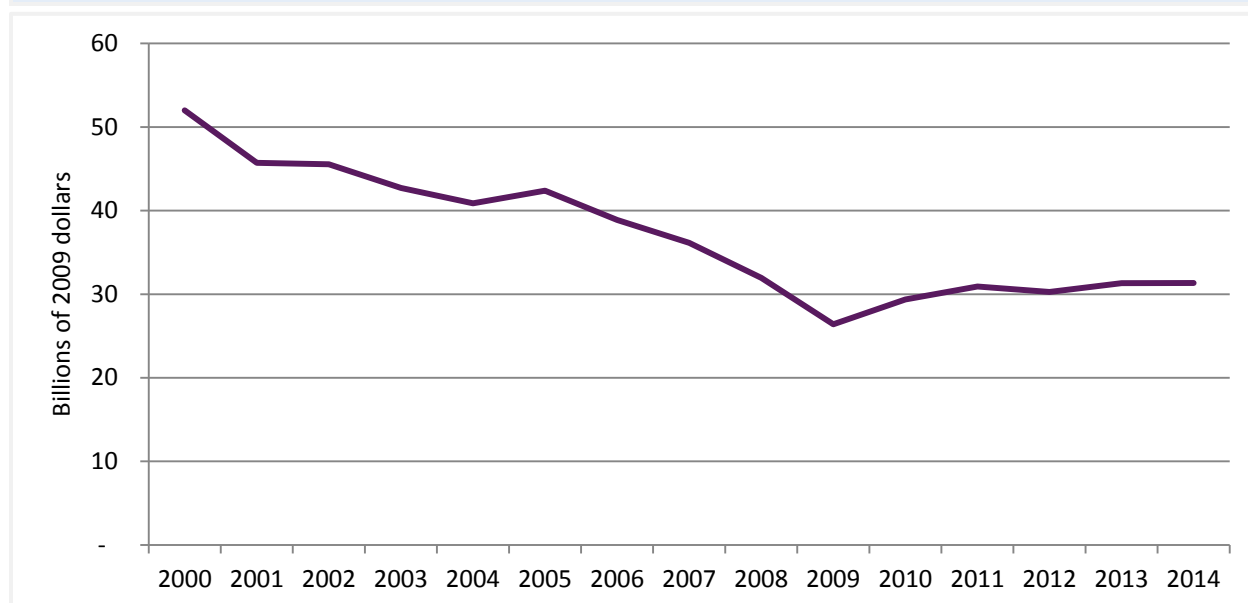
Table 4.3: U.S. textile industry: Summary data

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2005–14	2009–14
Employment (1,000s)	217.6	195.0	169.7	151.2	124.4	119.0	120.1	118.7	117.0	116.8	-46%	-6%
Shipments (million \$)	42,391	38,883	36,146	31,958	26,395	29,376	30,917	30,260	31,316	31,342	-26%	19%
Exports (million \$)	8,471	8,520	8,242	8,209	6,431	7,833	9,069	8,583	8,821	9,150	8%	42%

Sources: USITC DataWeb/USDOC (accessed March 6, 2016); USDOL, BLS, Quarterly Census of Employment and Wages (accessed January 5, 2016); U.S. Census, M3 Survey and historical data (accessed January 5, 2016).

Note: The U.S. textile industry produces yarn, thread, and fabric as classified under NAICS code 313, textile mills.

Figure 4.11: U.S. textile mills, value of shipments, 2000–2014



Source: U.S. Census, “Current Data” (accessed January 5, 2016). Corresponds to appendix table I.14.

While production has stabilized since 2009, employment has continued to decline. In 2014, the U.S. industry employed 116,800 workers, down 46 percent from 217,600 workers in 2005 (a loss of 100,800 jobs).⁴⁸⁵ The industry attributes the recent slower declines in employment to

⁴⁸² U.S. Census, “Shipments” (accessed February 19, 2016).

⁴⁸³ Shipments include exports. U.S. Census, “Shipments” (accessed February 19, 2016).

⁴⁸⁴ The number of establishments dropped from 3,411 in 2005 to 2,591 in 2013. An establishment is a single physical location where business is conducted or where services or industrial operations are performed. A firm may have several establishments. See <https://www.census.gov/econ/susb/definitions.html>. U.S. Census, “County Business Patterns, 2005 and 2013” (accessed February 12, 2016).

⁴⁸⁵ USDOL, BLS, “Employment, Hours, and Earnings” (accessed February 16, 2016).

gains in output per worker.⁴⁸⁶ U.S. textile firms invested in automation to increase efficiency and as a result, the U.S. textile industry had one of the highest growth rates in productivity of the U.S. manufacturing sectors.⁴⁸⁷

In contrast to the downward trends in shipments and employment, U.S. exports of textiles remained an important source of demand for the U.S. industry over the period, growing 8 percent from 2005 to reach \$9.1 billion in 2014. Supply chain linkages to partners in the Western Hemisphere have been key to the industry's rebound after the elimination of quotas and the economic downturn of 2009.⁴⁸⁸

Impacts of the Yarn-Forward Rule of Origin

As noted, U.S. trade agreements generally follow a yarn-forward rule of origin for textiles and apparel, requiring that all steps of production from yarn spinning or filament extrusion onward take place in partner countries for products to qualify for duty-free treatment (see "Provisions" write-up in chapter 2 for more details on textile- and apparel-specific provisions and flexibilities under CAFTA-DR).⁴⁸⁹ For the U.S. textile industry, CBTPA and CAFTA-DR appear to have fostered the creation of regional supply chain linkages that increased both U.S. exports of yarn and fabric to CAFTA-DR countries and U.S. imports of finished apparel from the same partners.⁴⁹⁰ Finally, increasing U.S. textile exports have led to increased investment in the U.S. industry.

Demand for U.S. Exports from CAFTA-DR

The United States is the third-largest global exporter of textiles, and exports accounted for roughly 29 percent of U.S. production in 2014.⁴⁹¹ According to the National Council of Textile Organizations (NCTO), the industry has supported U.S. trade agreements over the past two decades because such agreements were designed to increase exports to regional partners.⁴⁹²

⁴⁸⁶ Carter, *Textile Mills in the US*, 2016, 5; Tantillo, "U.S. Textile Manufacturing Outlook," September 11, 2015.

⁴⁸⁷ Textile mills outperformed general productivity increases for total U.S. manufacturing. Textile World, "Textiles 2013: The Turnaround Continues," January/February 2013.

⁴⁸⁸ Tantillo, "U.S. Textile Manufacturing Outlook," September 11, 2015.

⁴⁸⁹ The yarn-forward rule was the basis for most trade preference programs starting in 1988, such as the 807A Program under CBTPA or the Mexico Special Regime Program, preceding NAFTA or CAFTA-DR. NCTO, "The 'Yarn Forward Rule'" (accessed February 1, 2016).

⁴⁹⁰ Specifically, yarn-forward ROOs encouraged CAFTA-DR apparel manufacturers to use U.S.-made inputs to obtain duty-free market access because these partners do not have sufficient upstream capacity. According to one source, there were 600 apparel companies and 90 textile mills in CAFTA-DR countries in 2014. In addition to local investment, U.S. textile producers and other foreign investors (e.g., from Korea and Taiwan) have operations there. Freeman, "Central America Tense over TPP-Empowered Vietnam," March 1, 2016; Platzer, "U.S. Textile Manufacturing and the Trans-Pacific Partnership," August 28, 2014, 11.

⁴⁹¹ Based on GTIS, World Trade Atlas database (accessed February 22, 2016), USITC DataWeb/USDOC (accessed February 18, 2016), and U.S. Census, M3 Survey (accessed February 19, 2016).

⁴⁹² NCTO, "Trade," n.d. (accessed March 9, 2016).

For example, as increased competition from globalization and the elimination of textile and apparel quotas challenged the U.S. textile industry, the industry developed export markets in CAFTA-DR partners, where labor costs of assembly are lower for apparel manufacturing. In 2011, one-quarter of industry employment was directly linked to exports, compared with an average of 17 percent across all manufacturing sectors.⁴⁹³

U.S. exports of textiles to CAFTA-DR partners totaled \$2.5 billion in 2014, an increase of 237 percent from 2000.⁴⁹⁴ The share of total U.S. textile exports that went to CAFTA-DR partners grew from 10 percent in 2000 to 28 percent in 2014 (figure 4.12).⁴⁹⁵ Cotton yarn is a leading U.S. export category to the world and CAFTA-DR countries. Pan et al. estimated that CAFTA-DR resulted in total gains of \$124 million to the U.S. cotton yarn industry due to increased demand for exports under the agreement.⁴⁹⁶ A synthetic yarn spinner, Unifi, also reported strong demand within CAFTA-DR/NAFTA regions for its premium products, such as recycled and textured yarn, attributing its higher profits to this source.⁴⁹⁷ While the United States is not a low-cost producer of textiles, the U.S. textile industry competes by offering higher quality and technically advanced products.⁴⁹⁸ Though U.S.-produced textile inputs can be more expensive than those from China, for example, U.S. importers can make up for the cost differential by entering apparel from CAFTA-DR countries duty free into the United States.⁴⁹⁹

⁴⁹³ U.S. Census, Manufacturing Industries, Export Related Statistics for Industries (accessed February 12, 2016).

⁴⁹⁴ Total U.S. exports of textiles grew 25 percent over the same period. USITC DataWeb/DOC (accessed February 18, 2016).

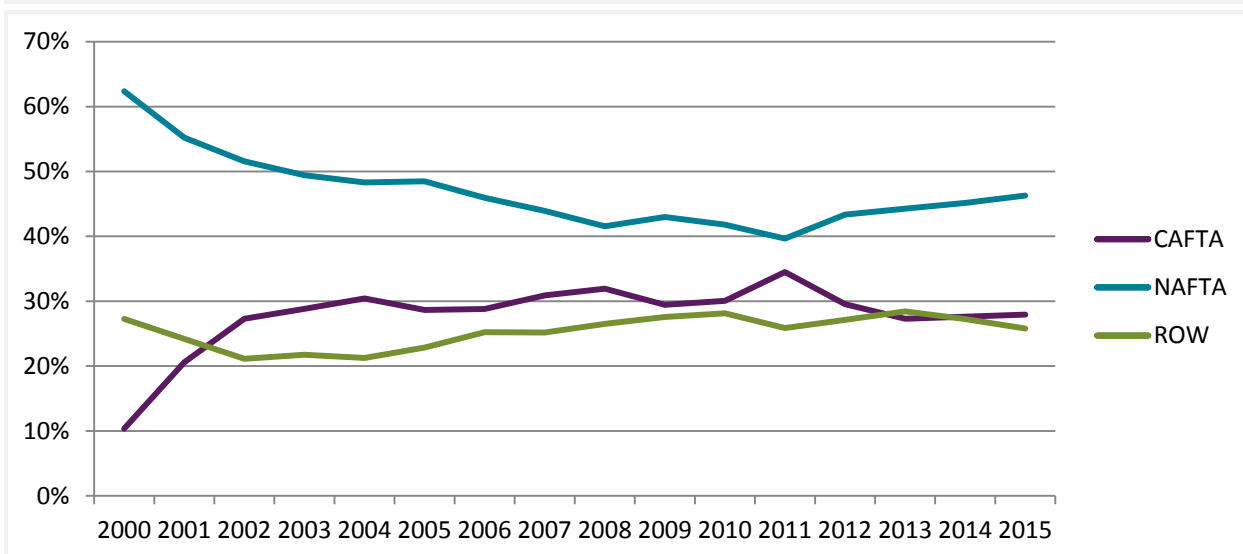
⁴⁹⁵ Seventy-three percent of U.S. exports of textiles in 2014 were to CAFTA-DR and NAFTA partner countries. USITC DataWeb/DOC (accessed March 6, 2016).

⁴⁹⁶ The \$124 million gains were the result of an average increase in U.S. exports of cotton yarn over 2006–11 as a result of CAFTA-DR, compared to a baseline of trade under CBI preferences. Pan et al., "Welfare Analysis of CAFTA-DR," 2008, 208–12.

⁴⁹⁷ Russell, "Unifi Sees Performance Improvements in Q1," October 22, 2015; Russell, "Premier Yarn Demand Boosts Unifi FY," October 22, 2015.

⁴⁹⁸ While U.S. labor costs are higher than in other major textile-producing countries, the United States is able to produce certain products, such as cotton yarn, at a globally competitive price. Werner International, "Hourly Labor Cost," 2015; ITMF, *International Production Cost Comparison*, 2014; ITAC 13, *The Trans-Pacific Partnership Trade Agreement: Report*, December 2, 2015.

⁴⁹⁹ CRS, *CAFTA-DR: Developments in Trade and Investment*, 2012, 9.

Figure 4.12: CAFTA-DR share of U.S. textile exports, compared to NAFTA and ROW 2000–15

Source: USITC DataWeb/USDOC (accessed March 6, 2016). Corresponds to appendix table I.15.

U.S. Imports of Apparel from CAFTA-DR

With their proximity to the U.S. market, which translates into quick turnaround times, and with preferential access to the U.S. market for apparel, CAFTA-DR countries remain important suppliers of apparel imports for U.S. brands and retailers. In 2014 the trade-weighted average duty for total U.S. imports of apparel was 13 percent.⁵⁰⁰ Duty-free market access therefore makes significant cost savings possible.⁵⁰¹ U.S. apparel imports from CAFTA-DR countries totaled \$8.2 billion in 2014, an increase of 31 percent from the 2009 recession, though lower than 2005.⁵⁰² In 2014, CAFTA-DR accounted for 9 percent of total U.S. imports of apparel.⁵⁰³ T-shirts, sweaters, socks, underwear, and bottoms were among the top categories of U.S. imports of apparel from CAFTA-DR that year.⁵⁰⁴

⁵⁰⁰ USITC DataWeb/USDOC (accessed January 5, 2016); So, “Fast Fashion: The Benefits of Western Hemisphere,” October 2, 2013. Apparel has some of the highest rates of duty. For example, U.S. imports under 6105.20.20 (men’s and boy’s manmade fiber knit shirts), 6106.20.20 (women’s and girls’ manmade fiber knit blouses), and 6111.30.20 and 6111.30.30 (certain synthetic fiber baby garments) are subject to 32 percent ad valorem MFN duty rates.

⁵⁰¹ USITC, hearing transcript, January 15, 2016, 730 (testimony of Stephanie Lester, Gap Inc.), 725, 784 (testimony of Julie Hughes, USFIA).

⁵⁰² U.S. imports of apparel from CAFTA-DR countries grew slightly faster than total U.S. imports of apparel, which increased 29 percent over the same period; USITC DataWeb/USDOC (accessed March 7, 2016).

⁵⁰³ USITC DataWeb/USDOC (accessed March 7, 2016).

⁵⁰⁴ Ibid.

CAFTA-DR is “the biggest trade deal” for apparel importers, even though most importers are critical of the yarn-forward ROO (see box 4.1).⁵⁰⁵ In 2014, U.S. imports of apparel under CAFTA-

Box 4.1: Yarn-forward and its discontents

According to the U.S. textile industry, the yarn-forward rule is intended to keep the benefits of liberalization to the signatories of the agreement. On the other hand, U.S. apparel importers claim that the yarn-forward ROO does not provide the flexibility importers need and limits potential U.S. imports under the CAFTA-DR and related trade agreements.^a According to these importers, yarn-forward ROOs have a “mixed record” under CAFTA-DR and are not why imports have grown under CAFTA-DR. Rather, they contend, the reason is the increasing use of certain flexibilities in the agreement, such as tariff preference levels and cut-and-sew provisions for some products. (See the chapter 2 write-up in this study for more details on yarn-forward flexibilities under CAFTA-DR).

A notable share of U.S. apparel imports from CAFTA-DR do not meet ROOs under the agreement. For example, in 2014, \$1.8 billion of U.S. imports of apparel from CAFTA-DR, or 15 percent of total imports, did not qualify under the agreement, and instead were subject to full duties.^b

Sources: Tantillo, “Importance of the Yarn-Forward ROO for Textiles and Apparel,” TPP Negotiations, September 10, 2011; Zwiern, “Trade Agreements,” September 3, 2015; Trans-Pacific Partnership (TPP) Apparel Coalition, “Common Myths about the TPP and the Yarn-Forward ROO,” March 2013; Lu and USFIA, “2015 US Fashion Industry Benchmarking Study,” June 2015.

^a U.S. importers of apparel include brands and retailers sourcing apparel for retail sale. Compared to the U.S. textile industry, most U.S. brands and retailers of apparel have limited or no U.S. manufacturing capacity. These firms mainly source finished goods through foreign factories.

^b U.S. importers claim that yarn-forward ROO imposes high costs of compliance and thus many importers prefer to pay the duties instead.

DR accounted for the largest share of total U.S. imports of apparel under all U.S. trade agreements, at 47 percent.⁵⁰⁶ A benchmarking study by the U.S. Fashion Industry Association (USFIA) found that 70 percent of respondents to a recent survey are sourcing from the CAFTA-DR region, the highest rate among all U.S. trade agreements.⁵⁰⁷ Sourcing apparel from regional partners is increasingly desirable as an alternative to sourcing from Asia in certain cases, as “near-shoring” permits U.S. brands and retailers to have shorter lead times, respond promptly to fashion trends, and hold smaller inventories.⁵⁰⁸ U.S. brands and retailers favor CAFTA-DR as a source for replenishment product as lead times can be as short as two weeks, compared to two months for Asian suppliers.⁵⁰⁹ For example, shipping from Honduras to Miami takes 48 to

⁵⁰⁵ Zwiern, “Trade Agreements,” September 3, 2015.

⁵⁰⁶ U.S. apparel imports under FTAs totaled \$13.7 billion in 2014; USDOC, OTEXA, “U.S. Imports under Free Trade Agreements,” March 1, 2016.

⁵⁰⁷ Sixty-seven percent of respondents source from NAFTA; Lu and USFIA, *2015 US Fashion Industry Benchmarking Study*, June 2015.

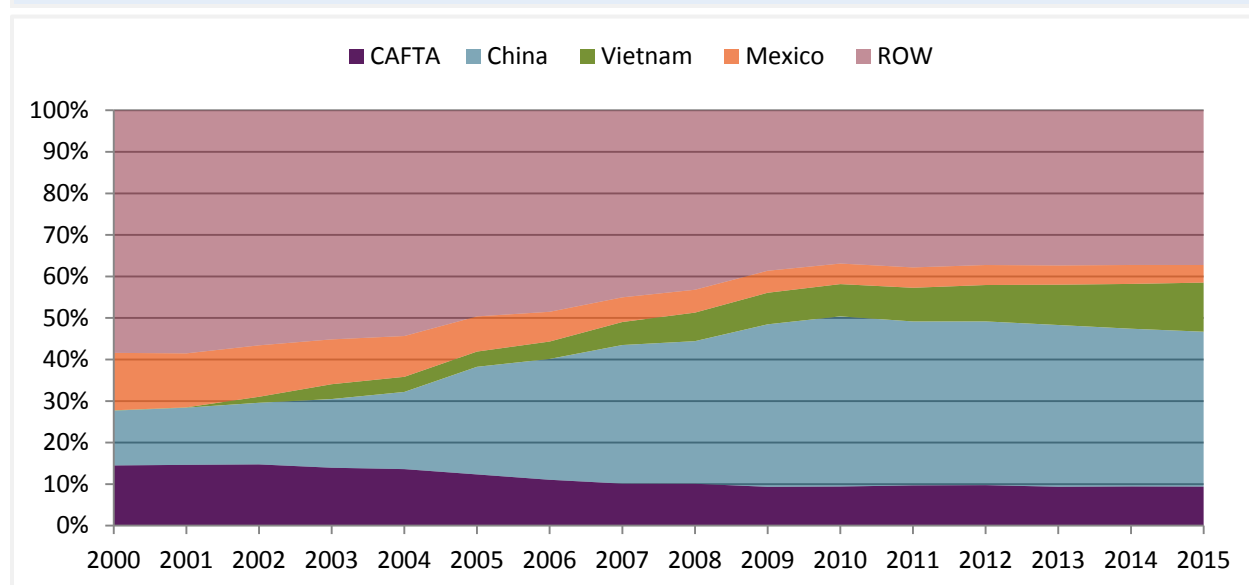
⁵⁰⁸ Integration with and proximity to regional partners is advantageous for fast fashion brands sourcing to the U.S. market. A U.S. yarn spinner also noted that FTA partners in Mexico, Central America, Peru and Colombia are important sources for fast fashion. Dyson, “Fast Fashion: Options for Sourcing,” November 3, 2015.

⁵⁰⁹ Transit times can range from two to seven days from CAFTA-DR countries, compared to two weeks to one month from Asia. CRS, *CAFTA-DR: Developments in Trade and Investment*, 2012, 13; Freeman, “Sourcing: Guatemala Apparel Makers Focus,” June 2, 2015; Barrie, “Regional Supply Chain Set Up,” September 15, 2015.

72 hours.⁵¹⁰ Though CAFTA-DR countries have higher wage rates than Asian ones, duty-free U.S. market access allows these countries to remain competitive in supplying the U.S. market.⁵¹¹

Though U.S. imports of apparel from CAFTA-DR countries in 2014 were 10 percent lower than 2000 imports, CAFTA-DR suppliers have been able to hold on to U.S. market share despite heightened global competition due to quota phaseouts under the ATC. Following the elimination of quotas, highly competitive suppliers such as China and Vietnam consolidated market share in the United States to the detriment of smaller suppliers, such as the CAFTA-DR countries (figure 4.13).

Figure 4.13: Share of U.S. imports of apparel by selected supplier (% trade by value, 2000–15)



Source: USITC DataWeb/USDOC (accessed March 6, 2016). Corresponds to appendix table I.16.

Investment in the U.S. Textile Industry

Yarn-forward ROOs designed to encourage production of yarn and fabric in the United States or the partner country are a factor driving investment in U.S. textile manufacturing. Much of the resulting production is exported to trade agreement partners, as discussed above.⁵¹²

Investment in the U.S. textile industry totaled nearly \$1.6 billion in 2013, up from a low of \$960 million in 2009.⁵¹³ In 2013, 95 percent of investment was for new plants and equipment.

⁵¹⁰ Barrie, "Regional Supply Chain Set Up," September 15, 2015; Barrie, "U.S. Textile Investment Attributed to Yarn-forward Rule," March 11, 2014.

⁵¹¹ CRS, *CAFTA-DR: Developments in Trade and Investment*, April 9, 2012, 13.

⁵¹² U.S. textile industry representative, telephone interview by USITC staff, February 19, 2016.

⁵¹³ Investment levels have returned to pre-recession levels for textile mills and textile product mills (NAICS 313 and 314), and the share of new expenditures is higher than pre-recession shares. U.S. Census, "Annual Capital Expenditures Survey," (accessed February 11, 2016 and April 20, 2016).

Both domestic firms and FDI are driving the increase in capital expenditures (box 4.2).⁵¹⁴ Low-costs, reliable energy prices, and access to cotton make the United States an attractive destination for yarn spinning in particular.⁵¹⁵ The U.S. yarn spinning industry has received investment from Japan, China, Canada, India, and Kenya in recent years.⁵¹⁶

Box 4.2: Gildan’s Investment in North American Textiles and Apparel Operations

One major investor in the U.S. textile industry has been a Canadian firm, Gildan Activewear (Gildan). A vertically integrated T-shirt and sock manufacturer, Gildan has updated and expanded its U.S. yarn-spinning facilities to supply vertical operations in CAFTA-DR countries, and it plans to open an additional U.S. facility. Gildan spins cotton yarn in the United States, including higher-value ring spun yarn. The company has made investments over the past decade to develop large vertical operations in the Western Hemisphere, and in Central America in particular, to service the U.S. market quickly while taking advantage of duty-free market access.

Sources: CRS, *CAFTA-DR: Developments in Trade and Investment*, 2012, 5; Carter, *Textile Mills in the US*, 2015; Gildan Activewear website, “Overview,” <http://www1.gildan.com/corporate/company/overview.cfm> (accessed March 9, 2016); Smith, “US: Gildan Activewear to Invest,” December 5, 2012; Barrie, “Gildan Well-placed for Global Manufacturing Shift,” December 8, 2010.

Case Study 6: Steel

Of the U.S. trade agreements covered in this report, NAFTA and the Uruguay Round Agreements (URAs) likely had the most significant economic impact on the U.S. steel industry.⁵¹⁷ U.S. steel industry representatives reported that the agreements improved market access globally via tariff elimination (especially due to the URA zero-for-zero initiative, discussed below) (table 4.4). In addition, they stated that NAFTA also strengthened value chains with Canada and Mexico via its rule-of-origin (ROO) provisions.⁵¹⁸ According to hearing

⁵¹⁴ Textile World, “U.S. Textiles: Investments Abound,” March 17, 2014.

⁵¹⁵ For example, the energy costs associated with producing a kilogram of ring-spun yarn are more than twice as high in China (\$0.42/kg) as in the United States (\$0.17/kg); Tantillo, “U.S. Textile Manufacturing Outlook,” September 11, 2015; Schindler, “Global Textile (Machinery) Trends,” September 12, 2015.

⁵¹⁶ Cotton yarn spinning investment appears to be focused on producing apparel inputs, while polyester investments are used in fiber fill, carpet, and auto applications. Tantillo, “U.S. Textile Manufacturing Outlook,” September 11, 2015; Carmichael, “Polyester Continues to Lead Growth,” September 10, 2015; Schindler, “Global Textile (Machinery) Trends,” September 12, 2015.

⁵¹⁷ As characterized by industry representatives. The other agreements implemented under TPA likely had little effect on the U.S. steel industry, for two main reasons: (1) the countries involved in the agreements have limited demand for steel imports, and (2) by the time the other agreements were enacted, the URA had already eliminated tariffs on steel products in the United States and some of these markets (e.g., Korea). In this case study, “steel industry” refers to manufacturers who principally produce goods covered under NAICS codes 33111 (iron and steel mills and ferroalloy manufacturing) and 33112 (steel products made from purchased steel). Ferroalloys and iron manufacturing are also included in the NAICS 33111, and cannot be broken out of relevant datasets. However, the ferroalloys and iron industries are relatively small. USITC, hearing transcript, November 17, 2015, 125–26, 153, 203, and 204 (testimony of Kevin Dempsey, American Iron and Steel Institute (AISI)), 204 (testimony of Philip Bell, Steel Manufacturers Association (SMA)).

⁵¹⁸ AISI, written submission to the USITC, November 4, 2015, 1, 9.

testimony, NAFTA increased the exports and imports of U.S. steel mill products and resulted in a trade surplus with the NAFTA region (both Canada and Mexico). By contrast, industry representatives reported that while the URA resulted in reciprocal elimination of tariffs on steel mill products, it also led to trade deficits with URA partners.⁵¹⁹ They stated that as the reductions in the tariffs from the trade agreements were being implemented, external developments such as China's increased production and exports to the global market played a major role in changes in the U.S. domestic steel industry.⁵²⁰ Moreover, the trade agreements reportedly have not prevented foreign government intervention in steel production that domestic producers maintain has substantially distorted global trade.⁵²¹

Table 4.4: Tariffs on steel mill products by trade agreement and partner country or group

Trade agreement and partner country group	Ad valorem	Ad valorem	Ad valorem
	equivalent range before agreement	equivalent range during implementation	equivalent range after implementation
NAFTA	1993	1995	2004
U.S. tariffs on Canadian and Mexican goods	0.40–10.6	0.20–8.6	0
Canadian tariffs on U.S. goods	0.04–6.20	0.04–1.2 ^a	0
Mexican tariffs on U.S. goods	5.0–15 ^b	2.0–12.5	0
Uruguay Round	1994	1995	2005
U.S. tariffs on URA partners' goods ^d	0.40–12.5	0.20–11.2	0
URA partners' tariffs on U.S. goods	0.19–12.5 ^c	0.49–11.3	0

Source: USITC DataWeb/USDOC (December 30, 2015); UNCTAD TRAINS (via the World Integrated Trade Solution (WITS)) (accessed October 20, 2015).

Note: Tariffs are based on HTS subheadings for steel mill products, which include the following HTS numbers: 7206.10–7301.10, 7302.10–7302.90, and 7304.10–7306.90. Steel mill products are semi-finished and finished steel products as defined by the U.S. Department of Commerce, International Trade Administration, Steel Import Monitoring Analysis system.

^a 1997 data used because 1995 tariff rates were unavailable for Canada.

^b 1991 data used because 1993 tariff rates were unavailable for Mexico.

^c 1993 data used because 1994 tariff rates were unavailable for some URA countries.

^d "URA partners" are the original "zero-for-zero" initiative partners: EU-12, Austria, Finland, Japan, Norway, Korea, and Sweden. Canada also agreed to the zero-for-zero initiative for steel, but is removed from this part of the analysis because it is part of NAFTA along with Mexico, which incidentally did not agree to bind its tariffs at zero. The 12 members of the EU at that point were Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.

Industry Overview

Despite intermittent periods of decline, from 1990 to 2014 U.S. shipments of steel products increased by an average of 0.6 percent per year—from 85 million short tons to an estimated

⁵¹⁹ USITC, hearing transcript, November 17, 2015, 120 and 125 (testimony of Philip Bell, SMA); AISI, written submission to the USITC, November 4, 2015, 4, 9–10.

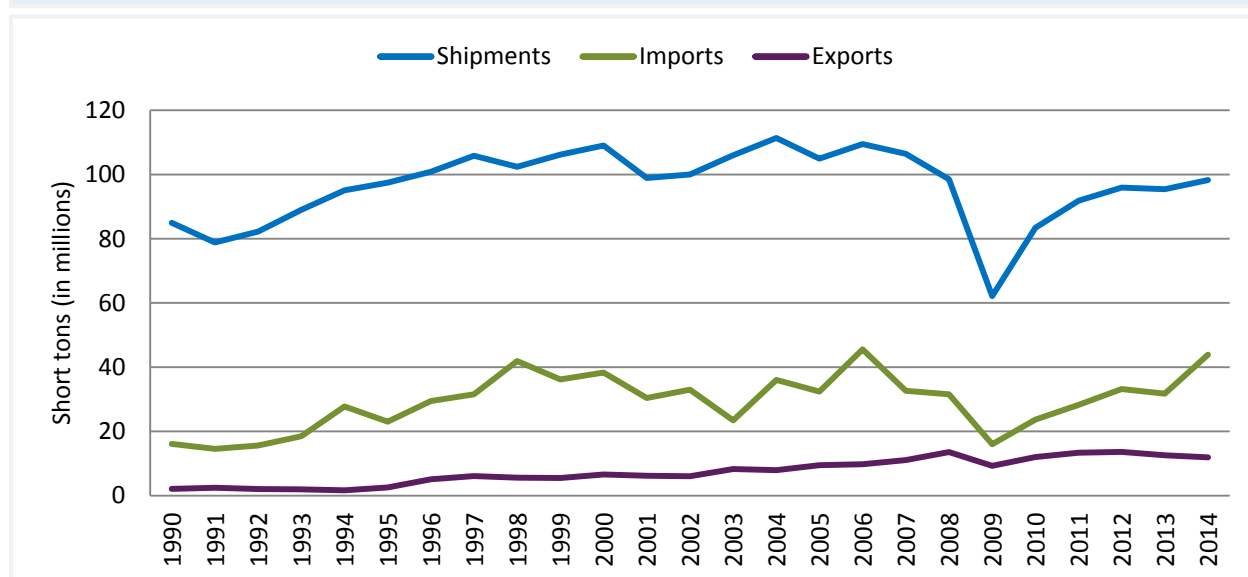
⁵²⁰ USITC hearing transcript, November 17, 2015, 127, 188–89 (testimony of Kevin Dempsey, AISI), 190–91 (testimony of Philip Bell, SMA); AISI, written submission to the USITC, November 4, 2015, 1; USITC, *The Impact of Trade Agreements*, 2003, 210, 219–20.

⁵²¹ AISI, written submission to the USITC, November 4, 2015, 1.

98 million short tons in 2014.⁵²² However, U.S. shipments have yet to recover to pre-2007 global recession levels, which peaked at 111 million short tons in 2004. During 1990–2014, U.S. apparent consumption, for the most part, corresponded to trends in U.S. shipments.⁵²³

Due to the overall increase in U.S. demand, U.S. imports of steel products also increased from 1990 to 2014 (figure 4.14).⁵²⁴ As global demand for steel increased, U.S. exports of steel products increased steadily until 2008 (although from a much smaller base than U.S. imports), and then declined during the recession. After a post-recession recovery, U.S. exports from 2012 to 2014 have trended downward.

Figure 4.14: U.S. steel mill products imports, exports and shipments, 1990–2014



Sources: AISI, *Selected Statistical Highlights*, 2002–2014 (years 1990–2001 were found in the 2002 edition); USITC DataWeb/USDOC (accessed May 5, 2016). Corresponds to appendix table I.17.

Note: Imports are imports for consumption and exports are domestic exports. Steel mill products include the following HTS numbers: 7206.10–7301.10, 7302.10–7302.90, and 7304.10–7306.90.

⁵²² The period 1990 to 2014 was selected to provide data for U.S. shipments and trade before and after the implementation of the NAFTA and URAs in 1994 and 1995. In terms of U.S. shipments, the steel industry refers to Standard Industrial Classification (SIC) codes 331 and 332 for 1990–2006, and NAICS codes 3311 and 3312 for 2007–2014. AISI, *Selected Statistical Highlights*, 2002–2014.

⁵²³ Apparent consumption is equal to U.S. shipments plus imports minus exports, and unlike total consumption does not take into account levels of inventory. U.S. apparent consumption increased from 99 million short tons to 130 million short tons in 2014 (an average increase of 1.2 percent per year or roughly double the growth in domestic shipments). Apparent consumption has returned to pre-recession levels, but has not yet surpassed the peak level in 2006 (145 million short tons). USITC staff calculations from shipment, import and export data; AISI, *Selected Statistical Highlights*, 2002–2014; USITC DataWeb/USDOC (accessed December 22, 2015).

⁵²⁴ During that time, U.S. imports increased by an average of 4.5 percent per year from 16 million short tons to 44 million short tons. In 1990, U.S. imports of steel products were only 16 percent of apparent consumption, but increased to 34 percent by 2014. USITC DataWeb/USDOC (December 22, 2015).

Despite increases in U.S. shipments and exports, total employment in the steel industry has declined. From 1990 to 2014, employment dropped by 40 percent, from 258,000 workers to 155,000 workers (figure 4.14, left vertical axis). The U.S. steel industry went through a period of consolidation from 2002 to 2008, experienced a reduction in U.S. steelmaking capacity in 2012 and 2013, and experienced some further consolidation in 2014.⁵²⁵ Industry consolidation may have contributed to improved productivity, and the industry has continued to take advantage of technologies that had been largely adopted by the beginning (1991) of the time period.⁵²⁶ In 1990, workers produced about \$344,000 (in constant 2009 U.S. dollars) worth of steel per worker; by 2014, they produced \$742,000 worth (see figure 4.15, right vertical axis).

Figure 4.15: U.S. steel total employment and labor productivity, 1990–2014



Source: Bureau of Labor Statistics, Labor Productivity, Costs, and Industry Productivity (accessed, December 19, 2015 and March 4, 2016); U.S. Department of Commerce, U.S. Bureau of Economic Analysis (accessed November 20, 2015). Corresponds to appendix table I.18.

Note: Total employment and labor productivity calculations include all employees.

Despite the increase in productivity in the U.S. steel industry, its profits have declined recently. This has been concurrent with an oversupply of steel in the global market, mainly attributed to China, and a corresponding drop in prices.⁵²⁷ From 2000 to 2014, China's accelerated economic growth drove increased Chinese domestic demand for steel, which corresponded to a steady

⁵²⁵ USITC, *The Impact of Trade Agreements*, 2003, 210; World Steel Dynamics, *Steel Strategist* 39, November 2013, 37; World Steel Dynamics, *North American Steel Industry: The Great Reordering; Monitor Report*, April 2014.

⁵²⁶ These technologies include upgrades from open hearth steel production to basic-oxygen and electric furnace steelmaking and continuous casting of semifinished forms. USITC, *The Impact of Trade Agreements*, 2003, 210.

⁵²⁷ OECD, *Steel Market Developments*, Q2, 2015, 17.

rise in its steel production.⁵²⁸ Due to the large volume of production in China, even small drops in China’s demand for steel have led to significant increases in Chinese exports.⁵²⁹ In 2015, China’s demand for steel fell by about 3.5 percent, which may have led to further increases in Chinese exports.⁵³⁰

Impacts of Trade Agreement Provisions

NAFTA Rules of Origin Requirements

NAFTA improved the regional integration of supply chains between the United States, Canada, and Mexico in the motor vehicle and appliances industries, which are key customers of the U.S. steel industry.⁵³¹ Specifically, the success of the NAFTA agreement for the steel industry has been attributed to NAFTA’s ROO provisions for motor vehicles, which requires 62.5 percent regional value content for a vehicle to be eligible for duty-free treatment under NAFTA (see the “Transportation Equipment” section of chapter 2 or “Case Study 4: Motor Vehicles” in this chapter).⁵³² The use of U.S. steel products—duty free under NAFTA—by growing Canadian and Mexican motor vehicle and appliance manufacturers has helped them meet the regional value content requirements (figure 4.16). In 2014, 87 percent of total U.S. exports of steel products were shipped to Canada or Mexico.

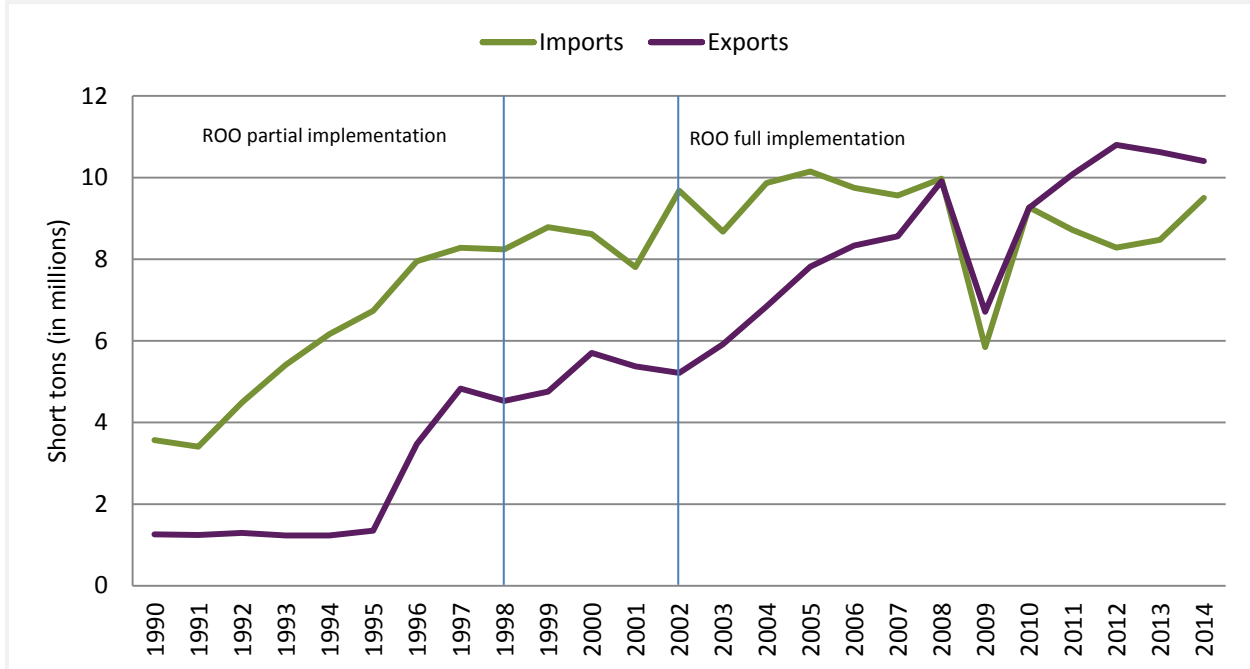
⁵²⁸ In 1990 China produced only about 8 percent of world steel production, but accounted for about 50 percent of world steel production in 2014. World Steel Association, “Crude steel production: Annual Data 1980-2014,” 2014.

⁵²⁹ In 2000, China accounted for about 5 percent of world exports of steel mill products, but by 2014 China’s share of world exports had reached more than 20 percent. GTIS, Global Trade Atlas database (accessed December 30, 2015).

⁵³⁰ World Steel Association, “Short Range Outlook: 2015-2016”, December 10, 2015, <https://www.worldsteel.org/media-centre/press-releases/2015/worldsteel-Short-Range-Outlook-2015-2016.html>.

⁵³¹ USITC hearing transcript, November 17, 2015, 160-162 (testimony of Kevin Dempsey, AISI).

⁵³² NAFTA, Chapter 4, Article 403, Paragraph 5; SMA, written submission to the USITC, November 4, 2015, 5.

Figure 4.16: U.S. steel mill products trade with NAFTA (Canada and Mexico), 1990–2014

Source: USITC DataWeb/USDOC (accessed May 5, 2016); NAFTA, Chapter 4, Article 403, Paragraph 5. Corresponds to appendix table I.19,

Note: Imports are imports for consumption and exports are domestic exports. Steel mill products include the following HS numbers: 7206.10–7301.10, 7302.10–7302.90, and 7304.10–7306.90.

Tariff Elimination under the URA

The Uruguay Round zero-for-zero initiative binds participants' tariffs to zero and extends these rates on an MFN basis. As a result, it caused reciprocal tariff elimination on steel mill products in a number of major global steel-producing countries and regions (URA partners): Austria, Canada, the EU (then consisting of 12 members), Japan, Finland, Norway, Korea, and Sweden (as shown in table 4.4).⁵³³ In addition, subsequent WTO members, such as China and Vietnam, also gained duty-free market access to the United States through the initiative because duty rates are extended on an MFN basis.

However, the U.S. steel industry has expressed doubt that the United States has effectively gained reciprocal market access through the initiative. Representatives have noted that U.S. exports after the URA have been primarily to NAFTA countries, not to the other URA

⁵³³ The "zero-for-zero" initiative for steel was an informal agreement among countries that enacted the URA. Some (but not all countries) that acceded to the WTO at various dates between 1995 and 2014 have fully participated or significantly participated in the steel sector zero-for-zero initiative. WTO, "Chapter 5, Substance of Accession Negotiations: Section 5.3, Negotiation of Market Access Concessions and Commitments," 2016; USITC, hearing transcript, November 17, 2015, 125 (testimony of Kevin Dempsey, AISI); USITC, *Steel Semiannual Monitoring Report*, April 2005. The 12 member countries of the EU at that point were Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and United Kingdom.

partners.⁵³⁴ They have also observed that the URA and other trade agreements have failed to prevent foreign government intervention, a contributing factor to global overcapacity.⁵³⁵ In 1995, after the URA entered into force, imports of steel mill products from URA partner countries to the United States began rising until they reached a peak in 1998. During 1998–2014, steel imports fluctuated and experienced two troughs in 2003 and 2009.⁵³⁶ Since 2009, U.S. steel imports from URA partners have again been increasing and have started to approach the 1998 peak level.

At the same time, from 1990 to 2014, annual U.S. exports of steel mill products to URA partners (excluding NAFTA partners Canada and Mexico) were consistently at a much lower volume than U.S. imports of steel mill products. The URA increased global market access through the elimination of tariffs (as shown in table 4.4), but U.S. steel industry representatives stated that the industry realized little to no effects from the URA in terms of U.S. exports to countries other than NAFTA partners (figure 4.17).⁵³⁷

Figure 4.17: U.S. steel mill products trade with URA partners (excluding Canada and Mexico), 1990–2014



Source: USITC DataWeb/USDOC (accessed May 5, 2016). Corresponds to appendix table I.20.

Note: Imports are imports for consumption and exports are domestic exports. Steel mill products include the following HS numbers: 7206.10–7301.10, 7302.10–7302.90, and 7304.10–7306.90. The original 19 zero-for-zero partner countries include the EU-12 countries (Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and United Kingdom) plus Austria, Finland, Japan, Norway, Korea, Sweden, and the United States (exports). Canada and Mexico are removed from this part of the analysis because they are part of NAFTA. Steel mill products include the following HS numbers: 7206.10–7301.10, 7302.10–7302.90, and 7304.10–7306.90.

⁵³⁴ AISI, prehearing statement to the USITC, November 4, 2015, 10.

⁵³⁵ AISI, prehearing statement to the USITC, November 4, 2015, 1.

⁵³⁶ The deepest troughs for imports correspond to the March 2002–December 2003 U.S. steel safeguard period and the 2007 Great Recession.

⁵³⁷ AISI, prehearing statement to the USITC, November 4, 2015, 10.

Case Study 7: Copper

The most significant U.S. trade agreements for the U.S. copper industry include NAFTA, the U.S.-Chile agreement, and the U.S.-Peru agreement. However, external factors, including macroeconomic cycles, increasingly volatile copper prices, and China's rapid industrial expansion, have likely impacted the U.S. copper industry more than the tariff-eliminating provisions of these trade agreements.⁵³⁸ The United States is a heavy consumer of copper and relies on net imports to satisfy its domestic consumption needs. Confronted by rising production costs and higher import penetration, the U.S. copper industry underwent considerable restructuring to maintain its competitiveness from 1990 to 2014.

Industry Overview

The United States is among the top producers and consumers of copper in the world.⁵³⁹ U.S. copper manufacturing tends to be segmented between unwrought refined forms and downstream semi-fabricated and certain fabricated (finished) forms.⁵⁴⁰

The unwrought and semi-fabricated segments of the U.S. copper industry have been placed under pressure by macroeconomic cycles, copper price shifts, and increasing import competition, particularly from China.⁵⁴¹ Over the past quarter-century, copper consumption by the major downstream building construction and durable goods manufacturing sectors has weakened, especially during economic downturns.⁵⁴² Being highly sensitive to shifts in global

⁵³⁸ Previously, USITC 2003 noted little impact of trade agreements on mineral and metal products, compared to that from external factors. USITC 2003, 210–211.

⁵³⁹ U.S. refined copper production of 1.1 million metric tons ranked fourth in the world (4.8 percent of the 22.9 million metric tons worldwide total) behind China, Chile, and Japan in 2014, and its refined copper consumption of 1.8 million metric tons ranked second in the world (7.8 percent of the 22.7 million metric tons worldwide total) behind China that year. WBMS, "Copper, World Refined Production" and "Copper, World Refined Consumption," *World Metal Statistics*, December 2015, 41 and 42.

⁵⁴⁰ Smelters and refiners sell unwrought refined forms (e.g., cathodes) as inputs to downstream brass mills, wire rod plants and wire mills, foundries, etc., for production of various semi-fabricated forms (e.g., bars, profiles, sheets, strips, wire, and tubes and pipe). ICSG, "The Flow of Copper," 2015, 55–56.

⁵⁴¹ Unwrought copper is classified under HS headings 7401–7403 and 7405. Semi-fabricated copper products are classified under HS headings 7406–7411. USITC, *HTS*, 2016.

⁵⁴² These periods include July 1990–March 1991, March 2001–November 2001, and December 2007–June 2009. U.S. Federal Reserve Bank of St. Louis, "FRED, Real Gross Domestic Product," July 30, 2015; "FRED FAQs," n.d. (accessed December 30, 2015).

supply-demand balance, annual average copper prices have shown more volatility since the mid-2000s and have steadily declined since 2011, falling from \$3.87 per pound to \$2.88 per pound by 2015 (in constant 2009 dollars) and eroding industry profits.⁵⁴³

In addition, since the late 1990s, U.S. producers of semi-fabricated and fabricated copper products have confronted increasing import competition from the lower-cost output of China's expanding manufacturing sector. China's share of U.S. imports by quantity of semi-fabricated and fabricated copper rose from 3.0 percent to 19.0 percent during 2000–09 before falling back to 10.9 percent by 2014.⁵⁴⁴ The U.S. copper industry also competes with China for supplies of U.S.-generated copper scrap, as Chinese semi-fabricated and fabricated copper producers have increasingly sought foreign supplies of raw materials.⁵⁴⁵ Since the 1990s, scrap has been the predominant form of copper exported by the United States to China, the largest destination market for U.S. exports of copper products since 2007.⁵⁴⁶

Unwrought Refined Copper

Beginning in the late 1990s, U.S. production of unwrought refined copper fell significantly because prices declined, while production costs and international competition increased.⁵⁴⁷ Output in the early 2000s declined due to the shuttering of smelting and refining establishments, and then stabilized due to increased production from more efficient

⁵⁴³ AMM, "Pricing" (accessed November 1–2, 2015); Metal Bulletin, "Price Book" (accessed December 9, 2015); White House, *Economic Report of the President*, 2015, table B-3. Copper smelters and refiners are generally more successful at expanding revenue by passing on cost increases to their customers in periods of robust construction and durable manufacturing activity. Conversely, corporate revenues suffer during economic downturns that drive down copper prices. Yucel, "Copper, Zinc and Lead Refining in the US," October 2015, 5. For semi-fabricated producers, rising copper prices increase sales revenue but threaten profits, if the higher costs to fabricate purchased copper cannot be passed on to customers. Moreover, falling copper prices in periods of otherwise robust downstream demand depress revenue for semi-fabricated copper producers. Goddard, "Copper Rolling, Drawing and Extruding in the US," October 2014, 22.

⁵⁴⁴ USITC DataWeb/USDOC (accessed December 20, 2015).

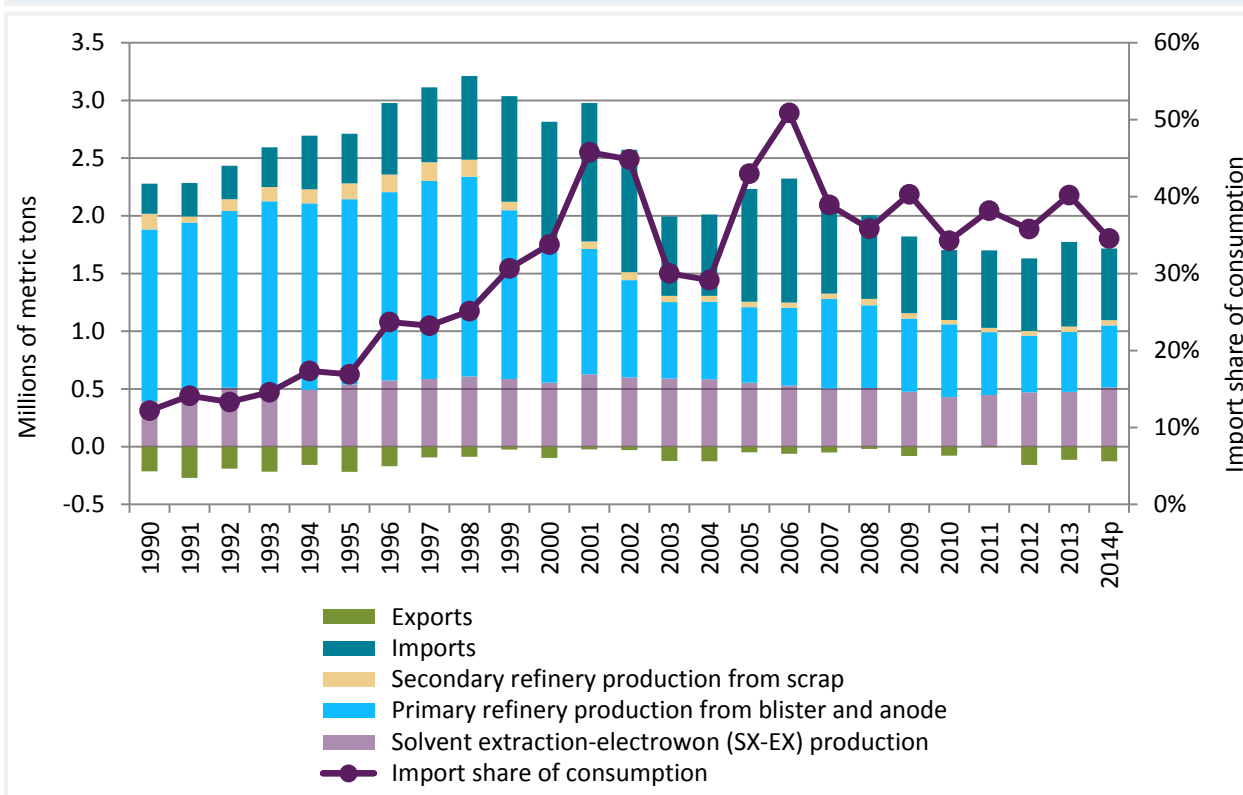
⁵⁴⁵ The Copper and Brass Fabricators Council and Nonferrous Founders' Society petitioned the U.S. Department of Commerce's Bureau of Industry and Security (BIS) (received on April 7, 2004) to impose export monitoring and controls on copper scrap, claiming that rising scrap exports to China cut into supply for domestic consumers and drove up prices. The BIS determined (announced on July 21, 2004) that the short supply criteria were not met, as the global market for copper cathodes was the most important determinant of the price fluctuations for copper scrap. Edelstein, "Copper," 2005, 21.1–21.2.

⁵⁴⁶ Scrap has generally exceeded 90 percent of U.S. copper exports to China since the late 1990s. USITC DataWeb/USDOC (accessed December 20, 2015).

⁵⁴⁷ U.S. production of unwrought refined copper—from solvent extraction-electrowinning; primary refining (of mined ores and concentrates); and secondary refining (of recovered scrap)—declined from 2.5 million metric tons in 1998 to 1.1 million metric tons by 2014. CDA, *Annual Data 2011*, 2011, table 1; CDA, *Annual Data 2015*, 2015.

operations.⁵⁴⁸ During this time, imports became an increasingly important source of unwrought refined copper for U.S. downstream semi-fabricated copper producers. Imports of this commodity (predominantly from Chile, Canada, and Mexico) accounted for 12.2 percent of the domestic market in 1990, thereafter rising to an annual average of 38.7 percent over 2001–14 (figure 4.18).

Figure 4.18: U.S. supply of unwrought refined copper for domestic consumption and imports as a share of domestic consumption, 1990–2014



Source: CDA, *Annual Data 2011*, 2011; CDA, *Annual Data 2015*, 2015, table 1; Brininstool, "Copper," January 2016, 54.

Corresponds to appendix table I.21.

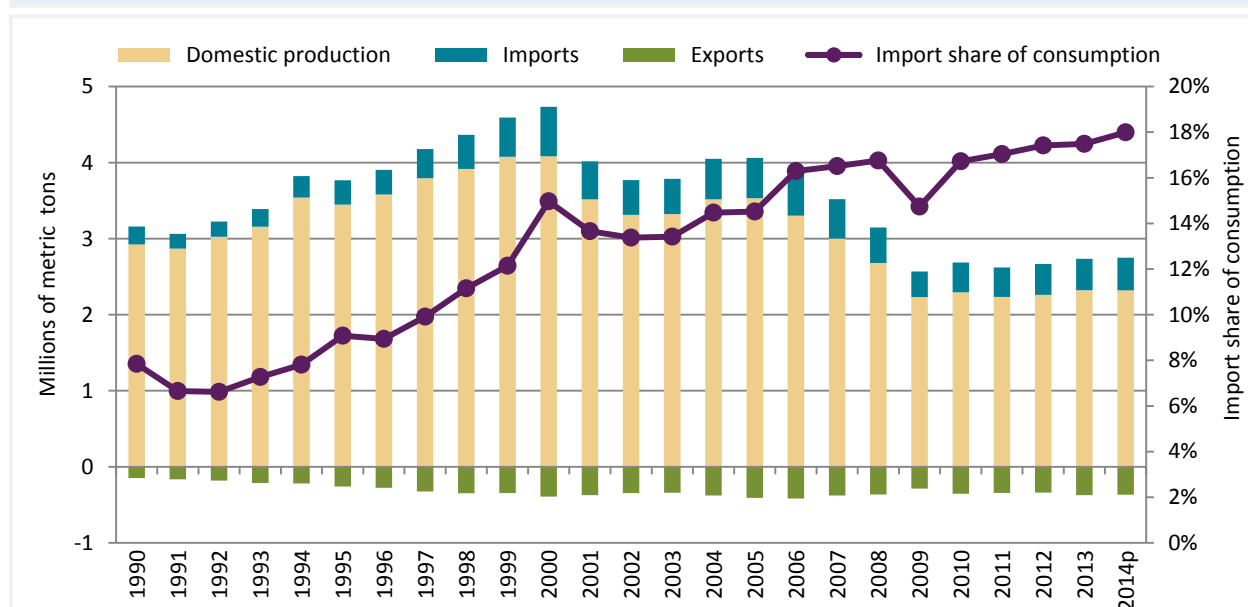
Note: p = preliminary.

⁵⁴⁸ U.S. copper smelters and refiners consolidated operations to gain economies of scale and maintain profitability through mergers and acquisitions, shuttering older facilities, and improving performance at existing facilities. Yucel, "Copper, Zinc and Lead Refining in the US," October 2015, 8–10; Brininstool, "Copper," January 2014–January 2015; Edelstein, "Copper," January 2005–January 2013. Solvent extraction-electrowinning (SX-EX) plants, which are less costly, expanded during this period. The SX-EX process dissolves out copper, other base metals, and precious metals from crushed ore directly into solution from which the pure metals are extracted by electrolysis, thereby avoiding the more costly concentrating and smelting steps.

Semi-fabricated Copper Products

U.S. production of semi-fabricated copper products peaked in the early 2000s at 4.1 million metric tons, only to decline to 2.3 million metric tons in 2014 (figure 4.19), as import penetration rose and as downstream demand from building construction and durable goods manufacturing sectors weakened during economic downturns.⁵⁴⁹ Semi-fabricated copper production grew increasingly concentrated through mergers and acquisitions during 1990–2014.⁵⁵⁰ Downstream copper-consuming industries increasingly sought foreign sources of semi-fabricated copper, with imports increasing from 6.6 percent of the domestic market in the early 1990s to 18.0 percent by 2014.⁵⁵¹

Figure 4.19: U.S. supply of semi-fabricated copper for domestic consumption and imports as a share of domestic consumption, 1990–2014



Source: CDA, “Table 4: Supply of Wire Mill, Brass Mill, Foundry, and Powder Products and Their Consumption in End-use Markets,” *Annual Data 2015*, 2015; CDA, *Annual Data 2011*, 2011. Corresponds to appendix table I.22.

Note: p = Preliminary.

⁵⁴⁹ CDA, *Annual Data 2011*, 2011, table 4; CDA, *Annual Data 2015*, 2015; U.S. Federal Reserve Bank of St. Louis, “FRED, Real Gross Domestic Product,” July 30, 2015; “FRED FAQs,” n.d.

⁵⁵⁰ Goddard, “Copper Rolling, Drawing and Extruding in the US,” October 2014, 9–11.

⁵⁵¹ At various times, certain domestic brass mills have gained import relief with antidumping (AD) and countervailing duty (CVD) orders imposed by the U.S. Department of Commerce that raised the cost for two common semi-fabricated copper articles of foreign origin to enter the U.S. market. For brass sheet and strip, U.S. AD and CVD orders on various countries, first imposed in January 1987, were removed over succeeding years. Antidumping orders on France, Italy, Germany, and Japan were continued by the Department of Commerce effective April 2012; 77 Fed. Reg. 24932 (April 26, 2012). For seamless refined tube and pipe, AD orders imposed on China and Mexico in November 2010 are undergoing sunset reviews that started in October 2015; 80 Fed. Reg. 59133 (October 1, 2015). CDA, *Annual Data 2015*, 2015, table 4; CDA, *Annual Data 2011*, 2011.

Provisions/Agreements

Besides implementing its tariff-reduction/elimination commitments under the Uruguay Round Agreement (URA), the United States entered into agreements during 1990–2015 with its leading trading partners for copper articles (classifiable in HS chapter 74), as well as with leading world-scale mined-copper producers, or both.⁵⁵² Tariff elimination provisions are relevant for both the United States and its agreement partners Canada, Mexico, Chile, and Peru. When each agreement entered into force, the United States immediately removed nearly all of its existing import duty rates on copper articles originating from its respective agreement partners.⁵⁵³ By contrast, tariff elimination schedules for Canada, Mexico, Chile, and Peru were a mix of immediate duty removals and staged annual reductions over varying numbers of years, once their respective agreements with the United States entered into force.

Impacts of the Agreements

Nonetheless, trade liberalization likely had less impact on the U.S. copper industry than the competitive and external factors confronting the industry, as most existing U.S. tariffs on copper articles were already low or moderate.⁵⁵⁴ U.S. bilateral copper trade bottomed out in 2009 with all four of its agreement partners, as national economies began recovering in the middle of that year from the worldwide recession. However, U.S. output of both unwrought and semi-fabricated copper since the mid-2000s mostly declined due to corporate restructuring that eliminated inefficient production. This reduction in capacity rendered the United States less able to take advantage of the staged elimination of its agreement partners' generally higher tariffs. Although the value of U.S. exports to Canada and Mexico generally increased, the U.S. share of Canadian and Mexican copper imports fell after the NAFTA agreement entered into force, as both U.S. agreement partners expanded their sourcing to other non-agreement trading partners which also had duty-free access. The United States continued to import more copper from Canada than it exported. Following tariff reductions under the U.S.-Chile and U.S.-Peru agreements, U.S. imports of copper articles increased from Chile but decreased from Peru.

⁵⁵² HTS chapter 74 includes unwrought, waste and scrap, semi-fabricated, and certain fabricated forms of copper. USITC, *HTS*, 2015 and 2016. Chile was the world's largest producer (5.7 million metric tons) and Peru was the third-largest producer (1.6 million metric tons) of mined copper in 2015. Brininstool, "Copper," January 2016, 55.

⁵⁵³ The only two U.S. exceptions were under NAFTA: HTS 7402.00.00 unrefined copper anodes (5-years duty elimination staging) and HTS 7419.99.15 copper containers carried on the person, in the pocket or in the handbag, (10-years duty elimination staging).

⁵⁵⁴ Before the URA (January 1, 1995), most U.S. tariffs on copper products were in the range of 1–6.3 percent. Exceptions involving higher tariffs included certain copper cloth bands (10 percent), other articles of copper coated or plated with precious metal (10 percent), and tube or pipe fittings of refined copper (11.2 percent). NAFTA, Annex 302.2, 534–538. Unless specified otherwise, trade values refer to U.S. imports for consumption and U.S. domestic exports, in 2009 constant dollars. White House, *Economic Report of the President*, 2015, table B-3.

Shares of U.S. Exports to Canada and Mexico

Trade with both Canada and Mexico continues to make up a significant share of total U.S. copper trade, a reflection of U.S.-Canadian cross-border trade and the integration of Mexico into the North American supply chain. NAFTA tariff preferences did not affect U.S. trade with Canada, as this agreement continued the bilateral duty-free access of the prior Canada-U.S. agreement.⁵⁵⁵ Annual U.S. domestic exports of copper to the Canadian market rose, with fluctuations, from \$573 million in 1993 to exceed \$1.1 billion in most years from 2006 onwards.⁵⁵⁶ Although the United States has remained the leading source of Canadian copper imports, its share has fallen over time. In 1995, the United States accounted for 84.5 percent of all Canadian copper imports, but that share had fallen to 60.0 percent by 2014, a drop attributable to both declining U.S. domestic copper production and rising competition from Chilean suppliers.⁵⁵⁷

U.S. copper exports to Mexico increased once NAFTA entered into force. Over the decade in which Mexico phased out its moderate-to-high tariff rates (5–20 percent ad valorem), annual U.S. copper exports to Mexico grew, rising from \$361 million in 1993 to exceed \$1.0 billion from 2004 onward.⁵⁵⁸ The United States has also remained the leading source of Mexican copper imports since 1995, although its share has fallen over time. In 1995, the United States accounted for 87.0 percent of all Mexican copper imports. This share had fallen to a low of 61.1 percent in 2009, only to rebound thereafter to 74.0 percent by 2014. The chief reason for the fall in U.S. share was competition with imports from Chile, especially after mid-late 1999 under the Chile-Mexico agreement.⁵⁵⁹

⁵⁵⁵ Canada-U.S., 42–44, 304.

⁵⁵⁶ USITC DataWeb/USDOC (accessed January 2, 2015).

⁵⁵⁷ 1995 was the earliest year for which Canadian import statistics are available from the GTIS Global Trade Atlas database (accessed February 4, 2016). The Canada-Chile agreement did not provide tariff preference benefits for Chile's major copper export products—unrefined anodes and refined cathodes. The reason for this was that Canada's MFN duty rates on these unwrought forms were already free before the Canada-Chile agreement entered into force on July 5, 1997; WTO, "Canada-Chile," RTA-IS database (accessed April 8, 2016).

⁵⁵⁸ USITC DataWeb/USDOC (accessed January 2, 2015).

⁵⁵⁹ 1995 was the earliest year for which Mexican import statistics are available from the GTIS Global Trade Atlas database (accessed February 4, 2016).

Chile's major copper export products—unrefined anodes and refined cathodes—became eligible for tariff preference benefits in the Mexican market after the Chile-Mexico agreement entered into force on August 1, 1999. WTO, "Chile-Mexico," RTA-IS database (accessed April 8, 2016).

Imports from Chile and Peru

It is unclear to what extent U.S.-Chile tariff preferences led to increased U.S. copper exports to Chile after the agreement entered into force.⁵⁶⁰ The United States is not a leading copper supplier to the Chilean market, and has lost market share in the years since the agreement entered into force; it supplied 6.6 percent of Chile's copper imports in 2004 and only 3.9 percent by 2014.⁵⁶¹ U.S. exports to Chile rose only slightly in value across all types of copper articles during the eight-year duty phaseout (2004–11) of Chile's tariff rate (6 percent ad valorem) and in the years that followed. Conversely, annual U.S. copper imports from Chile grew substantially after the agreement's entry into force, principally at the expense of non-agreement partners; they rose from \$790 million in 2003 to exceed \$1.1 billion each year thereafter.⁵⁶² U.S. imports were predominantly unwrought unrefined and refined copper, as Chile currently ranks as the world's second-largest mined-copper producer and the world's largest copper exporter.⁵⁶³

It is also unclear whether or not tariff preferences under the U.S.-Peru agreement had an effect on copper trade between the two countries. After the agreement's entry into force in 2009, U.S. copper imports from Peru fell, as did the U.S. share of Peruvian copper imports. Once Peru was removed from eligibility for preferential tariff treatment under the Andean Trade Preference Act in 2010, imports of Peruvian copper articles into the U.S. market relied almost exclusively on U.S.-Peru agreement provisions for duty-free entry.⁵⁶⁴ During the five-year phaseout of Peru's moderate-to-high tariffs (4–12 percent ad valorem), U.S. copper exports to the Peruvian market rose from \$4.4 million in 2008 to \$5.6 million by 2013.⁵⁶⁵ However, the United States is not a leading supplier to the Peruvian market, supplying only 17.8 percent of Peru's copper imports in 2009, a share that declined to 6.2 percent in 2014. Over this period,

⁵⁶⁰ Copper cathode shipments from Chile entering the U.S. market free of duty were limited to 55,000 metric tons in the first year of the agreement (Annex 3.3, U.S. Notes 1). Among the member firms of the USTR's Nonferrous Ores and Metals Industry Sector Advisory Committee (ISAC 11), U.S. copper and brass fabricators, citing weakening domestic supplies of copper cathodes, advocated immediate duty removal. The U.S. cathode producers, on the other hand, proposed a four-year reduction period for more gradual absorption of industry impact. ISAC 11, *The U.S.-Chile Free Trade Agreement (FTA): Report*, February 28, 2003.

⁵⁶¹ GTIS, Global Trade Atlas database (accessed February 4, 2016).

⁵⁶² USITC DataWeb/USDOC (accessed January 2, 2015).

⁵⁶³ Chile remains the world's largest copper exporter, as Chinese mine output is consumed domestically. GTIS, Global Trade Atlas database (accessed January 4, 2015); WBMS, "Copper: World Smelter Production" and "Copper: World Refined Production," February 2016, 39, 41.

⁵⁶⁴ The Nonferrous Metals and Building Materials Industry Trade Advisory Committee (ITAC 9) to the USTR expressed objections to the U.S.-Peru agreement as providing permanent, non-reviewable, and non-revocable duty-free access to the U.S. market. ITAC 9, *The U.S.-Peru Trade Promotion Agreement (TPA): Report*, February 1, 2006.

⁵⁶⁵ USITC DataWeb/USDOC (accessed January 2, 2015).

Peruvian sourcing of copper articles also shifted away from China, the EU, and Korea toward Chile, India, and Mexico.⁵⁶⁶

Case Study 8: Mining Machinery

Tariff elimination under the U.S.-Chile (2004) and U.S.-Peru (2009) agreements likely expanded opportunities for U.S. machinery producers to export their products.⁵⁶⁷ Before the agreements, tariffs on U.S. mining machinery had ranged from 0 to 20 percent in Chile and Peru. The elimination of these tariffs, coupled with increased demand for mining machinery due to a rise in key commodity prices that triggered intensified mining efforts, enabled U.S. mining machinery manufacturers to expand their exports to the two commodity-rich economies.⁵⁶⁸ However, the rise and subsequent fall of the price of copper, the largest mining export for both Peru and Chile, meant that their respective trade agreements affected the two countries' imports of U.S. mining equipment differently. Implemented before copper prices began to rise, the U.S.-Chile agreement allowed U.S. mining machinery exporters to slowly capitalize on the increased demand for equipment to meet higher copper demand in subsequent years. By contrast, the U.S.-Peru agreement entered into force only two years before copper prices peaked in 2011. While the agreement initially supported significant U.S. mining machinery export growth, the fall in copper prices after 2011 limited the export growth potential for U.S. mining equipment to Peru.

Industry Overview

The United States is highly competitive in the global machinery manufacturing industry, and is currently the world's third-largest manufacturer of capital equipment. Although much of U.S. production is consumed domestically, the industry is also a significant exporter, representing

⁵⁶⁶ GTIS, Global Trade Atlas database (accessed February 5, 2016).

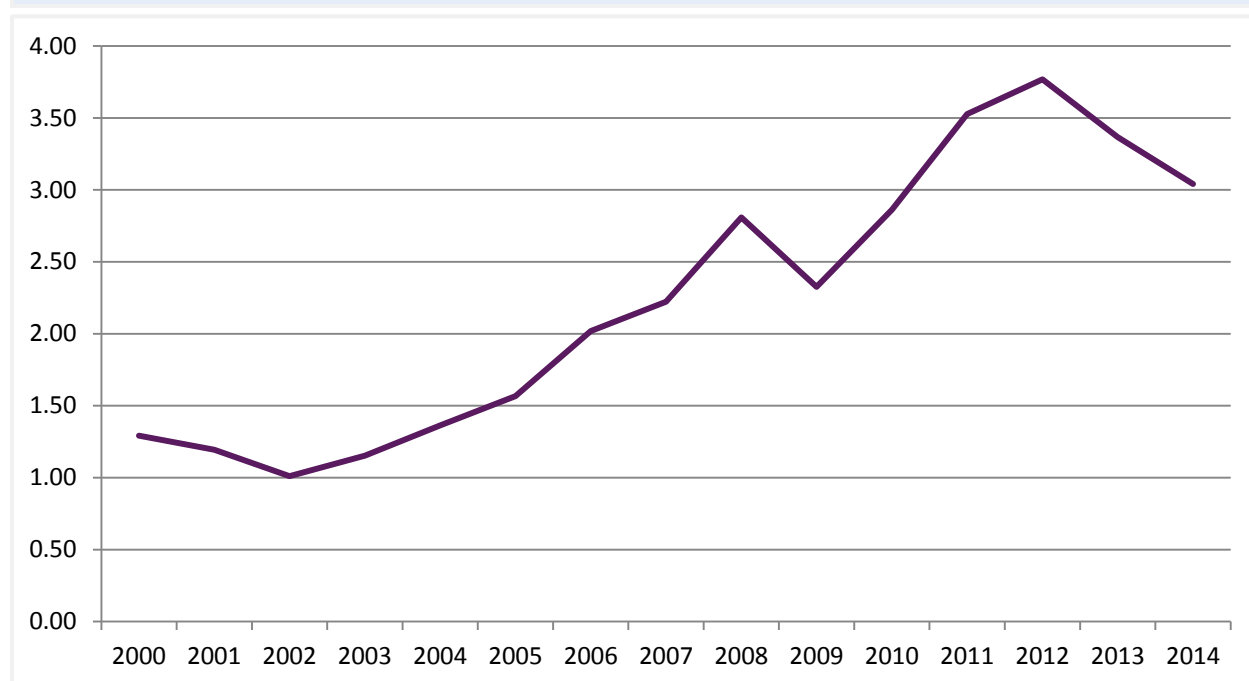
⁵⁶⁷ This report defines mining machinery equipment using the NAICS definition for Mining Machinery and Equipment Manufacturing (333131), which references "(1) . . . underground mining machinery equipment, such as coal breakers, mining cars, core drills, coal cutters, rock drills and (2) . . . mineral beneficiating machinery and equipment used in surface or underground mines."

⁵⁶⁸ Nicholson, *Made in America: Machinery*, 2013, 3. Given the difference in the implementation timetable of the two agreements—the U.S.-Chile agreement in 2004 and the U.S.-Peru agreement in 2009—and the respective positions of the two partner-countries along the commodity price spike from 2004 to 2011/2012, a rise in prices alone is not sufficient to explain the rise in the value of U.S. mining machinery exports to the two countries.

12 percent of global machinery exports in 2012.⁵⁶⁹ U.S. mining equipment is frequently sought after in the mining community due to its high quality and durability.⁵⁷⁰

The mining machinery industry in the United States experienced several years of strong growth during the 2000s as prices for metals rose and mineral-rich economies expanded extraction of key commodities to meet rising global demand, bolstering demand for mining machinery.⁵⁷¹ Mining machinery exports, as shown in figure 4.20, grew in the 10-year period from 2004 to 2014 from \$1.2 billion to nearly \$3.3 billion, with annual growth rates nearing 30 percent in some years. Caterpillar, the world’s largest mining equipment manufacturer, was emblematic of the wider growth in the industry, posting revenue gains throughout the early to mid-2000s (from \$30 billion in fiscal year 2004 to \$51 billion in fiscal year 2008).⁵⁷²

Figure 4.20 Annual U.S. domestic exports of mining equipment, in billions of dollars (2009 dollars)



Sources: USITC DataWeb/USDOC, domestic exports (accessed April 9, 2016); White House, *Economic Report of the President*, 2015, table B-3. Corresponds to appendix table I.23.

From 2004 to 2014, the 20 countries with which the United States has trade agreements have consistently accounted for 42–46.1 percent of U.S. mining machinery export market share. In

⁵⁶⁹ U.S. manufacturers account for over 60 percent of the U.S. market. Nicholson, *Made in America: Machinery*, 2013, 6; ITA, “Machinery Manufacturing,” 2013.

⁵⁷⁰ A recent report noted the preference for higher-quality extraction equipment: “Buyers tend to value durability and reliability [of U.S. machinery] more than low cost. This will prevent lower-cost products from capturing significantly greater market share and keep import penetration stable.” Olston, *Mining, Oil and Gas Machinery Manufacturing*, September 2015, 5–7.

⁵⁷¹ Nicholson, “Made in America: Machinery,” 2013, 3; ITA, “Construction and Mining Machinery,” 2012.

⁵⁷² NASDAQ, “Caterpillar, Inc. Revenue and Earnings per Share” (accessed December 2, 2015).

2014, 14.8 percent of those exports (and 6.4 percent of total U.S. machinery exports) were sent to Peru and Chile.⁵⁷³

The 2008–2009 recession and the fall in commodity prices from 2011 to 2015 have damaged the U.S. mining equipment industry by reducing the profitability of mines and discouraging the purchase of new equipment. For some U.S. mining equipment companies, the recent fall in demand for Latin American commodities, like copper, led to significant short-term reductions in revenue.⁵⁷⁴ Additionally, the rise of competitors in other countries that can provide lower-cost mining equipment products, most notably China, led to the United States' losing market share in Chile and Peru from 2000 to 2014.⁵⁷⁵

Impacts of Tariff Elimination

The U.S.-Chile and U.S.-Peru agreements eliminated most tariffs on equipment imports within the first year of implementation. In Chile and Peru, tariffs on imports of U.S. mining equipment had ranged from 0 percent to 20 percent ad valorem before the agreements (table 4.5).

Table 4.5: Tariff elimination examples, U.S. mining-related export items to Chile and Peru

U.S. export items to Chile	Tariff rate (percent)	Date of elimination (year)	U.S. export items to Peru	Tariff rate (percent)	Date of elimination (year)
Excavators	6	1	Front-end shovel loaders	7	1
Bulldozers and angledozers	6	1	Tamping machines	4	1
Graders and levelers	6	1	Machinery buckets, shovels, grabs and grips (except remanufactured equipment)	12	Year 5, in 1-year increments
Boring machinery	6	1	Pile drivers and pile extractors	4	1
Tools for rock drilling	6	1	Dumpers designed for off-highway use	7	1
Tamping machines	6	1	Tools for working in the hand, pneumatic	4	1

Sources: U.S.-Chile FTA, art. 3 (HTS 8429.59.00, HTS 8429.11.00, HTS 8429.20.00, HTS 8430.49.00, HTS 8207.19.00, HTS 8429.40.00); U.S.-Peru TPA, art. 2 (HTS 8429.51.00, HTS 8429.40.00, HTS 8431.41.00, HTS 8430.10.00, HTS 8704.10.00, HTS 8467.11.10).

In the five years following implementation of the U.S.-Peru and U.S.-Chile agreements, exports of U.S. mining machinery and equipment to both countries grew. Peru experienced more pronounced growth rates, since, as noted earlier, copper prices peaked two years after the

⁵⁷³ USITC DataWeb/USDOC (accessed April 9, 2016).

⁵⁷⁴ Many mining operations have stopped investing in new mining capital equipment and have been cutting costs, expanding production in current operations, closing less productive mines, and not advancing new projects to meet temporary shortfalls. For further information, see RB Auctioneers, "Top 5 Construction Equipment Manufacturers," June 3, 2014; Blas, "End of Mining Boom Hits Equipment Makers," May 1, 2013.

⁵⁷⁵ GTIS, World Trade Atlas database (accessed January 6, 2016).

entry into force of the U.S.-Peru agreement.⁵⁷⁶ The elimination of tariff barriers to U.S. mining machinery imports to Peru and Chile, in addition to the expansion of copper and gold mining in both countries, likely contributed to these increases.

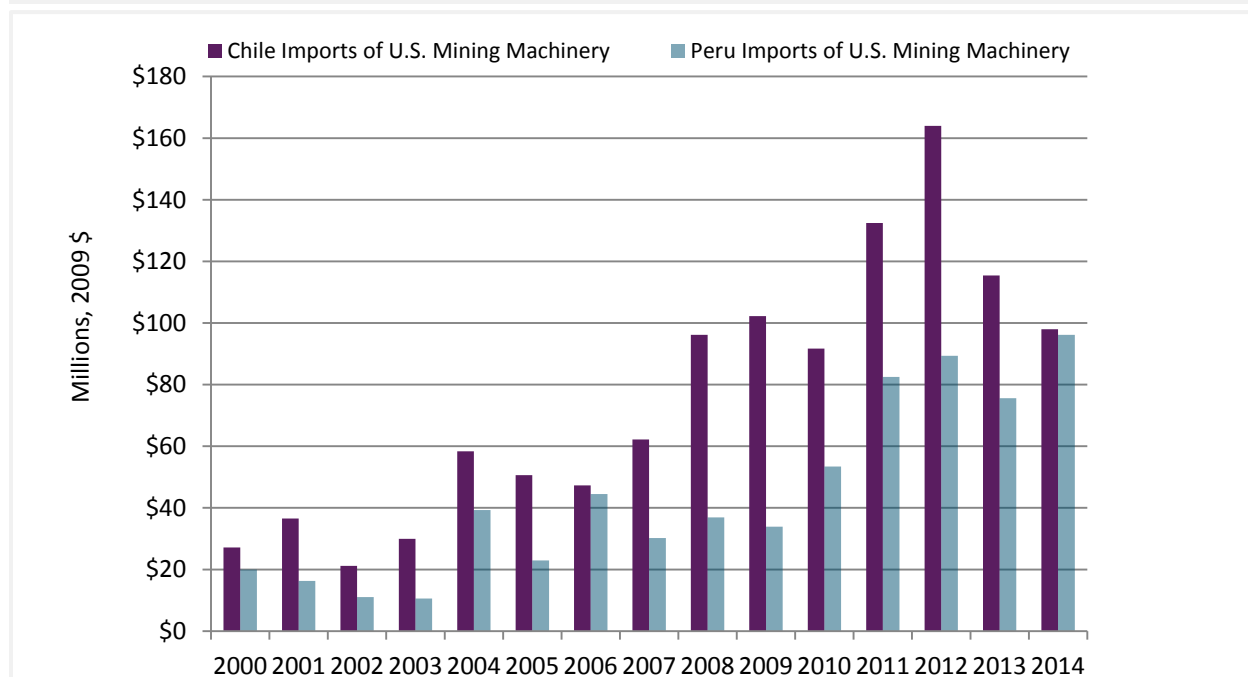
In addition, U.S. machinery exports to Peru grew at a higher rate than exports to other countries, making it a more important market for U.S. mining machinery exporters. However, within a few years of the entry into force of the agreement, the U.S. share of imports in Peru fell, likely due to the rise in the mining machinery export capabilities of developing countries, particularly China.

U.S. Mining Machinery Exports to Peru and Chile

In the five years following implementation of the U.S.-Chile agreement—that is, from 2004 to 2008—U.S. exports of mining machinery to Chile grew 65 percent, from \$58.4 million in 2004 to \$96.2 million in 2008 (figure 4.21).⁵⁷⁷ This export trend represents an average annual growth rate of 13 percent, much higher than the -5.3 percent annual average attained from 1999 to 2003, the five years preceding the agreement (figure 4.22). However, average annual growth in exports to Chile was lower than that for U.S. global exports of mining machinery and equipment, which were 21.2 percent from 2004 to 2008.

⁵⁷⁶ It is difficult to define the exact parameters of the 2000s commodity boom, as the value of various commodities rose at slightly different times. In the metals industry, aluminum began to rise in value starting in January 2003, while copper began in 2004. Silver prices rose in February 2004, while gold prices began to rise in April 2001. However, most major commodities began major declines starting in 2011/2012, and copper reached its peak in February 2011 before declining. *Economist*, “Life after the Commodity Boom,” March 29, 2014.

⁵⁷⁷ USITC DataWeb/USDOC (accessed April 9, 2016).

Figure 4.21: Annual exports of U.S. mining machinery to Chile and Peru, 2000–2014

Sources: USITC DataWeb/USDOC (accessed April 9, 2016); White House, *Economic Report of the President*, 2015, table B-3. Corresponds to appendix table I.24.

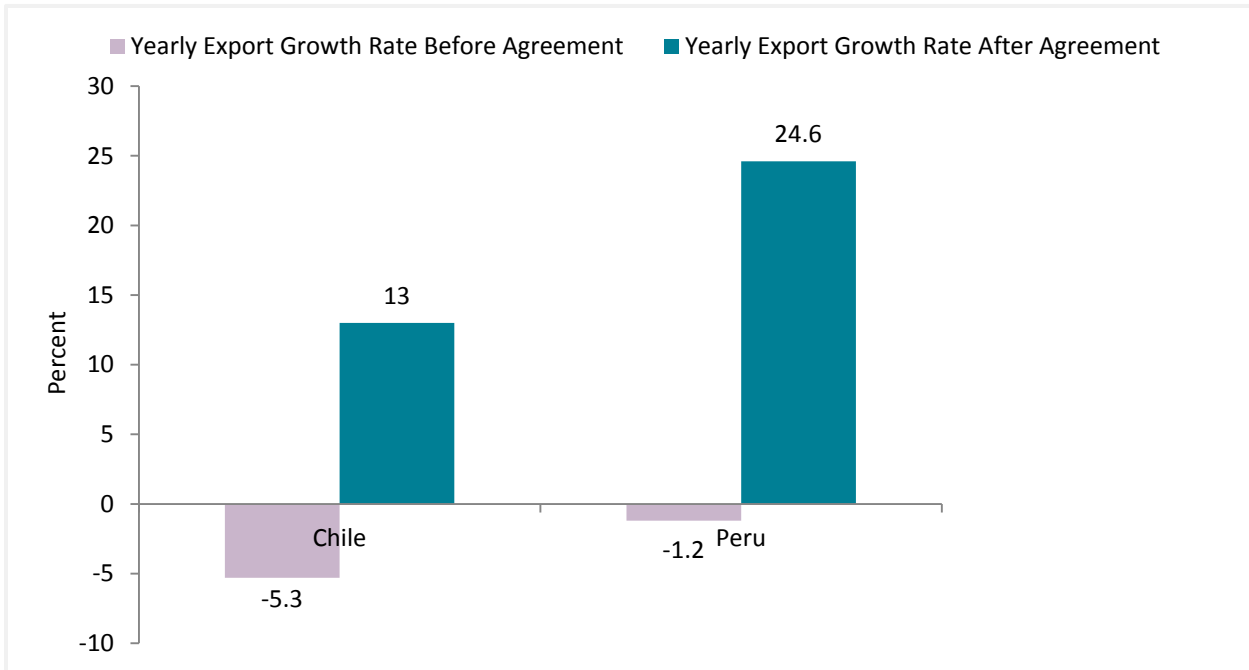
Aggregate U.S. mining machinery exports to Peru also rose in the years following the agreement (from \$33.9 million in 2009 to \$75.6 million in 2013, adjusted for inflation). The average annual growth rate for U.S. machinery exports to Peru also rose relative to the five years preceding the agreement. U.S. mining machinery exports rose from an average annual growth rate of -1.2 percent in the 2004–08 period to 24.6 percent from 2009 to 2013 (figure 4.22).⁵⁷⁸ This growth in 2009 to 2013 exceeded growth in global U.S. exports, which was only 9.0 percent. The acceleration in growth is likely due, at least in part, to the previously mentioned peak in copper prices starting in early 2011.⁵⁷⁹ However, growth rates for mining equipment exports to Peru were uneven, which might suggest that U.S. machinery export gains that could have occurred following the U.S.-Peru agreement were offset by falling demand for copper after the 2011 peak.⁵⁸⁰

⁵⁷⁸ USITC DataWeb/USDOC (accessed April 9, 2016).

⁵⁷⁹ Copper prices experienced a February 2011 peak of \$4.50 per pound and fell steadily thereafter, dropping to approximately \$2.15 by December 2015. InfoMine, InfoMine database, February 25, 2016.

⁵⁸⁰ GTIS, World Trade Atlas database (accessed January 3, 2016).

Figure 4.22: Five-year average annual growth rates for U.S. mining machinery exports by country, before and after agreements (1999–2013, adjusted for inflation).

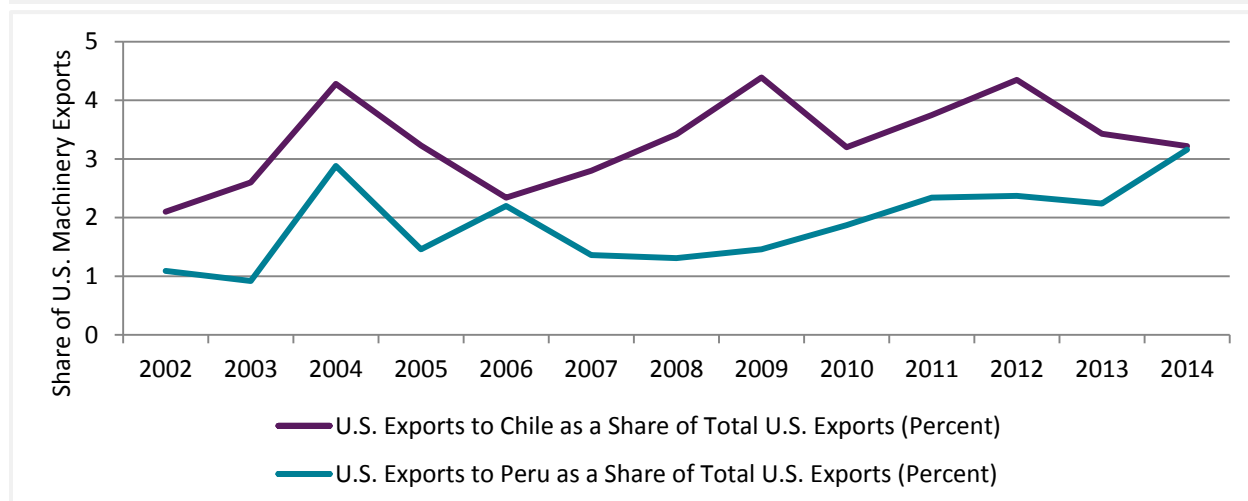


Sources: USITC DataWeb/USDOC (accessed April 9, 2016); White House, *Economic Report of the President*, 2015, table B-3. Corresponds to appendix table I.25.

U.S. Export Market Share in Peru and Chile

Peru and Chile have steadily become more significant markets for U.S. mining machinery exports (figure 4.23). U.S. exports to Peru grew from 1.5 percent of total U.S. mining machinery exports in 2009 to 3.2 percent by 2014, while U.S. exports to Chile grew from 2.6 percent of total U.S. mining machinery exports in 2003 to 3.4 percent five years later.⁵⁸¹

⁵⁸¹ U.S. mining machinery exports to Peru and Chile also rose relative to those to Mexico and Canada, U.S. exporters' largest foreign markets. From 2002 to 2014, U.S. mining machinery exports to Chile and Peru rose from 45.2 percent to 75.1 percent of the value of U.S. exports to Mexico, and from 36.6 percent to 38.9 percent of the value of U.S. exports to Canada. GTIS, World Trade Atlas database (accessed December 15, 2016); U.S. Census, Value of Exports, General Imports, and Imports for Consumption by NAICS-333131 (December 15, 2016).

Figure 4.23 U.S. machinery exports to Chile and Peru as a share of total U.S. machinery exports

Source: USITC DataWeb/USDOC (accessed April 9, 2016). Corresponds to appendix table I.26.

Despite their growing importance to U.S. exporters, the U.S. mining machinery and equipment industry lost market share in Peru and Chile throughout the 2000s. In Chile, U.S. mining machinery and equipment manufacturers' market share reached a high in 2000, at 56.7 percent of Chile's mining machinery import market. However, from 2004 to 2014, U.S. market share in Chilean mining imports fell from 48 percent to 39.6 percent.⁵⁸² In Peru, U.S. machinery exporters' market share peaked in 2001 at 61.1 percent of the Peruvian market, but by 2014 this had fallen to 24.2 percent.

Although several factors may be involved in this reduction in market share, it is likely that the rise in several other countries' capacity to make mining machinery has contributed most significantly to the fall in U.S. market share in Peru and Chile. Chile's mining machinery imports from China constituted less than 1 percent of Chile's overall mining machinery imports in 2000, but by 2014 that figure had risen to 10.6 percent.⁵⁸³ In Peru, the rise is similar, from 0.13 percent in 2000 to 9.2 percent in 2014.⁵⁸⁴

Moreover, both Peru and Chile signed trade agreements with China, with the Chile-China agreement entering into force in 2006 and the Peru-China agreement in 2010.⁵⁸⁵ These agreements reduced tariff barriers to imports of Chinese mining machinery and likely contributed to increasing imports from China by leveling the playing field relative to the zero-tariff treatment of U.S. mining machinery imports by Peru and Chile.

⁵⁸² GTIS, World Trade Atlas database (accessed April 9, 2016).

⁵⁸³ GTIS, World Trade Atlas database (accessed January 5, 2016).

⁵⁸⁴ Ibid.

⁵⁸⁵ Government of China, Ministry of Commerce, "China-Peru FTA" (accessed April 19, 2016); Government of China, Ministry of Commerce, "China-Chile FTA" (accessed April 19, 2016).

The United States continues to maintain a higher market share than China or any other nation in both countries' mining machinery import markets, though the growth of machinery export capacity in other countries may continue to place pressure on the market share of U.S. machinery exports to commodity-rich economies like Chile and Peru.

Case Study 9: Express Delivery

According to industry representatives, U.S. trade agreements expand the services supplied by express delivery firms to partner countries by increasing merchandise trade in general and, more specifically, by simplifying customs paperwork and raising de minimis levels for low-value shipments.⁵⁸⁶ These agreements may also play an important role in facilitating exports by small and medium-sized enterprises (SMEs), especially when the agreements include customs administration and trade facilitation provisions that are successfully adopted by signatories.⁵⁸⁷ Available data indicate that U.S. trade agreements have led to growth in U.S.-based express delivery services to certain partner countries and to a higher value of U.S. SME exports to partner versus non-partner countries.

Industry Overview

Express delivery services refer to the expedited collection, transport, and delivery of time-sensitive documents, parcels, and other goods using air, sea, road, or rail transport services.⁵⁸⁸ Express firms are distinguished from other document delivery and freight transportation service providers by their ability to maintain electronic (i.e., Internet-based) control of the items they convey throughout the supply chain, even when a portion of transport and delivery is outsourced to third-party providers.⁵⁸⁹ The globalization of supply chains, and the increasing demand from both traditional and online consumers for borderless transactions, have enhanced the role that express firms play in international commerce. Express firms, in turn,

⁵⁸⁶ In this chapter, de minimis refers to a maximum value beneath which a shipment may clear customs without the need to pay tariffs, customs fees, and taxes; submit manifest information (i.e., a description of the good that is being brought into a country); or undergo formal customs procedures. U.S. industry representatives, interview by USITC staff, Washington, DC, September 21, 2015.

⁵⁸⁷ Trade facilitation refers to the speedy release of "goods in transit" through customs checkpoints. Trade facilitation measures also promote, among other things, cooperation between international customs authorities and the provision of technical assistance and capacity building to countries working to improve their customs regimes. WTO, "Trade Facilitation," n.d. (accessed December 3, 2015).

⁵⁸⁸ This definition is adapted from that of the Express Association of America (EAA), which represents four firms in the express delivery industry: DHL (Germany), FedEx Express (United States), TNT (Netherlands), and UPS (United States). Express services do not include letter delivery provided by postal authorities or commercial transportation services.

⁵⁸⁹ U.S. industry representatives, interview by USITC staff, Washington, DC, September 21, 2015; United Parcel Service (UPS), "Form 10-K," 2015, 43; Fedex, *FedEx Annual Report 2015*, 2015, 15; IBISWorld, "Global Courier and Delivery Services," August 2015, 5–6.

have been at the forefront of those seeking reforms in trade facilitation and customs procedures.

In 2015, the five largest firms in the express services industry were DHL (Germany), UPS (United States), FedEx (United States), Nippon Express (Japan), and TNT Express (Netherlands) (table 4.6). In addition to express delivery, these firms supply a vast and growing array of services, including logistics, supply chain management, e-commerce, and financial and customs advisory services.⁵⁹⁰ The breadth of services offered by express firms reflects the continued globalization of manufacturing, the growth of e-commerce, and an increase in cross-border trade.

Table 4.6: Top five global express delivery firms, 2014–2015

Rank ^a	Company	Country of headquarters	Revenues (\$ million)	Share of global express revenues (percentage)	Total number of employees worldwide	Number of countries and territories in which company has operations
1	Deutsche Post DHL	Germany	\$63.6 ^{b c}	32.9	497,745	>220
2	UPS	United States	\$58.4	30.2	444,000	>220
3	FedEx	United States	\$47.5	24.6	325,000	>220
4	Nippon Express	Japan	\$16.1 ^d	8.3	20,421	42
5	TNT Express	Netherlands	\$7.5 ^{c e}	3.9	56,199	61
Total			\$199.4	100	1,343,365	

Source: IBISWorld, “Global Courier and Delivery Services,” August 2015; Deutsche Post DHL Group, *2015 Annual Report*, 2015; FedEx, *FedEx Annual Report 2015*, 2015; TNT website, Annual Report 2015, 2016; UPS website, “UPS Fact Sheet,” <https://www.pressroom.ups.com/pressroom/ContentDetailsViewer.page?ConceptType=FactSheets&id=1426321563187-193>; Nippon Express, “Region Information,” <http://www.nipponexpress.com/region-info/japan/haneda-airport/index.html> (accessed November 10, 2015); Nippon Express, *2015 Annual Report*, 2016; Nippon Express, “Worldwide Facilities,” <http://www.nipponexpress.com/about/corporate/worldwide/index.html> (accessed November 10, 2015).

Notes:

^a Rank based on company-reported revenues for 2015.

^b About 50 percent of DHL’s revenues come from express services.

^c Euro to U.S. dollar conversion (1 EUR = 1.083 USD, January 4, 2016).

^d Yen to U.S. dollar conversion (119.3 JPY = 1 USD, January 4, 2016).

^e In 2015, FedEx announced plans to acquire TNT Express. The acquisition is scheduled to be completed in the second half of 2016.

Express delivery firms operate through sophisticated communication and transportation networks that enable goods to be transported anywhere in the world while being tracked at each stage of delivery. Internet platforms, often integrated with a client’s business operations, provide the online infrastructure for express firms and their customers to schedule, manage,

⁵⁹⁰ Oxford Economic Forecasting, *The Impact of the Express Delivery Industry*, September 2009, 6. UPS is one of the world’s largest customs brokers by number of shipments and brokerage employees. The company provides customs brokerage, trade management, and international trade consulting services to its customers. United Parcel Service, “Form 10-K,” 2015, 8.

and monitor the physical movement of goods.⁵⁹¹ Express firms have also expanded their transportation networks both at home and abroad by building new air hubs, increasing the size of their trucking fleets, and partnering with third-party firms to deliver goods to remote locations.⁵⁹²

International markets account for a significant and growing proportion of express firms' revenue. In 2014, U.S. exports of air freight services (used here as a proxy for express delivery services) were \$14.3 billion, compared to \$7.2 billion for U.S. imports.⁵⁹³ Express providers continue to extend their global reach by acquiring local couriers in foreign markets and investing in transportation infrastructure. For example, in 2014, UPS announced plans to spend \$1 billion during a five-year period to increase its ground transportation network in Europe, a market that accounts for about half of UPS' international revenue.⁵⁹⁴ During the same year, FedEx announced its intention to acquire Netherlands-based TNT Express, also in order to expand its European operations.⁵⁹⁵ Emerging markets are another important area of growth for express firms. For instance, in 2015, UPS augmented its capacity in Brazil, opening nine new operating facilities in the state of São Paulo to serve the Brazilian market.⁵⁹⁶

The rise of cross-border e-commerce, which is expected to increase at seven times the rate of global GDP, adds to the potential for international revenue growth among express firms and their SME customers.⁵⁹⁷ By 2025, e-commerce is estimated to account for 40 percent of retail trade in developed markets and 30 percent in emerging markets.⁵⁹⁸ Already, express providers such as FedEx are investing in e-commerce technologies to expand this area of their business.⁵⁹⁹

⁵⁹¹ Deutsche Post DHL Group, *2014 Annual Report*, 2014, 101.

⁵⁹² SMEs may especially benefit from the economies of scale inherent in an express firm's global network and the resulting cost savings achieved in serving international customers. Oxford Economic Forecasting, *The Impact of the Express Delivery Industry*, 2009, 29.

⁵⁹³ USDOC, BEA, *Survey of Current Business*, October 2015, table 2.2.

⁵⁹⁴ UPS, *2014 Annual Report* (accessed October 2, 2015), 4; United Parcel Service, "Form 10-K," 2014, 7.

⁵⁹⁵ Waters, "EU Set to Approve FedEx-TNT Deal," October 21, 2015; IBISWorld, "Global Courier and Delivery Services," August 2015, 25. In January 2016, the European Commission approved the merger between FedEx and TNT. Karp, "European Commission Formally Approves Fedex-TNT Merger," January 8, 2016.

⁵⁹⁶ United Parcel Service, "Form 10-K," 2014, 2. At the same time, a growing trend toward intra-regional trade (and the relatively faster growth of intra-regional compared to international shipments) has meant that express firms have had to reconfigure their transportation networks and offer more cost-effective delivery options to their customers. This is especially evident among markets in Asia and Europe, and between the United States and Canada and Mexico.

⁵⁹⁷ UPS, *2014 Annual Report*, 2014, 5.

⁵⁹⁸ Deutsche Post DHL, "Global E-tailing 2025," n.d., 62 (accessed October 2, 2015).

⁵⁹⁹ In 2015, FedEx purchased Bongo, a technology company that specializes in cross-border e-commerce transactions. Bongo enables retailers to inform online customers of the total landed cost (in local currency) of e-commerce purchases, including the cost of shipping, duties, and taxes. FedEx, *Annual Report 2015*, 2015, 7.

Express Delivery Provisions

In addition to the expedited transport of documents, parcels, and other freight, express delivery firms supply, on behalf of their customers, the payment of tariffs, customs fees, and taxes on goods that are destined for foreign markets.⁶⁰⁰ In these markets, the efficiency of customs procedures is an important factor in the ability of express firms to provide timely service.⁶⁰¹ Therefore, industry representatives indicate that trade agreements address two important areas for express providers: the administration of customs procedures for express shipments (addressed in the customs administration and trade facilitation chapter of a trade agreement) and competition between express firms and local postal monopolies for the carriage of express delivery items (addressed in the chapter on cross-border trade in services).

Customs Administration and Trade Facilitation Provisions

Customs and trade facilitation provisions in trade agreements are important to express delivery firms, and the scope of these provisions has expanded over time (appendix G, table G.1). The U.S.-Chile agreement (2004) was the first to include an annex on expedited shipments in the customs chapter of the agreement, while CAFTA-DR (2006) extended the reach of its customs chapter to include language on trade facilitation (Chapter 5, Customs and Trade Facilitation).⁶⁰² The specific reference to trade facilitation was an important turning point for express providers. Subsequent U.S. trade agreements with Panama (2011), Colombia (2012), and Korea (2012) specified the establishment of separate channels for clearing express shipments.⁶⁰³

De minimis provisions in trade agreements are viewed as especially important to express firms.⁶⁰⁴ To date, five U.S. agreements include de minimis provisions within their customs chapters, including the agreements with Colombia, Oman, Panama, Peru, and Korea. With the exception of Panama, the de minimis provisions in each of these countries specify that customs

⁶⁰⁰ Oxford Economic Forecasting, *The Impact of the Express Delivery Industry*, September 2009, 4.

⁶⁰¹ Frontier Economics and the Global Express Association, *Express Delivery and Trade Facilitation*, January 2015, 12; Oxford Economics, *The Impact of the Express Delivery Industry*, September 2009, 17.

⁶⁰² CAFTA-DR was also the first U.S. trade agreement to include a section on trade capacity building.

⁶⁰³ U.S. industry representatives, interview by USITC staff, Washington, DC, September 21, 2015. See also U.S.-Chile FTA, Chapter 5: Customs Administration, Article 5.7, Express Shipments, https://ustr.gov/sites/default/files/uploads/agreements/fta/chile/asset_upload_file975_3999.pdf.

⁶⁰⁴ Countries set de minimis levels based on a cost-benefit analysis. This analysis compares the potential customs revenue from international shipments with the time and costs of customs compliance to shippers, traders, and customs and postal authorities. Hufbauer and Wang, "Logistics Reform for Low-Value Shipments," June 2011, 2.

duties and taxes will not be assessed on express shipments valued at \$200 or less.⁶⁰⁵ For Panama, this value is \$100 or less. In addition, all five agreements state that formal entry documents will not be required for express shipments valued at or below de minimis levels.⁶⁰⁶

Provisions on Competition with Postal Authorities

Several U.S. trade agreements contain a separate annex addressing competition between private express delivery firms and state-owned postal authorities in express services. In general, this annex is designed to ensure that the postal authorities of signatories do not abuse their monopoly position by providing preferential treatment “directly or through an affiliated company” in the provision of express delivery services.⁶⁰⁷ An example of abuse of a monopoly position would be a postal operator giving its own express delivery affiliate more favorable access to its postal network than an unaffiliated express delivery firm. The annex also specifies that the postal authorities of signatories must not use profits from their universal service obligation (USO) of letter and mail delivery to compete with private firms in express delivery services. Express industry representatives indicated that competition disciplines for state-owned postal authorities are important, especially when the postal monopoly also serves as the industry regulator.⁶⁰⁸ However, they also suggest that it is unclear whether rules designed to eliminate cross-subsidization between commercial and noncommercial activities by postal authorities are effective.⁶⁰⁹ Therefore, industry representatives stated that they are now broadly focused on ensuring that certain provisions in agreements help create an environment for private express firms and postal authorities to compete fairly—one in which, for example, the two entities are subject to the same customs procedures and de minimis levels.⁶¹⁰

⁶⁰⁵ In Korea, low-value, B2C e-commerce shipments such as apparel and clothing accessories, printed books, CDs, DVDs, and footwear must undergo formal customs procedures even if they are under de minimis levels. These customs procedures may create additional costs for online exporters of low-value items in the Korean market. DHL company website, “DHL South Korea Fact Sheet,” June 2014, <http://www.iberglobal.com/Archivos/DHL-South-Korea-Fact-Sheet.pdf>.

⁶⁰⁶ U.S. industry representative, email message to USITC staff, October 29, 2015; text of U.S. FTAs. In the United States, manifest information is required of all goods entering the country, regardless of value. In some cases, electronic pre-arrival information may be substituted for full manifest information, and the data requirements between these two may differ somewhat. Hufbauer and Wang, “Logistics Reform for Low-Value Shipments,” June 2011, 2, footnote 7.

⁶⁰⁷ See, for example, KORUS, Chapter 12: Cross-Border Trade in Services, Annex 12-B, Express Delivery Services. https://ustr.gov/sites/default/files/uploads/agreements/fta/korus/asset_upload_file315_12711.pdf.

⁶⁰⁸ USITC, transcript of the Ninth Annual Services Roundtable, November 5, 2015, 40.

⁶⁰⁹ U.S. industry representatives, interview by USITC staff, Washington, DC, September 21, 2015. Industry representatives stated that it would be difficult to determine whether a postal authority in an FTA partner country was engaging in cross-subsidization (i.e., to track down how it was using its USO funds).

⁶¹⁰ U.S. industry representatives, interview by USITC staff, Washington, DC, September 21, 2015.

Other Provisions

Apart from provisions on customs administration and postal monopolies, two other sets of provisions also benefit express delivery firms. These include (1) obligations of market access and national treatment for foreign services providers (found in each agreement's chapter on cross-border trade in services), and (2) provisions to protect foreign investment (found in the investment chapter).⁶¹¹ Industry representatives commented that market access provisions in trade agreements are important because they permit express firms to set up their own facilities abroad, enabling them to maintain the "end-to-end" control of items that they transport.⁶¹² In addition, by removing the joint venture and equity requirements often imposed on foreign firms, these provisions permit express providers to expand existing facilities in host markets as demand for their services grows. Separately, national treatment provisions protect foreign express firms from unfair or discriminatory treatment vis-à-vis private express providers in host markets.⁶¹³ At the same time, investment provisions give foreign express firms extra protection from government expropriation and include dispute settlement mechanisms for foreign investors.⁶¹⁴

⁶¹¹ National treatment obligations, defined under Article XVII of the WTO's General Agreement on Trade in Services (GATS), address the discriminatory treatment of foreign firms in host countries. These obligations concern competition between private entities. USITC, transcript of Ninth Annual Services Roundtable, November 5, 2015, 38; WTO, "Guide to Reading the GATS Schedules," n.d. (accessed December 2, 2015).

⁶¹² U.S. industry representatives, interview by USITC staff, September 21, 2015; U.S. industry representative, telephone interview by USITC staff, December 11, 2015. Express firms establish new facilities in an FTA partner country (or expand existing ones, e.g., through the acquisition of a joint venture partner) based on an increase in the demand for their services. The latter is stimulated by an expansion in merchandise trade with the FTA partner following a reduction in tariffs. For example, one study estimates that during the period 1998–2008, U.S. exports to FTA partners increased three times as fast as did U.S. exports to non-FTA partners. The analysis includes the following FTA partners: Australia, Bahrain, Canada, Chile, the Dominican Republic, El Salvador, Guatemala, Honduras, Israel, Jordan, Mexico, Morocco, Nicaragua, and Singapore. U.S. Chamber of Commerce, *Opening Markets, Creating Jobs*, 2010, 5, table 2: "Average Annual Growth of U.S. Merchandise Exports to FTA Partner Countries." It should be noted, however, that only a portion of U.S. exports would likely have been transported using express delivery services.

⁶¹³ U.S. industry representative, telephone interview by USITC staff, December 11, 2015.

⁶¹⁴ U.S. industry representatives, interview by USITC staff, Washington, DC, September 21, 2015. Investment and market access provisions in FTAs may also stimulate increased demand for local, intra-regional, and international express delivery services by U.S. firms and their newly established foreign affiliates, including those in the manufacturing sector. According to data from the U.S. Department of Commerce (USDOC) Bureau of Economic Analysis (BEA), exports by U.S.-based parent companies to their foreign affiliates exceed exports by U.S.-based firms to non-affiliated companies located abroad. Some high-value, low-weight exports (e.g., electronic components) may be shipped via express delivery, as may certain time-sensitive documents. USITC, hearing transcript, November 17, 2015, 159 (testimony by Linda Dempsey, NAM); U.S. industry representatives, interview by USITC staff, Washington, DC, September 21, 2015.

Impacts of the Agreements

According to express industry representatives, U.S. trade agreements have had positive, tangible effects on their business activity. For example, CAFTA-DR reportedly resulted in Guatemala's first commitments on the expedited customs clearance of goods shipped via air transport, while the U.S.-Peru agreement sharply reduced customs processing time for express shipments in Peru, which previously took up to four weeks.⁶¹⁵ Industry data also suggest that express shipments to certain U.S. trade agreement partner countries have increased over time, particularly in countries that have effectively applied de minimis provisions.⁶¹⁶ For some of these countries, the de minimis provisions have resulted in moderate to significant increases in U.S. exports and imports. However, U.S. merchandise trade transported by express firms has not increased with those countries that have either delayed implementation of de minimis provisions or have not applied these provisions effectively.⁶¹⁷

One study estimates that higher de minimis levels may have important benefits for international trade by decreasing export costs for low-value shipments, leading to a potential rise in cross-border sales, particularly by SMEs.⁶¹⁸ For SMEs, including those that sell via e-commerce, the time, costs, and know-how needed to complete customs paperwork may deter them from exporting abroad, especially in the case of low-value shipments. As a result, higher de minimis levels would likely encourage international sales by SMEs.

Available data on SME merchandise trade indicate that in 2013, the mean value of SME exports as a share of destination-country GDP was about four times larger for exports to U.S. trade agreement partner countries than for exports to non-partner countries, and the differences have been statistically significant since 2006. The mean value is even greater for U.S. trade agreement partners with express delivery provisions, but this difference is not statistically significant (box 4.3).

⁶¹⁵ USITC, hearing transcript, November 17, 2015, 64 and 102 (testimony of John Murphy, U.S. Chamber of Commerce).

⁶¹⁶ U.S. industry representative, email message to USITC staff, October 29, 2015.

⁶¹⁷ Data are for time-definite international deliveries in 2012 and 2014. Industry representative, email message to USITC staff, November 2, 2015.

⁶¹⁸ Hufbauer and Wang, "Logistics Reform for Low-Value Shipments," June 2011, 10, 30.

Box 4.3: Statistical analysis of the relationship between U.S. bilateral and regional trade agreements and SME merchandise exports

In 2013, the mean value of SME merchandise exports as a share of the GDP of the destination country was about four times higher for U.S. bilateral and regional trade agreement partners (0.036) than for non-partners (0.009) (appendix G, table G.2). The trade agreement partner group had a higher mean value for every year for which data are available (1996–2013), and the difference in the group means does not appear to be driven by a single country.^a The difference in the SME share of exports to U.S. trade agreement partner and non-partner countries became statistically significant in 2006^b and coincided closely with the inclusion of express delivery provisions in U.S. trade agreements, beginning with Singapore in 2004.

Further, since 2006, the mean value of SME exports as a share of destination-country GDP is higher for the group of U.S. trade agreements with express delivery provisions than for the group of agreements without such provisions (for example, 0.040 versus 0.026 in 2013). However, the difference is not statistically significant, according to a t-test.^c

Sources: U.S. Census, Profile of U.S. Importing and Exporting Companies, 2012–2013 (accessed November 24, 2015); Bergstrand and Baier, Database on Economic Integration Agreements, September 2015; World Bank, World Development Indicators (accessed January 5, 2016). For additional information, data sources and methodology, see appendix G.

^a For example, the difference in 2013 mean values is virtually unchanged if Canada—a natural export market for U.S. SMEs—is removed from the group of trade partner countries.

^b A formal t-test indicates that the group means are significant at conventional significance levels beginning in 2006, as shown in appendix G, table G.2.

^c In 2004, separately reported export data were available only for one trade agreement partner market whose agreement contained express delivery provisions (Singapore); in 2005 there were data for two with such provisions (Australia and Singapore); by 2013, there were data for six with such provisions (Australia, CAFTA, Chile, Colombia, Korea, and Singapore). Overall, the data contain three observations of trade partner countries whose agreements do not contain express delivery provisions (Canada, Mexico, and Israel).

As a growing number of SMEs participate in e-commerce, these firms will continue to benefit from customs provisions in trade agreements. To illustrate, industry representatives suggest that for online sellers, including SMEs, to successfully complete their e-commerce transactions, they must have access to reliable and cost-effective shipping and efficient customs procedures. The latter includes de minimis levels that do not impose disproportionate costs on either low-value shipments or returned merchandise.⁶¹⁹

⁶¹⁹ eBay Inc., *Commerce 3.0: Creating More Opportunity*, June 2013, 8–9; U.S. industry representatives, interview by USITC staff, Washington, DC, October 21, 2015.

Case Study 10: Telecommunications

In foreign countries, U.S. carriers focus on offering enterprise services to multinational corporations. The telecommunications chapters contained in U.S. trade agreements have improved the regulatory environment and enhanced the ability of U.S. enterprise carriers to negotiate with their counterparts in partner countries. The near-identical nature of telecom chapters in U.S. agreements has, over time, effectively established a best-practice regulatory framework, a benefit that is particularly important when that framework is incorporated into the telecommunications laws of large, commercially significant partner countries.

Industry Overview

In 2014, the United States was the world's largest single-country market for telecommunications services, accounting for roughly 17 percent of the global total.⁶²⁰ The U.S. telecom services market is relatively mature, with revenues derived from voice, data, and video services growing by 1.8 percent in 2014 to approximately \$371.8 billion, slightly faster than its average annual rate of 1.4 percent over the preceding four years. The top U.S. telecom service providers serving the domestic retail market, measured by 2014 revenues, are AT&T and Verizon, both of which offer a full suite of fixed-line (including Internet, data, and pay-TV) and mobile services.⁶²¹ Other leading providers in the U.S. retail market include CenturyLink and Frontier (which focus mainly on fixed-line services), as well as Sprint and T-Mobile (which focus mainly on mobile services).⁶²²

In foreign countries, U.S. carriers tend to concentrate on offering “enterprise services” to organizations that maintain offices in several countries, chiefly multinational corporations. Common enterprise services, most of which involve setting up corporate networks, include dedicated Internet access, virtual private network, Ethernet private line, and long-haul private line services. Although more than 20 U.S. carriers offer enterprise services, including several cable companies, most U.S. carriers focus on the U.S. market, leaving cross-border enterprise

⁶²⁰ USITC estimates based on data reported by the Telecommunications Industry Association (TIA). TIA, *TIA's 2015–2018 ICT Market Review*, 2015.

⁶²¹ The retail telecom services market focuses on offering telephone, text, and Internet services to individual consumers.

⁶²² A host of smaller companies are also active in the U.S. retail market, typically focusing on either fixed-line or mobile services and/or specific geographic regions; prominent examples include Cincinnati Bell, U.S. Cellular, and Windstream. Also, over the past 15 years, cable television companies have also moved into the U.S. retail telecom services market, focusing mainly on voice services and broadband Internet access; leading companies in this segment include Cable Vision Systems, Charter Communications, Comcast, and Time Warner Cable. Zino, *Industry Surveys: Telecommunications*, January 2016, 35–37; Business Monitor International, *United States Telecommunications Report Q1 2016*, December 2015, 33.

services to only a few players, mainly AT&T, CenturyLink, GTT, Level 3, Sprint, Verizon, and XO Communications.

U.S. carriers primarily offer enterprise services to clients in foreign countries—including U.S. clients with foreign operations—through in-country affiliates.⁶²³ In 2011, the most recent year for which data are available, the total sales of U.S. telecom companies through their affiliates in foreign countries totaled \$33.9 billion dollars.⁶²⁴ By contrast, in 2013, the sales of foreign telecom companies to U.S. citizens and enterprises through their affiliates in the United States totaled \$73.4 billion.

Telecommunications Services Commitments

In the early to mid-1990s, many countries around the world debated the proper mix of regulatory policies and guidelines that would enable the telecommunications industry to more fully fulfill its role as a facilitator of global trade and finance.⁶²⁵ At the global level, negotiations pertaining to telecom liberalization occurred as part of the WTO's General Agreement on Trade in Services (GATS). The first phase of negotiations (1986–94) took place as part of the Uruguay Round, producing specific commitments on value-added services as well as the GATS Annex on Telecommunications.⁶²⁶ However, due to the limited nature of the commitments undertaken during the Uruguay Round negotiations, trade ministers decided to extend the negotiations pertaining to basic telecommunication services, creating the Negotiation Group on Basic Telecommunications in 1994 to carry out such negotiations.⁶²⁷ A second round of telecom negotiations began in 1994. After more than two years of negotiations, 69 countries signed the Agreement on Basic Telecommunications (ABT) in February 1997.

Under the ABT, all signatory countries adopted some commitments opening their telecom services markets, with most countries improving upon their Uruguay Round commitments. In addition to value-added services, commitments were made in all basic telecommunications services (in both market access and national treatment categories) by both developed and

⁶²³ Telecom services are traded between countries in two main ways: as cross-border trade between countries—most commonly payments for connecting international telephone calls and roaming on foreign networks—and as affiliate sales, or the domestic sale of telecom services in one country by an affiliate of a telecom services company headquartered in another country.

⁶²⁴ A large portion of the data pertaining to U.S. sales and purchases of telecommunications services through foreign affiliates is suppressed by the BEA to avoid disclosing the data of individual companies; the suppression of virtually all country-level sales/purchases through affiliates leaves insufficient data to meaningfully analyze in this case study. The suppression of this data likely indicates that only one or two companies operate in most countries and that, as a result, the dollar amounts of such sales/purchases are relatively small.

⁶²⁵ Roseman, "The WTO and Telecommunication Services in China," 2005, 26.

⁶²⁶ The GATS Annex on Telecommunications required WTO members to ensure access to and use of public telecommunications networks and services.

⁶²⁷ Sherman, "'Wildly Enthusiastic' About the First Multilateral Agreement," 1998, 66.

developing countries. Most countries also agreed to a set of pro-competitive regulatory principles, in whole or in part, contained in the so-called “reference paper.” Although each country’s schedules contained different combinations of commitments, exemptions, and phase-in timetables representing varying degrees of openness, the broad thrust of the ABT required countries to open their markets to foreign competition and to allow foreign companies to purchase stakes in domestic telecom providers. Once a foreign company entered a member’s telecom market, the reference paper required the government to establish an independent regulator, issue licenses in a transparent and nondiscriminatory way, adopt competitive safeguards, and ensure that incumbent telecom suppliers allowed new entrants to connect to their networks, among other actions.⁶²⁸

Subsequent U.S. bilateral and regional trade agreements each contained a telecommunications chapter. The provisions of these chapters—which are based upon the United States’ Telecommunications Act of 1996—were introduced in the U.S. Singapore agreement and repeated (more or less verbatim) in all subsequent agreements.⁶²⁹ These chapters include a large number of provisions which both expand and deepen the pro-competitive regulatory principles first codified in the WTO reference paper (see box 4.4).

Box 4.4: Telecommunications Chapters of U.S. Bilateral and Regional Trade Agreements

All telecom chapters in U.S. trade agreements—ranging from the U.S.-Singapore agreement to KORUS—require each party to ensure that enterprises of the other parties have access to and use of any public telecommunications service offered in its territory and/or across its borders on reasonable and nondiscriminatory terms and conditions.^a The chapters also obligate all suppliers of public telecommunications services to provide network interconnection, number portability, dialing parity, and access to telephone numbers to suppliers of the other party on reasonable and nondiscriminatory terms and conditions. The so-called “major suppliers” of each party are also subject to additional obligations.^b

Specifically, major suppliers are required to offer telecommunications services to suppliers of the other party on terms and conditions no less favorable than those accorded to its own subsidiaries, affiliates, and nonaffiliated service suppliers, particularly as regards the availability, provisioning, rates, and quality of such services. Major suppliers also face obligations related to anticompetitive practices, services resale, network unbundling, network interconnection, leased circuits, colocation, and access to rights of way (poles, ducts, and conduits) and submarine cable landing stations.

The telecom chapter provisions also commit the parties to ensure the independence of their respective telecommunications regulatory bodies, including the requirement that all regulatory decisions and procedures be impartial with respect to all market participants. The parties are also required to endow the regulator (or other government body) with the authority to enforce the obligations in the telecom chapter, including the ability to impose effective sanctions, and to ensure an effective dispute resolution process, including the right to appeal and judicial review. Finally, the telecom chapters require the

⁶²⁸ Braga, “Liberalizing Telecommunications,” July 1997, 1; Jin, “The Telecom Crisis and Beyond,” May 19, 2005.

⁶²⁹ See 47 U.S.C. Sections 251/252; ITAC 8, *The Trans-Pacific Partnership Trade Agreement*, December 3, 2015.

parties to maintain transparent and nondiscriminatory procedures related to licensing, allocation and use of scarce resources, universal service requirements, and dispute resolution.

^a The U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia FTA, CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, and KORUS.

^b “Major supplier” is defined as a supplier of public telecommunications services that has the ability to materially affect the terms of participation (regarding price and supply) in the relevant market for such services due to (1) control over essential facilities or (2) use of its position in the market.

Impacts of ABT and U.S. Trade Agreement Commitments

The main benefit of the ABT and subsequent U.S. bilateral and regional trade agreements on the U.S. telecom industry has been to establish a regulatory environment (in partner countries) that is more conducive to market entry and ongoing operating activities.⁶³⁰ Indeed, U.S. trade agreement telecom obligations required signatories to adopt a best-practice regulatory framework for the provision of telecommunications services. Important obligations included requirements for an independent regulator; dispute resolution procedures; transparency; technological neutrality; and regulatory forbearance.

By locking in telecom reform and prohibiting backsliding, the obligations imposed by the telecom chapters also helped create regulatory certainty, an important factor behind the investment decisions of some U.S. enterprise carriers.⁶³¹ Such certainty was mostly positive, with the telecom obligations being seen as promoting the rule of law, encouraging the development of pro-competitive regulatory procedures and practices, and limiting unpleasant surprises in partner countries. On the other hand, the telecom chapters also locked in certain anti-competitive rules and regulations, frequently foreign equity caps.⁶³²

At the operational level, the obligations imposed by the various bilateral and regional trade agreements likely made it easier for enterprise carriers to operate in partner countries and deal with in-country carriers, particularly incumbent carriers, as they followed their clients into new countries over the past decade.⁶³³ Colocation obligations, for example, likely made it easier to establish a point of presence (POP) in partner countries,⁶³⁴ a process which involves locating

⁶³⁰ Due to the lack of trade data and of academic and industry literature, this case study relies on interviews with industry participants to discuss the impact of U.S. trade agreements on the U.S. telecommunications industry. U.S. industry representative, interview by USITC staff, Washington, DC, March 10, 2016; U.S. industry representative, telephone interview by USITC staff, March 18, 2016.

⁶³¹ U.S. industry representative, interview by USITC staff, Washington, DC, February 2, 2016; U.S. industry representative, telephone interview by USITC staff, March 18, 2016.

⁶³² U.S. industry representative, telephone interview by USITC staff, March 18, 2016; U.S. industry representative, interview by USITC staff, Washington, DC, February 2, 2016.

⁶³³ U.S. industry representative, telephone interview by USITC staff, March 18, 2016.

⁶³⁴ Ibid.

telecommunications equipment in (or near) established Internet exchange points, network access points, local offices, and other premises where in-country telecommunications providers place routers, switches, bridges, multiplexers, and other telecommunications equipment. Once a POP was established, U.S. carriers also needed to connect their business customers to the POP, often by using the existing local network(s) and, ultimately, connect the POP to their international network, typically at a submarine cable landing station.⁶³⁵

As a result, it is probable that obligations requiring access to network facilities have improved the negotiating position of U.S. enterprise carriers. Such beneficial obligations likely included (1) requirements for in-country carriers to connect with U.S. enterprise carriers (specifically interconnection obligations); (2) requirements allowing U.S. carriers to access and use local and long-distance networks (e.g., obligations related to resale; unbundling of network elements; and provisioning and pricing of leased circuits); (3) requirements allowing U.S. carriers to access rights of way for the purpose of constructing their own networks (mainly access to poles, ducts, conduits); and (4) requirements allowing U.S. carriers to access submarine cable stations.⁶³⁶

The introduction of a best-practice regulatory framework in the first telecom chapter in a trade agreement (the U.S.-Singapore agreement), and the near-verbatim repetition of that chapter in subsequent agreements, also set a precedent for U.S. trade agreement telecom chapters, the importance of which depended on the size and commercial significance of partner countries.⁶³⁷ U.S. carriers benefited not only from the specific provisions of the telecom chapters, but also from the agreements in their entirety, mainly due to the fact that these agreements likely made it easier for their multinational corporation clients (in a wide variety of industries) to enter new country markets (or to increase their sales in countries in which they already operated). These business activities boosted demand for enterprise services and encouraged enterprise carriers to establish POPs and network facilities in new geographic markets and/or expand their facilities in existing markets.⁶³⁸

⁶³⁵ U.S. industry representative, interview by USITC staff, Washington, DC, February 2, 2016.

⁶³⁶ U.S. industry representative, telephone interview by USITC staff, March 18, 2016.

⁶³⁷ U.S. industry representative, interview by USITC staff, Washington, DC, March 10, 2016; U.S. industry representative, telephone interview by USITC staff, March 18, 2016.

⁶³⁸ U.S. industry representative, interview with USITC staff, Washington, DC, June 18, 2015; U.S. industry representative, telephone interview with USITC staff, March 18, 2016.

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Chapter 5

The Impacts of Trade Agreements on the U.S. Economy: A Literature Review

Overview

The academic literature that assesses the effects of trade agreements is broad in scope, investigating a variety of economic linkages and gauging the size of their effects on the countries involved.⁶³⁹ This chapter provides an overview of this literature, with a special emphasis on estimating these agreements' effects on trade flows, gross domestic product (GDP) and welfare, employment and wages, and the U.S. industries most directly impacted. It focuses on economic research published since 2002 that is empirical rather than theoretical. This chapter offers an introduction to the quantitative estimates found in the literature and provides a basis for comparing and contrasting recent findings against the results of the economic models developed by the Commission, as reported in chapter 3.

The chapter builds upon previous Commission retrospective reports on the impact of trade agreements that were published in 2003 and 2005 (hereafter USITC 2003 and USITC 2005).⁶⁴⁰ It starts by summarizing the findings from the literature review in the 2003 report and the Commission's own quantitative modeling in the 2003 and 2005 reports. Next, it summarizes a debate that has extended over the past 12 years about the way countries' membership in the General Agreement on Tariffs and Trade (GATT) and World Trade Organization (WTO) has influenced the volume of international trade. Then it describes several statistical and economic models that have been developed to estimate the impact of bilateral and regional trade agreements on trade flows.⁶⁴¹ Finally, it discusses the branch of the literature that analyzes the effects of specific U.S. bilateral and regional trade agreements.

Overall, the retrospective studies in the economics literature, even the most recent, have focused on the earlier agreements that involve more than two countries: the Uruguay Round

⁶³⁹ Figure 1.1 (chapter 1) lists the U.S. agreements covered in this report. Also see chapter 1 (footnote) for links to full texts of these agreements.

⁶⁴⁰ USITC, *The Impact of Trade Agreements: Effect, 2003*; USITC, *The Impact of Trade Agreements Implemented, 2005*.

⁶⁴¹ The tools most often used for analysis in these studies are gravity models and computable general equilibrium (CGE) models. For more details on their structure and differences between the models, see USITC 2003.

Agreements (URAs) and NAFTA. This focus reflects the fact that it takes time to build a historical record, for the provisions of the trade agreements to phase in, and for the adjustments of the economies involved to become visible. As will be seen, only a small number of retrospective studies specifically address the remaining U.S. bilateral and regional trade agreements.

The principal findings from the literature since 2002 are as follows:

- The effectiveness of membership in the WTO/GATT system, which evolved through the URAs, as a means of increasing trade is heavily debated in the literature. Estimates of increases in members' trade flows that can be attributed to these agreements range from 16 percent to 277 percent.
- There is little agreement on estimates of the average effects of bilateral and regional trade agreements. The most cited research shows that on average, bilateral and regional trade agreements across the world have led to an increase of 30 percent to 114 percent in each partner's trade over a 10 year period after an agreement has entered into force.
- Estimates on the impacts of NAFTA on the U.S. economy vary by state and industry. Studies indicate that high-value-added industries and the states in which they are located have seen larger growth in wages than industries and states with high concentrations of blue-collar employment. Effects also vary by employees' education, with high-school dropouts experiencing slower wage growth than college graduates.
- Although the United States has generally benefited from its trade agreements, the size of these gains has largely depended on the size of the economies of the agreement partners, the composition of individual agreements, the levels of trade barriers in place before the agreement, and how extensively those barriers were liberalized.

In addition to the discussions in this chapter, chapters 2, 3, and 4 incorporate summaries of economic studies bearing on the agreements' provisions, their economic effects, and their impact on selected U.S. industries. This literature is closely tied to the material in each chapter and hence is not covered here. For example, the literature on the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and on the impact of trade agreements on foreign direct investment (FDI) is principally discussed in the parts of chapters 2 and 3 that address these topics.

As mentioned earlier, the chapter focuses on economic research published after 2002 that is empirical, rather than theoretical. However, several branches of the economic literature address the impacts of trade agreements are not covered here. First, studies that present prospective analyses of the effects of the trade agreements are generally not covered in this chapter, though some are included in cases where there are few or no retrospective studies. Second, the review primarily cites peer-reviewed literature and reports published by

government agencies; it does not include the numerous reports and studies prepared by political interest groups. However, in cases where supplementary material is needed, high-quality unpublished working papers are included. Third, the review focuses on analyses of the impacts of the agreements on economic outcomes such as GDP, employment, and trade flows, and not on analyses of non-economic effects such as the geopolitical or environmental consequences of the trade agreements. Finally, relevant studies published before 2002 were already discussed at length in the Commission's 2003 retrospective report and hence are not included in this chapter.⁶⁴²

Findings from Previous USITC Retrospective Reports on the Trade Agreements

As mentioned earlier, this report is preceded by two Commission reports that analyzed the impact of U.S. trade agreements after they had entered into force.⁶⁴³ These analyses are discussed in two parts: (1) the findings from the USITC 2003 literature review, and (2) the impact estimates from USITC 2003 and USITC 2005, which were calculated through simulations and modeling by the Commission.⁶⁴⁴ The literature review in USITC 2003 generally revealed that trade agreements have a positive impact on trade, economic growth, and the variety of traded goods. Though the methodology differed for the simulations reported in the 2003 and 2005 reports, the principal findings were similar, showing positive welfare effects of the agreements under consideration.⁶⁴⁵

⁶⁴² Commission studies that detail the potential economic effects of trade agreements before they have been signed are also not covered in this chapter. However, an overview of the findings in the Commission's public studies is presented in appendix H.

⁶⁴³ USITC 2003; USITC 2005.

⁶⁴⁴ USITC 2005 did not contain a literature review. These prior reports cover the effects of the Tokyo Round of trade negotiations, NAFTA, the Uruguay Round, and FTAs with Israel, Canada, Singapore, Chile, and Australia.

⁶⁴⁵ USITC 2003 covers the effects of the Tokyo Round of trade negotiations, the U.S.-Israel FTA, CUSFTA, NAFTA, and the Uruguay Round Agreements; USITC 2005 covers the effects of FTAs with Singapore, Chile, and Australia.

Literature Review Findings in the 2003 Retrospective Report

The Commission's 2003 retrospective report provided an extensive review of the literature, including a broad background discussion of the different ways that trade affects the U.S. economy. In contrast, the literature review in the present report is more narrowly focused on the impact of U.S. trade agreements. The primary findings of the literature review in USITC 2003 are as follows:⁶⁴⁶

- Trade between the United States and Mexico has increased in both directions as a result of NAFTA.
- Relaxing trade restrictions is linked with faster economic growth. The underlying driver of this expansion is the increased output of higher-productivity firms that choose to export after trade liberalizations are implemented.
- The increases in international trade flows, especially in the case of NAFTA, consist of an expansion both in the variety of goods traded and in the volume of the goods that were already being traded.⁶⁴⁷
- Tariff reductions account for 25 to 50 percent of the growth in world trade.⁶⁴⁸

Original Quantitative Analysis in the Earlier Retrospective Reports

USITC 2003 and USITC 2005 both used computable general equilibrium (CGE) models to estimate the impact of the agreements that they covered. However, the models for these simulations used different approaches. USITC 2003 used a counterfactual scenario that simulated the state of the economy in 2001 (as well as in earlier years for which there are data) after reimposing quantifiable trade restrictions that had been eliminated by each trade agreement.⁶⁴⁹ The simulations in USITC 2005, on the other hand, are prospective analyses: they are simulations that estimate the long-run impacts of the three agreements implemented between 2003 and 2005.⁶⁵⁰ This methodology was chosen because too little time had passed since the agreements' entry into force for a record to develop that would adequately reflect their effects.

⁶⁴⁶ USITC 2003, 93, 100, 113, 128.

⁶⁴⁷ In the literature, changes in the variety of goods traded are referred to as changes in the "extensive margin" of international trade.

⁶⁴⁸ The papers that lead to this finding base results on multiple time periods. Generally, this estimate applies to trade growth between the 1960 and 1999.

⁶⁴⁹ Quantifiable trade restrictions are "tariffs and those non-tariff barriers that have been quantified in publicly available data sources." USITC 2003, 325.

⁶⁵⁰ The three agreements are the U.S.-Australia, U.S.-Chile, and U.S.-Singapore FTAs.

Both sets of results are presented in terms of changes in U.S. economic welfare. This measure can be interpreted as the change in the purchasing power of Americans that results from a change in incomes and prices. Table 5.1 provides the results for welfare and aggregate imports from these studies.

Table 5.1: Model results from USITC 2003 and USITC 2005^a

Modeled outcome and agreement	U.S. change (billion \$)
Welfare^b	
U.S.-Israel FTA	0.3
NAFTA ^c	13.5
Uruguay Round Agreements	20.4
U.S.-Australia, U.S.-Chile, and U.S.-Singapore FTAs combined	0.5
Total	34.8
Aggregate imports^b	
U.S.-Israel FTA	0.8
NAFTA ^c	36.1
Uruguay Round Agreements	64.1
U.S.-Australia, U.S.-Chile, and U.S.-Singapore FTAs combined	1.3
Total	102.4

Source: USITC 2003; USITC 2005.

^a Estimates for the U.S.-Israel FTA, the Uruguay Round Agreements, and NAFTA are from USITC 2003. Estimates for the U.S.-Australia, U.S.-Chile, and U.S.-Singapore FTAs are from USITC 2005.

^b Estimates for the U.S.-Israel FTA, the Uruguay Round Agreements, and NAFTA represent reductions in welfare and aggregate imports that the United States would face in 2001 (in 1996 dollars) had these agreements never been implemented. Estimates for the U.S.-Australia, U.S.-Chile, and U.S.-Singapore FTAs are long-run annual impacts.

^c USITC 2003 models the effect of NAFTA as “the effect of Mexican policy changes and U.S. policy changes with respect to Mexico.” To include Canada, the value reported here (\$13.5 billion) includes USITC 2003’s estimate for the effect of CUSFTA. USITC 2003, 333.

Beyond the estimates in table 5.1, USITC 2005 estimates that the Australia, Chile, and Singapore agreements together would lead to an increase in total U.S. exports of \$1.8 billion (0.2 percent).⁶⁵¹ The model used in USITC 2005 assumes a fixed labor supply in the United States, an assumption that ruled out measuring effects on total employment. However, the report does estimate that the three trade agreements would increase the average wage in the United States by 0.01 percent.⁶⁵²

The Uruguay Round and the World Trade Organization

Signed in 1994, the URAs triggered a significant restructuring of the global trade environment. Encompassing 123 different contracting countries, the URAs replaced quantitative restrictions

⁶⁵¹ USITC 2003 did not present estimates of the impact of trade agreements on U.S. aggregate exports. Total imports are on a landed duty-paid basis, while total exports are on a free-on-board basis. USITC 2005, 5-8.

⁶⁵² USITC 2005, 5-17.

on trade with agricultural goods with tariff equivalents (a process known as “tariffication”); instituted frameworks on trade in intellectual property, trade in services, and FDI; established the WTO as a means of oversight; and laid the foundation for product-specific agreements that are discussed in more detail in other chapters.⁶⁵³

One of the earliest and broadest-reaching of the agreements covered in this report, the URAs tended to have significantly larger impacts than the bilateral and regional trade agreements. Their estimated impacts include the effects of multiple agreements and concessions. Chapter 3 provides estimates and reviews literature on the impacts of individual agreements concluded under the URAs, including the effects of the TRIPS, the Information Technology Agreement (ITA), the “zero-for-zero” concessions on steel products, and the Agreement on Textiles and Clothing (ATC).

This section reviews the economic literature since the early 2000s that has focused on the effects of signing the URAs and joining the WTO on countries’ trade. Although the establishment of the WTO was a part of the Uruguay Round, the literature makes a distinction between the two; the Uruguay Round was a multilateral event with a fixed set of signatories, whereas the WTO is an organization where membership—a means to gain access to Uruguay Round disciplines—can be expanded to nonmembers willing to make the needed commitments as part of their accession agreements.

For WTO membership, the literature showcases how the range of estimated effects can depend on the underlying methodology and data, including the way WTO membership is defined and the inclusion or exclusion of zero trade flows in the data. For example, as described below, countries can be classified as formal or informal WTO members, and these classifications affect which countries are included in the analysis and hence its outcome. This section also discusses literature on the effect of the URAs on litigation and antidumping petitions, and how trade liberalization in the URAs is related to later trade liberalization.

Impacts of the Uruguay Round and the WTO

The most recent estimates of the URAs’ impacts come from Brown, Deardorff, and Stern (2002), which offers a prospective analysis projecting how the economy in 2005 would look *absent* the URAs. The authors find that the URAs would lead to an increase in global welfare of \$73 billion in 2005.⁶⁵⁴ For the United States, welfare would increase by \$19.8 billion. The

⁶⁵³ Impacts from the URAs are covered in other chapters as well. For example, the Agreement on Textiles and Clothing is covered in chapters 2 and 3, the Information Technology Agreement is covered in chapter 3, and the agricultural sector agreements are covered in chapter 2.

⁶⁵⁴ Brown, Deardorff, and Stern, "Computational Analysis of Multilateral Trade Liberalization," 2002. This article was published after USITC 2003 was written.

authors also estimate that the URAs would increase U.S. imports by \$18.9 billion; U.S. exports, by \$17.9 billion; and real U.S. wages, by 0.2 percent. Since the model assumes that employment is held constant within each country in the model, estimated effects on employment were limited to reallocations across sectors of the economy, with no aggregate impacts.⁶⁵⁵ The authors estimate that in the United States, the apparel sector and the textiles sector would experience some of the largest increases in imports (26.4 percent and 8.4 percent, respectively) and the largest decreases in employment (97,000 employees and 32,000 employees, respectively). The trade and transport sector and the other private services sector would experience the largest increases; 34,600 employees and 30,100 employees, respectively. These increases in the model follow from changes in each industry's production as buyers of goods and services adjust their sourcing decisions, from domestic to foreign suppliers, in response to reductions in tariffs and other trade barriers.⁶⁵⁶

The impact of membership in the WTO has been the subject of an extensive debate in the academic economics literature. As mentioned earlier, the literature treats impacts of the URAs and WTO separately.⁶⁵⁷ Estimates of the WTO's impacts focus on the changes to trade flows between countries, both after the WTO was first established and as it has expanded. This differs from estimates of the URAs' impacts, which focus on the concessions made by countries that initially signed the URAs. Table 5.2 summarizes key studies and their results, and a more detailed explanation follows. Although the results and discussion that follow are presented in chronological order, the more recent papers and results could be given more weight, since they incorporate newer datasets and improved versions of the gravity model. With this in mind, it is likely that the effect of joining the WTO system on trade flows amounts to an increase of between 50 and 100 percent.

⁶⁵⁵ This restriction is common in CGE models.

⁶⁵⁶ Brown, Deardorff, and Stern, 2002, 4.

⁶⁵⁷ Studies may report estimates of the impact of both the WTO and the URAs. Because of the varying time periods that are covered in these studies, some report just the effect of the WTO, and others report the combined effect of the GATT and the WTO.

Table 5.2: Impacts of GATT/WTO membership on trade flows

Paper	Trade data coverage	Details of the gravity model used	Effect of GATT/WTO membership on trade flows ^a
Rose (2004a)	178 IMF trading entities; 1948–99.	Multiple models used.	Generally found no effect.
Subramanian and Wei (2007)	172 IMF member countries; 1950–2000.	Panel model with country fixed effects.	Increase of 147-195 percent.
Goldstein, Rivers, and Tomz (2007)	161 countries; 1946–2004.	Panel model with country fixed effects.	Increase of 41 percent.
Liu (2009)	210 countries; 1948–2003.	Panel model with country-pair fixed effects controlling for zero trade.	Increase of 60 percent.
Chang and Lee (2011)	Same as Rose (2004a).	Panel pair-matching model.	Increase of 74–277 percent.
Herz and Wagner (2011)	184 countries; 1953–2006.	Panel with country fixed effects controlling for zero trade.	Increase of 86 percent.

Sources: Rose, "Do We Really Know That the WTO Increases Trade?" 2004; Subramanian and Wei, "The WTO Promotes Trade, Strongly but Unevenly," 2007; Goldstein, Rivers, and Tomz, "Institutions in International Relations: Understanding the Effects," 2007; Liu, "GATT/WTO Promotes Trade Strongly: Sample Selection," 2009; Chang and Lee, "The WTO Trade Effect," 2011; Herz and Wagner, "The 'Real' Impact of GATT/WTO," 2011.

^a Results represent changes in bilateral trade flows for two countries that are both GATT/WTO members.

The debate started with Rose (2004a), who developed multiple models that estimate that membership in the WTO and its predecessor, the GATT, does not generate a significant amount of additional trade among its members. However, in one model specification he finds that pairs of countries that are both part of the GATT/WTO trade 16 percent more than pairs of countries that are not. As a continuation of this research, Rose (2004b) searches for evidence that membership in the GATT/WTO leads to more open trade policy.⁶⁵⁸ Surveying over 60 measures of trade policy, he finds no discernible difference when comparing measures of tariff rates, nontariff barrier coverage, price-based measures, and openness between GATT/WTO members and nonmembers.⁶⁵⁹

These two studies led to a series of rebuttals that challenged Rose's findings. Foremost of these, Subramanian and Wei (2007) use a gravity model specification different than the one used by Rose (2004a), as well as a different definition of membership in the WTO.⁶⁶⁰ They estimate that the WTO system increased world imports by about \$8 trillion in the year 2000 alone (compared to a counterfactual scenario where the system does not exist).⁶⁶¹ In contrast

⁶⁵⁸ Rose, "Do WTO Members Have More Liberal Trade Policy?" 2004.

⁶⁵⁹ Rose, 2004b, 231.

⁶⁶⁰ The authors define WTO membership such that countries that are a part of the same FTA or customs union agreement, or that are involved in General System of Preferences relationships, are not considered members in order to avoid "contamination" with each other. Subramanian and Wei, 2007, 9.

⁶⁶¹ Subramanian and Wei note that their estimate is "probably overstated." Subramanian and Wei, 2007, 16.

to Rose (2004a)'s negligible change in trade due to WTO membership, Subramanian and Wei estimate that the gain is between 147 and 195 percent.⁶⁶² However, they find that the gains are unevenly distributed; the WTO increases trade between industrialized countries, but not between developing countries.

Goldstein, Rivers, and Tomz (2007) analyze formal and informal membership in the GATT/WTO and find that the GATT/WTO increased trade by 41 percent between country-pairs that were formal members, and by 46 percent when one country was a formal member and the other was a nonmember participant.⁶⁶³ The authors also separately estimate the effects of the different rounds of negotiation. For the URAs, Goldstein, Rivers, and Tomz find that when both countries participate in the WTO, trade is higher by 10.0 percent, while when one country participates, trade is higher by 2.0 percent.

Liu (2009) contends that previous works have not properly accounted for zero trade flows and may suffer from sample selection bias. Using a model specification that allows for both positive and zero trade flows, Liu finds that two countries that are GATT/WTO members trade 60 percent more than in cases where neither country is a member. Alternatively, if only one country is a member, they still trade 23 percent more than if neither is a member. When disentangling the effects of the WTO from those of other trade negotiation rounds since 1948, Liu finds that the WTO had a positive effect on trade between members when trade flows existed beforehand; however, it did not have a notable effect when country pairs with zero pre-accession trade flows were included in the model.

Chang and Lee (2011) extend the debate by applying different estimation methods to the dataset from Rose (2004a). They estimate an increase in trade of 74 percent to 277 percent for country pairs that are both a part of the GATT/WTO and increases of 39 percent to 115 percent when only one country is a member of the GATT/WTO.⁶⁶⁴

Finally, Herz and Wagner (2011) attempt to pull together what they believe are the most useful pieces of the previous literature into their gravity model specification, while compensating for what they believe to be weaknesses in the previous work (e.g., data coverage, choice of estimation model). The authors estimate that the GATT/WTO increases trade between two

⁶⁶² Subramanian and Wei, 2007, 33. These estimates are the most directly comparable from Subramanian and Wei (2007) to those from Rose (2004a). They are specific to trade between importers that are industrialized countries and members of the WTO.

⁶⁶³ The authors define "nonmember participants" in the GATT/WTO as nonmembers that are bound by GATT/WTO rules and have obtained GATT/WTO privileges. This status was obtained by being a colony of a formal member, participating as a newly independent nation, and provisional accession. Goldstein, Rivers, and Tomz, 2007, 53.

⁶⁶⁴ Specifically, the authors use pair-matching methods which allow them to compare data observations that have a different status with respect to the GATT/WTO, but are otherwise comparable. Estimation is then performed upon different sets of matched observations. Ranges of estimates are provided that correspond with the best 100, 80, 60, and 40 percent of matched pairs. Chang and Lee, 2011, 60.

members by 86 percent, on average. They also find that exports from GATT/WTO members to nonparticipants increase by 31 percent, while imports by GATT/WTO members from nonparticipants increase by 48 percent.

Box 5.1: Other impacts of the Uruguay Round

In addition to the easing of tariffs and quantitative restrictions, the URAs had a myriad of other effects, several of which have been transformational for international trade. One of the most notable is that the Dispute Settlement Understanding (DSU) restructured the process under which trade disputes are settled between WTO members, and established a binding resolution process that included trade retaliation for failure to comply with panel decisions.^a This new system was designed to be more efficient in terms of costs and time to reach a binding settlement. Grinols and Perelli (2006) explore whether the changes implemented by the DSU have caused more disputes.^b They develop a game-theory model of two WTO members and find that the decreases in litigation costs imply more decisions of one country to infringe on its WTO obligations to the other, which leads to more cases of dispute litigation. In analyzing the data on trade disputes, the authors estimate that the WTO changes led to a 30–37 percent increase in cases. In general, the cases that were handled by the WTO concluded significantly faster, on average, than under the GATT. Estimates also show that disputes with larger opponents led to relatively longer periods of litigation, although still shorter than under the GATT.

Effects on the amount of litigation were also found by Feinberg and Reynolds (2007) regarding filing of antidumping petitions. (In antidumping cases, a country—the host market—claims that foreign firms are selling goods in the host market at a price below fair value, causing material injury to the domestic industry.^c) Following the changes to the Antidumping Code under the URAs, there was a significant increase in both the number of cases and the number of countries where these cases were brought.^d Analyzing a database of antidumping filings by WTO members from 1995 to 2003, the authors concluded that tariff reductions under the URAs increased the probability that a country would use antidumping protections, as well as increasing the number of antidumping petitions filed overall. They estimate that in 2003 (the end of their sample period), a 1 percent reduction in tariffs led to a 3.5 percent increase in the “predicted number of petitions filed by a country in a particular industry sector.”^e Feinberg and Reynolds also estimate that a 1 percent decrease in an industry sector’s average tariff increased the probability of a country filing at least one antidumping petition by 6.8 percent.^f

A notable achievement of the URAs is that they provided a new and expanded template for future agreements by addressing topics such as intellectual property, investment, and tradable services.^g Regarding tariff reductions, Fugazza and Robert-Nicoud (2014) found that products with the largest tariff cuts by the United States under the URAs were more likely to be given immediate duty-free access in subsequent U.S. trade agreements.^h They estimated that for each percentage point cut on a tariff for a particular good under the URAs, there was a 22.7 percent increase in the probability that the good would receive immediate duty-free access to the U.S. market for all of the United States’ post-URA trade agreement partners analyzed.ⁱ

^a For more information about dispute settlements, see WTO, “Understanding the WTO: Settling Disputes” (accessed April 27, 2016).

^b Grinols and Perelli, “The WTO Impact on International Trade Disputes,” 2006.

^c Feinberg and Reynolds, “Tariff Liberalisation and Increased Administrative Protection,” 2007.

^d For example, U.S. exporters faced 139 such cases from agencies representing 20 countries (with the EU considered one country) from 1995 to 2003. The establishment of new enforcement agencies has nearly tripled the number of countries initiating antidumping cases between the late 1980s and 2007. Feinberg and Reynolds (2007), 949.

^e Feinberg and Reynolds (2007), 959.

^f Tariff reductions in Feinberg and Reynolds (2007), 950, refer to the reductions countries agreed to under the URAs and implemented by 1999.

^g There have been a significant increase in bilateral and regional FTAs. Prior to the WTO Marrakesh Agreement in 1994, there had been 38 FTAs notified to the GATT, whereas today there are 454, of which 267 are currently in force. See WTO website, Regional Trade Agreements.

^h Fugazza and Robert-Nicoud, "The 'Emulator Effect' of the Uruguay Round," 2014.

ⁱ The trade agreement partners included in the estimate are Jordan, Chile, Singapore, Morocco, Bahrain, Australia, and the CAFTA-DR countries.

Broad Impacts of the Bilateral and Regional Trade Agreements

This section summarizes the branch of the literature that estimates the effects of bilateral and regional trade agreements in general, rather than focusing on specific agreements (e.g., U.S. trade agreements). These studies combine industries, agreements, and countries over time to estimate average effects of the policy changes and usually focus on the impact on trade in goods. The most seminal paper in the recent period is that of Baier and Bergstrand (2007), who find that the impact of trade agreements on trade flows was systematically underestimated in prior literature. The prior literature had implicitly assumed that a country's decision to enter into a trade agreement was not related to the factors that determined the volume of international trade.⁶⁶⁵ More recent studies attempt to incorporate the idiosyncrasies that are specific to individual trade agreements, such as whether or not provisions in an agreement build upon the WTO's mandate. It is unclear which estimates are the most accurate; the results of each study are highly dependent on the time period covered, the countries analyzed, and the methods used to evaluate the effects of bilateral and regional trade agreements.

Impacts of Trade Agreements on Trade Flows

Among the substantial variation in estimates from different studies, Baier and Bergstrand's work (2007) stands out as one of the most cited.⁶⁶⁶ The authors' use of the gravity model of bilateral trade for many countries and years allowed them to correct for potential downward statistical bias in the estimated effects of the agreements. When they apply a more traditional gravity model to this dataset, Baier and Bergstrand find that over 10 years, a bilateral trade agreement increases trade by 14 percent, on average, for each of the countries involved. However, when they apply a gravity model that focuses on variation over time with country pairs, they estimate that a trade agreement increases trade by 98 percent, a near-doubling of trade over the 10-year period. When expanding their model to account for phase-in periods,

⁶⁶⁵ Technically, the prior studies had assumed that the trade agreements were *exogenously* determined, but they were not.

⁶⁶⁶ Baier and Bergstrand, "Do Free Trade Agreements Actually Increase Members' International Trade?" 2007.

which lengthen the time needed for the effects of a trade agreement to be fully visible in an economy, they estimate the increase in trade to be 114 percent.

Given differences across trade agreements, more recent studies have attempted to estimate the differences in the effects of trade agreements depending on the provisions that they include. Trade agreements contain diverse provisions that affect diverse industries, and some of these provisions and effects are stronger than others. Kohl (2014) applies the Baier and Bergstrand methodology to an updated dataset while accounting for phase-in effects to calculate his own estimates of the average impact of economic integration agreements as a group. He also estimates the average impacts of individual trade agreements for the CUSFTA, U.S.-Israel, U.S.-Jordan, and NAFTA agreements.⁶⁶⁷ Analyzing all of these trade agreements in his dataset together, Kohl finds that the impact of a trade agreement is at most a 50 percent increase in trade.

Continuing to focus on the characteristics of individual trade agreements, Kohl, Brakman, and Gerretsen (2016) analyze the impacts of 296 trade agreements and how the inclusion of various provisions within agreements affects the size of the estimated impacts on trade flows.⁶⁶⁸ Specifically, the authors compare provisions that are meant to either meet or build upon obligations that are included in the WTO's mandate.⁶⁶⁹ They also control for legal enforceability (i.e., whether or not a provision is "considered to be legally enforceable in a court of international law"), and find that the provisions that are relevant to WTO mandates increase trade, while the provisions that are not have no effect on cross-border trade.⁶⁷⁰ The implication is that trade agreements containing more provisions that deepen or build upon countries' multilateral commitments will increase trade more than those that do not.

There has been little agreement about the magnitude of trade agreement effects, and even about whether the impact is positive or not. Cipollina and Salvatici (2010) average out these differences in a meta-analysis of 85 studies, containing 1,827 estimates of these impacts, in search of the determinants of this variation. The authors find that, on average, an agreement increases trade by roughly 40 percent.⁶⁷¹ They also find that the estimates of impacts in the

⁶⁶⁷ Kohl, "Do We Really Know That Trade Agreements Increase Trade?" 2014.

⁶⁶⁸ Kohl, Brakman, and Gerretsen, "Do Trade Agreements Stimulate International Trade Differently?" 2016.

⁶⁶⁹ Examples of provisions that build upon the WTO's mandate include provisions that deepen or broaden that mandate: the GATT 1994/WTO Agriculture Agreement, the TRIPS Agreement, the GATS, etc. Provisions that do not are those on capital mobility, competition, environment, and labor. Kohl, Brakman, and Gerretsen, 2016, 119–20.

⁶⁷⁰ Kohl, Brakman, and Gerretsen, 2016, 98.

⁶⁷¹ Cipollina and Salvatici, "Reciprocal Trade Agreements in Gravity Models," 2010.

literature are larger when studies include later agreements and suspect this is due to the evolution of trade agreements to focus more on behind-the-border reforms.⁶⁷²

Impacts of NAFTA

Like the Uruguay Round, NAFTA represented a significant shift in U.S. trade policy. Out of all of the U.S. bilateral and regional trade agreements, NAFTA has received the most attention in the retrospective studies in the literature. One reason is that NAFTA entered into force more than 20 years ago, so there are many years of data available for ex-post analysis of its effects. A second reason is that NAFTA has had a larger economic impact on the United States than any of the subsequent U.S. trade agreements implemented. This section summarizes the findings from the literature on NAFTA after 2002.⁶⁷³ It includes discussions on the effects of the agreement on U.S. trade flows; GDP and welfare; employment and wages; FDI; agricultural trade; and rules of origin. Generally, the literature finds that NAFTA led to a substantial increase in trade volumes for all three countries; a small increase in U.S. welfare; and little to no change in U.S. aggregate employment, but noticeable changes in wages at the state level in the footwear, textiles, and plastics industries.

NAFTA's Impacts on Trade Flows

Before NAFTA's implementation, Canada and Mexico were already among the top U.S. trading partners, supplying 26.0 percent of U.S. imports and receiving 30.5 percent of all U.S. exports.⁶⁷⁴ Research has consistently shown NAFTA to have strengthened this trading relationship.

Romalis (2007) analyzed global data on commodity trade and found that NAFTA had a substantial effect on U.S. trade volumes, but only a modest effect on prices and welfare in the three member countries.⁶⁷⁵ NAFTA increased North American output in many highly protected sectors by reducing imports from nonmember countries.

Recently, the literature has emphasized the importance of trade in intermediate goods and intersectoral linkages in production that underlie the rise of global supply chains. Caliendo and Parro (2015) estimate the effects of tariff reduction among the NAFTA countries between 1993 and 2005 using a general equilibrium trade model that incorporates linkages between tradable

⁶⁷² These types of reforms are generally the result of provisions on investment, intellectual property rights, etc. See the discussion of cross-sectoral provisions in chapter 2 for more information.

⁶⁷³ For review of earlier studies on the effects of NAFTA, see USITC 2003.

⁶⁷⁴ Based on U.S. general imports, on a customs-value basis, and U.S. total exports, on a free-alongside-ship basis; USITC DataWeb/USDOC (accessed March 3, 2016).

⁶⁷⁵ Romalis, "NAFTA's and CUSFTA's Impact on International Trade," 2007.

and non-tradable sectors, and includes trade in intermediate goods.⁶⁷⁶ The authors found that intra-NAFTA trade increased 41 percent for the United States, 11 percent for Canada, and 118 percent for Mexico. They also found that economic welfare and real wages increased for all three countries in that period.⁶⁷⁷

When looking at intra-NAFTA trade at the U.S. state level, researchers show notable differences across states and industries. For instance, Funk et al. (2006) use a gravity model to examine growth in intra-NAFTA trade at the state and industry level during 1995–2005 for five Mid-South states: Arkansas, Louisiana, Mississippi, Tennessee, and Texas.⁶⁷⁸ For exports to Mexico or Canada, the results show large differences in growth rates, both between states and between industries. For imports, the growth rates vary more between industries than between states. For example, growth rates in Louisiana range, across industries, from -0.06 to 0.27 percent. In the chemicals and allied products industry (Standard Industrial Classification (SIC) 28), one of the largest industries in Louisiana, growth rates are similar across the five Mid-South states: they range from 0.06 to 0.16 percent.⁶⁷⁹ On the export side, for many industries, exports to NAFTA partners grew in some states, while simultaneously shrinking in others. For example, exports of electrical and electronic equipment (SIC 36) grew in Tennessee and Texas but shrank in the other three states. According to Funk et al., these results imply that variation between states within industries is a more important indicator of the effects of trade agreements than simply variation between industries.

GDP and Welfare Impacts of NAFTA

The literature has shown small increases in U.S. welfare and GDP as a result of NAFTA. These results are consistent with the findings from pre-2002 literature showing that even large trade liberalizations lead to gains of less than 0.5 percent of GDP.⁶⁸⁰

Dixon and Rimmer (2014) use the United States Applied General Equilibrium (USAGE) model to retrospectively estimate the impacts of NAFTA. Dixon and Rimmer estimate that, of the cumulative 24.4 percent growth in U.S. GDP between 1992 and 1998, only 0.2 percent is attributable to NAFTA.⁶⁸¹ Likewise, they attribute an increase of 0.4 percent in U.S. private and public consumption from 1992 to 1998 to NAFTA, which suggests an annual welfare gain of approximately \$50 billion in 2014 dollars. When focusing on U.S. industries that suffered

⁶⁷⁶ Caliendo and Parro, “Estimates of the Trade and Welfare Effects of NAFTA,” 2015.

⁶⁷⁷ For further discussion, see the sections below.

⁶⁷⁸ Funk et al., “Intra-NAFTA Trade in Mid-South Industries,” 2006.

⁶⁷⁹ Funk et al., 2006, 217.

⁶⁸⁰ USITC 2003, 66.

⁶⁸¹ Dixon and Rimmer, “Identifying the Effects of NAFTA on the U.S. Economy,” 2014. The USAGE model is a CGE model of the United States developed and maintained by the Center of Policy Studies at Victoria University, in collaboration with the Commission.

negative growth during this period, the authors found that the major cause in most cases was poor performance in non-NAFTA export markets or competition with non-NAFTA imports in the U.S. market. For some industries, Dixon and Rimmer (2014) find that NAFTA mitigated a potential structural adjustment problem by easing access to NAFTA markets in a situation in which there was strong competition in non-NAFTA markets.

Caliendo and Parro (2015) estimate the impact on economic welfare in the three NAFTA countries. They find that Mexico was the biggest winner. Mexico's economic welfare increased by 1.3 percent as a result of reductions in NAFTA tariffs, while economic welfare decreased in Canada by 0.06 percent and increased in the United States by 0.08 percent. The major source of gains in economic welfare was the increase in trade volumes, primarily from net trade creation.⁶⁸²

NAFTA's Impacts on Employment and Wages

Early studies suggested that NAFTA had a small overall effect on U.S. labor markets, with minimal impact on unemployment.⁶⁸³ Recently, however, some studies, especially those focusing on manufacturing, find that trade with Mexico depressed U.S. wages in some industries and states, while in others, U.S. wages increased.⁶⁸⁴ Similarly, recent research suggests that the effects of NAFTA on U.S. employment are mixed at the industry level; some industries saw increases in real wages as a result of the agreement, and other saw decreases. Generally, the results are largely dependent on the level of detail at which the United States and its industries are analyzed.

NAFTA's Impacts on Employment

An important aspect of U.S. trade with Canada and Mexico is the direct effect this trade has had on jobs in the United States. Some studies of U.S. unemployment that use state-level data show positive effects of NAFTA. Francis and Zheng (2011) use an econometric model of the U.S. labor market to estimate that NAFTA decreased annual U.S. unemployment by 4.4 percent (about 0.2 percentage points) and increased labor demand by about 0.3 percent.⁶⁸⁵ They find that the labor market impact of NAFTA started immediately after its implementation and continued for seven years.

⁶⁸² An earlier study by Romalis (2007) also finds that NAFTA has had a modest effect on welfare and a substantial impact on trade of the member countries. He shows that U.S. trade in various agricultural products has been the primary contributor to the modest gains in U.S. welfare.

⁶⁸³ USITC 2003, 122.

⁶⁸⁴ See discussion below regarding McLaren and Hakobyan, "Looking for Local Labor Market Effects of NAFTA," 2012, and Yasin, "The Impact of Free Trade Agreement with Mexico," 2009.

⁶⁸⁵ Francis and Zheng, "Trade Liberalization, Unemployment and Adjustment," 2011.

Other research at the industry level, however, has highlighted the mixed and nuanced nature of NAFTA's estimated impacts on aggregate employment. For example, Logan (2008) studies the effects of NAFTA tariff reductions on employment in the U.S. manufacturing sector.⁶⁸⁶ She finds that increasing U.S. exports to Canada contributed to employment and wage growth in the northeastern region of the United States, while the increases in trade with Mexico led to job losses and has lowered wages in this region. She attributes this finding to the presence of a regional production network along the border between the United States and Canada, while increased competition from cheaper Mexican imports have led to a relative contraction in less skill-intensive industries in the United States. Expanding the scope beyond manufacturing, De La Cruz and Riker (2014) found instances of employment gains and losses in a number of U.S. sectors, varying by sector, as a result of NAFTA trade between the United States and Mexico.⁶⁸⁷ They employ the GTAP model to estimate what the U.S. labor market would look like "absent the recent NAFTA preference margins on U.S. manufacturing imports from Mexico."⁶⁸⁸ Their model indicates that the greatest positive employment effects have been in the nonferrous metal, iron and steel, and machinery sectors (0.4, 0.2, and 0.2 percent increases, respectively), while the largest negative employment effects have been in the sugar and apparel sectors (0.7 and 0.3 percent declines, respectively).

NAFTA's Impacts on Wages

NAFTA's effects on wages have been studied in depth. McLaren and Hakobyan (2012) developed an econometric model to estimate the effects of the reduction of U.S. tariffs on Mexican products under NAFTA on wages of U.S. workers.⁶⁸⁹ They look at the effects of the agreement by industry and by geographic area, with attention focused on industries vulnerable to changes from NAFTA. Vulnerable industries are those that had been protected by a high tariff on Mexican imports pre-NAFTA, or those in which Mexican share of imports rose quickly. The authors found that an industry's vulnerability to Mexican imports significantly lowered wage growth for blue-collar workers in the most affected industries and localities, or those that had been the most protected previously. McLaren and Hakobyan estimate that the most NAFTA-vulnerable locations (when excluding agriculture) include Georgia, North Carolina, South Carolina, and Indiana, and that the previously most protected industries were footwear, textiles, and plastics. Their main finding is that the effects of the NAFTA on wage differentials are large. Blue-collar workers in highly affected industries experienced a 16 percentage point

⁶⁸⁶ Logan, "Belted by NAFTA?" 2008. Logan's analysis employs econometric models of the effects of international trade on manufacturing employment and manufacturing wages.

⁶⁸⁷ De La Cruz and Riker, "The Impact of NAFTA on U.S. Labor Markets," 2014.

⁶⁸⁸ De la Cruz and Riker, 2014, 2–3. The NAFTA preference margin is the percentage difference between the most-favored-nation (MFN) rate and the NAFTA tariff rate. A reduction of NAFTA tariffs below MFN tariffs raises the NAFTA preference margin. Their model does not estimate the effects of reductions in tariffs applied to U.S. exports as a result of NAFTA.

⁶⁸⁹ McLaren and Hakobyan, "Looking for Local Labor Market Effects of NAFTA," 2012.

reduction in wage growth as a result of the tariff reductions, while workers without a high school degree experienced an 8 percentage point reduction.⁶⁹⁰

In contrast, De La Cruz and Riker (2014) estimate that the NAFTA preference margins had essentially no effect on real wages in the United States of either skilled or unskilled workers. The authors include the potentially negative shocks from NAFTA to the U.S. labor demand in their analysis, but do not include NAFTA's potentially positive shocks to the U.S. labor market. Hence, De la Cruz and Riker qualify their findings as being a "lower bound on the positive effects of NAFTA on aggregate real wages."⁶⁹¹ Caliendo and Parro (2015), however, look at the broader agreement (i.e., NAFTA, rather than just NAFTA's preference margins) and estimate that NAFTA raised real wages in the U.S. by 0.11 percent.

Sectoral Impacts of NAFTA

At the industry level, recent literature has focused on incorporating the effects of movements in U.S. and Mexican exchange rates in estimating the effects of NAFTA on manufacturing industries. This literature particularly shows the positive effects of NAFTA on the agricultural sector.

Bahmani-Oskooee and Hegerty (2011) use annual industry-level trade data for the United States and Mexico to study the long-run effects of NAFTA while taking into account exchange rate movements.⁶⁹² The authors find that NAFTA shrank the industry-level trade balance (i.e., U.S. exports increased more than U.S. imports) between the U.S. with Mexico in the cocoa, electronics, and textiles industries. However, they estimate that NAFTA increased the trade balance (i.e., U.S. imports increased more than U.S. exports) in the animal feed, electronics, and office machinery industries. These findings help to identify sectors where U.S. industry moved operations to Mexico (i.e., sectors with an increase in trade balance) and sectors where U.S. exports are outcompeting Mexican products (i.e., sectors with reduction in trade balance).

Also considering exchange rate movements, Datta and Kouliavtsev (2009) investigate the pattern of U.S. textile trade for the period 1989–2001 to assess the impact of tariffs on the composition of U.S. textile imports before and after the implementation of NAFTA. The authors find that NAFTA created new trade and indicate that countries with lower wages did not significantly change in their share of U.S. textile imports before 2001.⁶⁹³ Their findings show

⁶⁹⁰ These impacts are relative to analogous workers in industries that were not vulnerable. McLaren and Hakobyan, 2012, 15.

⁶⁹¹ De la Cruz and Riker, 2014, 10.

⁶⁹² Bahmani-Oskooee and Hegerty, "The J-curve and NAFTA," 2011.

⁶⁹³ Datta and Kouliavtsev (2009) do not investigate the impact of China's accession to the WTO and subsequent increase in U.S. import-share due to the elimination of quotas. See chapter 4, figure 4.13, for a visualization of this change.

that textile imports from NAFTA did not displace textile imports from other countries (an effect known as trade diversion).⁶⁹⁴

Research consistently shows that U.S. agricultural trade with Canada and Mexico has increased as a result of NAFTA. Deng and Nzuma (2005) find that aggregate bilateral agricultural trade between the United States and Canada has generally experienced steady growth since the implementation of NAFTA.⁶⁹⁵ However, the impact of NAFTA on U.S.-Canada agricultural trade varied among the subsectors analyzed. Similarly, Susanto, Rosson, and Adcock (2007) find that U.S.-Mexico agricultural trade has grown as a result of NAFTA.⁶⁹⁶ Their analysis suggests that U.S. agricultural imports from Mexico have been responsive to U.S. tariff rate reductions applied to Mexican products. For instance, a decrease of 1 percentage point in tariff rates is associated with an increase in U.S. agricultural imports from Mexico of 5.3 percent the first six years of NAFTA and of 2.6 percent in the next six years of NAFTA. Overall, their results indicate that U.S.-Mexico trade under NAFTA has been trade creating rather than trade diverting.⁶⁹⁷

Other Impacts of NAFTA

Research on NAFTA's effect on other economic outcomes has been centered on FDI and the effects of rules of origin (the criteria for deciding whether imports contain enough material originated by a trade agreement partner to merit preferential duty treatment). Generally, the literature finds that NAFTA has increased flows of FDI into the member countries, although at different rates. There is uncertainty about the underlying purpose of firms' FDI decisions, however. The literature on the effects of rules of origin finds that the provisions have increased costs for exporters as they seek to remain compliant.

MacDermott (2007) developed an econometric model that found that NAFTA increased FDI flows into the United States by about 1.0 percent, into Mexico by 1.7 percent, and into Canada by 1.5 percent.⁶⁹⁸ In addition, he finds evidence that FDI rises with host and parent country GDP and falls with distance. Similarly, the results from the time-series regressions in Feils and Rahman (2008) suggest that the implementation of NAFTA had a "generally positive effect on inward FDI into the entire region."⁶⁹⁹ However, not all partner countries benefited to the same degree. Differing from the findings in other literature, Feils and Rahman (2008) conclude that the major beneficiaries of FDI were the United States and Canada, while Mexico does not appear to have attracted additional FDI. The authors posit that this result may be because firms

⁶⁹⁴ Datta and Kouliavtsev, "NAFTA and the Realignment of Textile and Apparel Trade," 2009.

⁶⁹⁵ Deng and Nzuma, "Assessing the Effects of NAFTA," 2005.

⁶⁹⁶ Susanto, Rosson, and Adcock, "Trade Creation and Trade Diversion," 2007.

⁶⁹⁷ For a specific example of how NAFTA created trade, see the case study on avocados in chapter 4.

⁶⁹⁸ MacDermott, "Regional Trade Agreement and Foreign Direct Investment," 2007.

⁶⁹⁹ Feils and Rahman, "Regional Economic Integration and Foreign Direct Investment," 2008.

chose to direct FDI towards larger markets and markets with the best business environment rather than markets with lower labor costs.

Two other studies examine reasons for U.S. firms' decisions to invest in NAFTA partners. Buckley et al. (2007) found that as a result of the implementation of CUSFTA in 1989, U.S. multinational enterprises fundamentally altered their investment decisions regarding Canada, moving from decisions driven by market size and exchange-rate factors to investment strategies directed toward product-market integration and corporate integration.⁷⁰⁰ Looking southwards, Cole and Ensign (2005) show that U.S. FDI into Mexico following NAFTA went into industries characterized as lower polluting.⁷⁰¹

Examining the effects of NAFTA rules of origin on U.S. exports of textiles, Cadot, Carrère, de Melo, and Portugal-Pérez (2005) find that such benefits come with a cost. Having developed a general equilibrium model to break out the price increases of U.S. intermediate textile exports to Mexico under NAFTA, the authors find that NAFTA raised the price of these exports to Mexico by 12–13 percent, on average. The reason for this, according to the authors, is that the downstream rules of origin, which granted Mexican apparel preferential access to the U.S. market, increased Mexican demand for textile inputs imported from the United States.⁷⁰²

Other Free Trade Agreements

In addition to NAFTA, the United States currently has 13 other trade agreements in force with 18 countries.⁷⁰³ Since there is very little academic research that estimates the effects of these bilateral trade agreements, this section consists primarily of results from prospective studies published after the agreements they cover entered into force. It presents the findings from each paper as they relate to these agreements' effects on GDP and welfare, trade flows, employment and wages, and various sectors of the U.S. economy. Generally, the literature reports that the agreements have had small to moderate positive impacts on trade flows, small positive effects on economic welfare, and minimal effects on employment and wages.

Impacts of Other Free Trade Agreements

Siriwardana (2006) uses the GTAP model to project the effects of the U.S.-Australia FTA, which entered into force in 2005. He expects the United States' imports from Australia to increase by

⁷⁰⁰ Buckley et al., "A Simple and Flexible Dynamic Approach," 2007.

⁷⁰¹ Cole and Ensign, "An Examination of US FDI into Mexico," 2005.

⁷⁰² Cadot et al., "Market Access and Welfare under Free Trade," 2005.

⁷⁰³ USTR, "Free Trade Agreements," <https://ustr.gov/trade-agreements/free-trade-agreements> (accessed April 27, 2016).

\$1.1 billion, and its exports to Australia to increase by \$2.3 billion.⁷⁰⁴ He also expects the United States' overall trade balance with Australia to improve by \$273.4 million; U.S. welfare to increase by \$1.1 billion; and U.S. GDP to increase by 0.01 percent. At the sector level, he projects that the agreement will increase U.S. exports in various manufacturing sectors, including textiles and chemicals. The largest increase (\$1.5 billion) is expected to occur in the fabricated metals sector. For U.S. imports from Australia, Siriwardana estimates a slight decrease in the services sector, with the predominant increases in the sugar, dairy, textiles, food manufactures, and fabricated metal products sectors.

Brown, Kiyota, and Stern (2005) is a prospective analysis that uses the Michigan Model of World Production and Trade to project the effects of the U.S.-Australia agreement, CAFTA-DR, and the U.S.-Morocco agreement.⁷⁰⁵ The authors project that the total welfare of the United States would be \$17.3 billion higher in 2005 as a result of CAFTA-DR, \$19.4 billion higher as a result of the U.S.-Australia FTA, and \$0.4 billion higher as a result of the U.S.-Morocco FTA. In estimating how the agreement shifts employment across industries, assuming that aggregate employment remained constant, they find that CAFTA-DR would have negligible effects on the industry composition of U.S. employment. The most affected sector would be textiles and apparel, with declines of 5,133 employees and 14,006 employees, respectively. The findings also suggest that the U.S.-Morocco FTA would have limited effects on the industry composition of U.S. employment. The largest changes are an increase of 1,314 employees in the agriculture sector, and a decrease of 1,140 employees in the trade and transport sector. Moreover, this study estimates that the biggest changes expected from the U.S.-Australia agreement are an increase of 6,229 employees in the U.S. machinery and equipment sector, and a decrease of 11,719 employees in the U.S. trade and transport sector.

In the same study, Brown, Kiyota, and Stern project that under the CAFTA-DR agreement, the largest increases in both U.S. exports and imports will occur in the food, beverage and tobacco; textiles; and apparel sectors. This result largely reflects the provisions in CAFTA-DR that makes textiles and wearing apparel duty-free and quota-free (subject to rules of origin requirements). Lastly, the model projects relatively small sectoral impacts on U.S. trade from the U.S.-Australia and U.S.-Morocco agreements.

Toh and Suu (2009) developed an econometric model that indicates that the U.S.-Singapore FTA, which entered into force in 2004, led to an increase in U.S. exports to and imports from Singapore.⁷⁰⁶ In 2006, U.S. exports to Singapore were \$76 million higher than they would have

⁷⁰⁴ Siriwardana, "Australia's Involvement in Free Trade Agreements," 2007.

⁷⁰⁵ Brown, Kiyota, and Stern, "Computational Analysis of the U.S.," 2005. Siriwardana (2006) and Brown, Kiyota, and Stern (2005) are both prospective studies; the Michigan Model of World Production and Trade is a CGE model that covers 18 economic sectors and 22 countries/regions.

⁷⁰⁶ Toh and Suu, "Impact of Selected Bilateral FTAs," 2009.

been without the agreement, and imports from Singapore were \$525 million higher. Both exports and imports also increased after the agreement. Because Singapore was already a large open economy before the agreement, Toh and Suu estimate that Singaporean demand for U.S. exports did not change with increases in the income of Singaporean consumers. The authors note that the agreement did lead to large increases in U.S. imports of pharmaceutical goods from Singapore. However, this increase in imports was not the result of tariff reductions by the agreement; rather, it was a consequence of the agreement's requiring Singapore to increase its legal protections for intellectual property rights in the area of bio-inventions.

As discussed earlier, Cipollina and Salvatici (2010) performed a meta-analysis of a large number of studies estimating the effects of trade agreements. In the meta-analysis, the authors report average estimated effects (between trade agreement partners) across studies for many individual trade agreements. For example, they find that across 90 studies reporting estimated effects of NAFTA, the average effect of NAFTA is to increase trade for the three countries involved by 131.6 percent. This estimate and those for the other U.S. agreements analyzed are shown in table 5.3.

Table 5.3: Average estimates of selected trade agreements' impact on trade flows from Cipollina and Salvatici (2010)

Trade Agreement	Average estimated effect (percent)	Number of estimates used in the average
U.S.-Israel	131.6	12
CUSFTA	-22.1	63
NAFTA	131.6	90
U.S.-Chile	31.0	5

Source: Cipollina and Salvatici, 2010, 75.

However, the more recent work of Kohl (2014) estimates that over 10 years, CUSFTA decreased trade by 29.0 percent; the U.S.-Israel agreement increased trade by 4.0 percent; NAFTA increased trade by 88.1 percent; and the U.S.-Jordan agreement had no discernable effect on trade flows. The estimated negative effect of CUSFTA on trade flows is a mystery that the literature has unfortunately not resolved. NAFTA entered into force while CUSFTA was still phasing in, and this overlap may bias the estimated effect of CUSFTA.

Lastly, the Congressional Research Service (2012) notes that the structure of U.S. exports to CAFTA-DR did not change significantly after CAFTA-DR's entry into force in 2007, but that U.S. imports from CAFTA-DR shifted from apparel to higher-value-added manufactures.⁷⁰⁷ In the year 2000, machinery accounted for 10.9 percent of imports from CAFTA-DR countries, while

⁷⁰⁷ CRS, "The Dominican Republic-Central America-United States," 2012.

apparel, yarns, and fabrics accounted for 56.1 percent. In 2011, the share of machinery had increased to 28.8 percent of imports; that of apparels, yarns, and fabrics had fallen to 29.2 percent.

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Appendix A

Request from Legislation

Appendix A: Request from Legislation

H. R. 2146—31

phytosanitary measures in order to obtain market access for United States exports), the Department of Homeland Security, the Department of the Treasury, and such other agencies as may be necessary.

(C) CUSTOMS INFRASTRUCTURE REQUIREMENTS.—A description of the additional equipment and facilities needed by U.S. Customs and Border Protection.

(D) IMPACT ON STATE AND LOCAL GOVERNMENTS.—A description of the impact the trade agreement will have on State and local governments as a result of increases in trade.

(E) COST ANALYSIS.—An analysis of the costs associated with each of the items listed in subparagraphs (A) through (D).

(3) BUDGET SUBMISSION.—The President shall include a request for the resources necessary to support the plan required by paragraph (1) in the first budget of the President submitted to Congress under section 1105(a) of title 31, United States Code, after the date of the submission of the plan.

(4) PUBLIC AVAILABILITY.—The President shall make the plan required under this subsection available to the public.

(f) OTHER REPORTS.—

(1) REPORT ON PENALTIES.—Not later than one year after the imposition by the United States of a penalty or remedy permitted by a trade agreement to which this title applies, the President shall submit to the Committee on Ways and Means of the House of Representatives and the Committee on Finance of the Senate a report on the effectiveness of the penalty or remedy applied under United States law in enforcing United States rights under the trade agreement, which shall address whether the penalty or remedy was effective in changing the behavior of the targeted party and whether the penalty or remedy had any adverse impact on parties or interests not party to the dispute.

(2) REPORT ON IMPACT OF TRADE PROMOTION AUTHORITY.—Not later than one year after the date of the enactment of this Act, and not later than 5 years thereafter, the United States International Trade Commission shall submit to the Committee on Ways and Means of the House of Representatives and the Committee on Finance of the Senate a report on the economic impact on the United States of all trade agreements with respect to which Congress has enacted an implementing bill under trade authorities procedures since January 1, 1984.

(3) ENFORCEMENT CONSULTATIONS AND REPORTS.—(A) The United States Trade Representative shall consult with the Committee on Ways and Means of the House of Representatives and the Committee on Finance of the Senate after acceptance of a petition for review or taking an enforcement action in regard to an obligation under a trade agreement, including a labor or environmental obligation. During such consultations, the United States Trade Representative shall describe the matter, including the basis for such action and the application of any relevant legal obligations.

(B) As part of the report required pursuant to section 163 of the Trade Act of 1974 (19 U.S.C. 2213), the President shall report annually to Congress on enforcement actions taken pursuant to a trade agreement to which the United States

Appendix B

Federal Register Notice

terminal at 202–205–1810. General information concerning the Commission may also be obtained by accessing its Internet server (<http://www.usitc.gov>). Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

Background: On June 29, 2015, the President signed the Bipartisan Congressional Trade Priorities and Accountability Act of 2015 (TPA). Section 105(f)(2) of the Act requires the Commission to submit two reports to the House Committee on Ways and Means and the Senate Committee on Finance, one in 2016 and a second not later than mid-2020, on the economic impact of trade agreements implemented under trade authorities procedures since 1984. Section 105(f)(2) provides as follows:

(2) REPORT ON IMPACT OF TRADE PROMOTION AUTHORITY.— Not later than one year after the date of the enactment of this Act, and not later than 5 years thereafter, the United States International Trade Commission shall submit to the Committee on Ways and Means of the House of Representatives and the Committee on Finance of the Senate a report on the economic impact on the United States of all trade agreements with respect to which Congress has enacted an implementing bill under trade authorities procedures since January 1, 1984.

The Commission will submit its first report by June 29, 2016, and the second report by June 29, 2020. This notice pertains only to the procedures relating to preparation of the first report.

For purposes of this report the Commission considers the trade agreements covered to include the Uruguay Round Agreements, the North American Free Trade Agreement (NAFTA—Canada and Mexico), and U.S. free trade agreements (FTAs) with Australia, Bahrain, Canada, Chile, Colombia, the Dominican Republic and five Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua), Israel, Jordan, Korea, Morocco, Oman, Panama, Peru, and Singapore.

The Commission has instituted an investigation under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) for the purpose of preparing this report and also for the purpose of assisting the public in the filing and inspection of documents and also to make the report more readily accessible to the public through the Commission's Web site.

Public Hearing: The Commission will hold a public hearing in connection with this investigation at the U.S.

International Trade Commission Building, 500 E Street SW., Washington, DC, beginning at 9:30 a.m. on November 17, 2015. Requests to appear at the public hearing should be filed with the Secretary, no later than 5:15 p.m., November 2, 2015, in accordance with the requirements in the "Submissions" section below. All pre-hearing briefs and statements should be filed no later than 5:15 p.m., November 4, 2015; and all post-hearing briefs and statements should be filed not later than 5:15 p.m., November 30, 2015. In the event that, as of the close of business on November 2, 2015, no witnesses are scheduled to appear at the hearing, the hearing will be canceled. Any person interested in attending the hearing as an observer or nonparticipant should contact the Office of the Secretary at 202–205–2000 after November 2, 2015, for information concerning whether the hearing will be held.

Written Submissions: In lieu of or in addition to participating in the hearing, interested parties are invited to file written submissions concerning this investigation. All written submissions should be addressed to the Secretary. Except in the case of requests to appear at the hearing and pre- and post-hearing briefs, all written submissions should be received no later than 5:15 p.m., February 5, 2016. All written submissions must conform to the provisions of section 201.8 of the *Commission's Rules of Practice and Procedure* (19 CFR 201.8). Section 201.8 and the Commission's Handbook on Filing Procedures require that interested parties file documents electronically on or before the filing deadline and submit eight (8) true paper copies by 12:00 p.m. eastern time on the next business day. In the event that confidential treatment of a document is requested, interested parties must file, at the same time as the eight paper copies, at least four (4) additional true paper copies in which the confidential information must be deleted (see the following paragraph for further information regarding confidential business information). Persons with questions regarding electronic filing should contact the Secretary (202–205–2000).

Any submissions that contain confidential business information (CBI) must also conform to the requirements of section 201.6 of the *Commission's Rules of Practice and Procedure* (19 CFR 201.6). Section 201.6 of the rules requires that the cover of the document and the individual pages be clearly marked as to whether they are the "confidential" or "non-confidential" version, and that the confidential business information is clearly

identified by means of brackets. All written submissions, except for confidential business information, will be made available for inspection by interested parties. Any confidential business information received by the Commission in this investigation and used in preparing this report will not be published in a manner that would reveal the operations of the firm supplying the information.

Summaries of Written Submissions: The Commission intends to publish summaries of the positions of interested persons in an appendix to its report. Persons wishing to have a summary of their position included in the appendix should include a summary with their written submission. The summary may not exceed 500 words, should be in MSWord format or a format that can be easily converted to MSWord, and should not include any confidential business information. The summary will be published as provided if it meets these requirements and is germane to the subject matter of the investigation. In the appendix the Commission will identify the name of the organization furnishing the summary, and will include a link to the Commission's Electronic Document Information System (EDIS) where the full written submission can be found.

By order of the Commission.

Issued: August 4, 2015.

Lisa R. Barton,

Secretary to the Commission.

[FR Doc. 2015–19436 Filed 8–6–15; 8:45 am]

BILLING CODE 7020–02–P

DEPARTMENT OF JUSTICE

Antitrust Division

United States and State of New York v. Twin America, LLC, et al.; Public Comment and Response on Proposed Final Judgment

Pursuant to the Antitrust Procedures and Penalties Act, 15 U.S.C. 16(b)–(h), the United States hereby publishes below the comment received on the proposed Final Judgment in *United States and State of New York v. Twin America, LLC, et al.*, Civil Action No. 12-cv-8989 (ALC) (GWG) (S.D.N.Y.), together with the Response of the United States to Public Comment.

Copies of the comment and the United States' Response are available for inspection at the Department of Justice Antitrust Division, 450 Fifth Street NW., Suite 1010, Washington, DC 20530 (telephone: 202–514–2481), on the Department of Justice's Web site at

Appendix B: *Federal Register* Notice

Appendix C

Calendar of Hearing Witnesses

Appendix C: Calendar of Witnesses

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject: Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2016 Report

Inv. No.: 332-555

Dates and Time: November 17, 2015 – 9:30 a.m.

Sessions were held in connection with this investigation in the Main Hearing Room (room 101), 500 E Street, S.W., Washington, DC.

CONGRESSIONAL APPEARANCE:

The Honorable Sander M. Levin, U.S. Representative, 9th District, Michigan

PANEL 1:

ORGANIZATION AND WITNESS:

Knowledge Ecology International (“KEI”)
Washington, DC

James Love, Director

Union for Affordable Cancer Treatment (“UACT”)
Washington, DC

Manon Ress, Representative

U.S. Chamber of Commerce
Washington, DC

John Murphy, Senior Vice President, International Policy

PANEL 2:

ORGANIZATION AND WITNESS:

International Union, United Automobile, Aerospace, and
Agricultural Implement Workers of America (“UAW”)
Washington, DC

Josh Nassar, Legislative Director

Steel Manufacturers Association (“SMA”)
Washington, DC

Philip K. Bell, President

American Iron and Steel Institute (“AISI”)
Washington, DC

Kevin Dempsey, Senior Vice President, Public Policy and
General Counsel

Society of Chemical Manufacturers & Affiliates (“SOCMA”)
Washington, DC

Jim DeLisi, Chief Executive Officer, Fanwood Chemical and
Chair of SOCMA International Trade Committee

National Association of Manufacturers (“NAM”)
Washington, DC

Linda Dempsey, Vice President

PANEL 3:

ORGANIZATION AND WITNESS:

Ranchers-Cattlemen Action Legal Fund, United
Stockgrowers of America (“R-CALF USA”)
Billings, MT

Bill Bullard, Chief Executive Officer

National Pork Producers Council (“NPPC”)
Washington, DC

Maria C. Zieba, Manager of International Affairs

Pet Food Institute (“PFI”)
Washington, DC

Peter Tabor, Vice President, Regulatory and International
Affairs

U.S. Grains Council
Washington, DC

Mike Dwyer, Chief Economist

Blue Diamond Growers
Washington, DC

Trena Pilegaard, Government Affairs Director

Sweetener Users Association (“SUA”)
Washington, DC

Tom Earley, Vice President, Agralytica

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Appendix D

Summary of the Views of Interested Parties

Appendix D: Summary of Views of Interested Parties

Representative Sander M. Levin

No written summary or submission. Please see the transcript of the hearing on EDIS for full testimony.

American Apparel & Footwear Association

No written summary. Please see EDIS for full submission.

American Iron and Steel Institute

No written summary. Please see EDIS for full submission.

Blue Diamond Growers

Blue Diamond Growers is a non-profit, farmer-owned, marketing cooperative. It is headquartered in Sacramento, California and markets almonds for its members.

The California almond industry produces twenty one point five (\$21.5) billion dollars in economic activity. The whole almond industry, including processing and marketing, generates 104,000 jobs statewide.

The objective for shelled, inshell, prepared or preserved almonds and almond meal is to eliminate all almond duties. Almonds lend themselves to accomplishing this.

There are two countries in particular that we would like to call your attention to. The first is Israel and the second South Korea. All the other countries covered by this investigation are in our written testimony.

To date, the United States has been unable to obtain duty-free access for U.S. almonds exported to Israel. The Israeli market must be opened to U.S. almonds on a duty-free basis; otherwise it continues to demonstrate that the Free Trade Agreement with Israel is not really a Free Trade Agreement.

One need only look to the duties imposed on other tree nuts to see that Israel is an attractive market for nuts. Walnuts, for example, are imported from the U.S. to Israel duty free.

It is also significant to understand that almonds imported for use in bakery or industrial products enter duty free. This, more than any other one item shows that the Israeli market wants almonds and that the government intentionally distorts importation to favor a selected few.

With duty free access, it is estimated that almond exports to Israel will increase to the level of \$30 million dollars within five years.

South Korea is a country that has proved to be difficult to export almond products. Blue Diamond Growers hopes to be able to sell Almond Breeze, our dairy alternative, in South Korea. In order to do that, it must be able to be imported at a duty rate that is not prohibitive. We believe 1106.30.90 is the correct classification. This carries a duty rate of zero.

South Korea insists that 2008.19.40 is the correct classification for the almond base. The current duty rate for this is 31.5%. It will not come to zero until 2019.

Two other classification categories that would work are 2106.90.1090 or 2202.90.1090.

Both currently carry a duty rate of 3.2%. This rate would work, but zero is the correct tariff. Please add this to the request for an accelerated duty reduction under the U.S.-Korean FTA.

We look forward to the elimination of all barriers for almonds now that TPP has been completed in the countries that are participating in this agreement. We were very pleased with the outcome, which will be beneficial to the California almond industry.

Distilled Spirits Council of the United States

No written summary. Please see EDIS for full submission.

International Intellectual Property Alliance

No written summary. Please see EDIS for full submission.

International Union, United Automobile, Aerospace, and Agriculture Implement Workers of America

No written summary. Please see EDIS for full submission.

Knowledge Ecology International

No written summary or submission. Please see the transcript of the hearing on EDIS for full testimony.

Korea International Trade Association

No written summary. Please see EDIS for full submission.

National Association of Manufacturers

No written summary. Please see EDIS for full submission.

National Milk Producers Federation & U.S. Dairy Export Council

No written summary. Please see EDIS for full submission.

National Pork Producers Council

No written summary. Please see EDIS for full submission.

Pet Food Institute

Exports of US dog and cat food, which exceed \$1.3 billion annually, directly and indirectly support many thousands of US jobs. While the US market for pet food is large, it is also a mature market – many foreign markets have significant potential for the broad range of dog and cat food.

For all the FTAs under consideration for the report you are preparing, US dog and cat food exports to FTA countries accounted for more than \$890 million of our \$1.3 billion in exports last year.

Uruguay Round

US pet food exports to the world have more than tripled since the Uruguay Round Agreement entered into force. As with most of US agriculture, US makers of dog and cat food have benefited greatly from the tariff reductions the Uruguay Round codified.

NAFTA

US dog and cat food exports to Canada have more than tripled during the NAFTA years. Even more dramatic is the increase in our exports to Mexico since the mid-1990s – rising from \$6.4 million in 1994 to more than \$60 million in 2013.

Australia

Sanitary and phytosanitary (SPS) provisions in this FTA, including the establishment of a SPS Committee, have provided significant benefits for US pet food makers. In 2004, US dog and cat food exports to Australia totaled \$27.7 million – last year they reached almost \$87 million, making Australia our third largest export market.

Chile

US dog and cat food exports to Chile under this FTA have steadily risen (excepting a dip in 2010), due in part to tariff elimination and last year were almost seven times the 2004 export figure.

Colombia

Immediate or gradual elimination of base tariffs of twenty-eight and twenty percent (for canned and all other pet food, respectively) led to a near doubling of US dog and cat food exports from 2012-2014.

CAFTA-DR

This agreement's elimination of tariffs for a wide range of US exports has resulted in a threefold rise in exports since 2003, the year before the Dominican Republic joined this agreement.

KORUS FTA

Tariff elimination on dog and cat food upon entry into force of the KORUS FTA has resulted in a twenty percent increase in US dog and cat food exports. As demographic changes in the Korean market take hold, we anticipate our members will be well-positioned to continue serving the Korean market.

Conclusion

The FTAs under review have reduced tariffs for our products, making them more attractive to pet owners in developed and emerging markets. The recently agreed Trans-Pacific Partnership should offer more such benefits if and when it enters into force.

We urge US Government officials to ensure FTAs strengthen commitments by our trading partners to adhere to science-based regulation and to avoid imposing technical barriers to safe, high quality US products.

About the Pet Food Institute

Established in 1958, PFI advocates on behalf of its twenty-two producer members and more than 100 affiliates who supply ingredients, equipment and services to dog and cat food makers.

R-CALF United Stockgrowers of America

No written summary. Please see EDIS for full submission.

Society of Chemical Manufacturers & Affiliates

No written summary. Please see EDIS for full submission.

Steel Manufacturers Association

No written summary. Please see EDIS for full submission.

Sweetener Users Association

No written summary. Please see EDIS for full submission.

Union for Affordable Cancer Treatment

No written summary or submission. Please see the transcript of the hearing on EDIS for full testimony.

U.S. Chamber of Commerce

No written summary. Please see EDIS for full submission.

U.S. Grains Council

International trade is critical to U.S. agriculture, including members of the U.S. Grains Council who grow, process and export corn, sorghum, barley and associated co-products including distiller's dried grains with solubles (DDGS) and ethanol. Without factoring in sales to countries participating in the Trans-Pacific Partnership (TPP), in calendar year 2014, U.S. exports of coarse grains and co-products to FTA partners accounted for 42 percent of worldwide exports, according to USDA data. Add in the TPP countries with which we do not already have agreements, and that figure climbs to more than 60 percent.

The following is an overview of the impacts and benefits from existing major U.S. free trade agreements for U.S. coarse grains and their co-products:

NAFTA: Creation of a far more integrated North American market in grains, oilseeds and related products is one of NAFTA's major achievements. Rising demand for feed and food has created new opportunities for intraregional trade. Poultry and hog producers in Mexico, for instance, rely heavily on imported feedstuffs as they seek to meet their country's growing demand for meat.

As a result, Mexico and Canada are key markets for U.S. coarse grains and co-products. The most recent numbers available from USDA show Mexico is the second largest market for U.S. corn and DDGS and the top market for U.S. barley. Recent numbers show Canada is the third largest market for U.S. barley; the sixth largest for DDGS; and the seventh largest market for U.S. corn.

CAFTA/Colombia: Trade in U.S. grains with Colombia has rebounded following enactment of the U.S. FTA with that country in 2012 and related market promotions conducted by the Council. The corn import quota under the Colombia FTA filled rapidly this year, and imports reached a level not seen since 2008. As a result, exports to Colombia, the third largest market for U.S. corn during the 2014/2015 marketing year, are up 22 percent in tonnage. Exports to the CAFTA-DR countries, including five Central American countries and Dominican Republic, combined make up the fifth largest market for U.S. corn, with sales up 19 percent from a year ago.

Korea: While the United States already enjoyed zero tariffs on corn for feed imports to Korea, the FTA locked in the tariff at zero and achieved expanded access for U.S. barley products and corn starch. DDGS also received duty-free status under the FTA. Sales of U.S. barley and malting barley jumped significantly in 2012 following implementation of the U.S.-Korea FTA. In 2014/2015, Korea was our fourth largest market for corn and DDGS and our sixth largest market for U.S. barley.

To take advantage of emerging export opportunities – and to maintain our competitiveness in the global marketplace – trade liberalization must continue at all levels. Trade agreements hold the key to opening markets and resolving tariff and non-tariff barriers to allow the movement of coarse grains, co-products in all forms and other agricultural exports to where they are demanded.

Appendix E

Chapter 2: Boxes, Figures and Tables

Table E.1: U.S. tariff-rate quotas (T) and agricultural special safeguard measures (S) on imports from trade agreement partner countries, 2000–2012

Partner country	Meat	Sugar ^a	Milks and creams	Milk powders	Cheese	Dairy: Other	Cotton	Tobacco	Peanuts/ peanut butter	Fruit	Fruit juice	Vegetables
Jordan		T				T	T		T			
Chile	2T	T	2T	T	T	2T		T		T ^b , 18S	S	1T, 33S
Singapore	T	T	T	T	T	2T	T	T	T			
Australia	T, S ^c	^d	2T ^c	2T ^c	6T ^c	2T ^c	T	T	T	T ^b , 9S	10S	14S
Costa Rica	T	T ^c	T, S	T	T, S	3T, 3S						2S
Dominican Republic	T	T ^c	S		T, S	2T, 3S						2S
El Salvador	T	T ^c	T, S		T, S	3T, 3S						T, 2S
Guatemala		T ^c	T, S		T, S	2T, 3S						2S
Honduras	T	T ^c	T, S		T, S	2T, 3S						2S
Nicaragua	T	T ^c	T, S		T, S	2T, 3S						2T, 2S
Bahrain	T	T	T	T	T	2T	T	T	T			
Oman	T	T	T	T	T	2T	T	T	T			
Morocco	T	T	T	T	T	2T	T	T	T	16S	5S	4T, 14S
Peru		T	T, S		T, S	T						
Panama	S	2T ^c	T, S		2T, 2S	T, S						
Colombia	T, S	T ^c	T		T	3T		T				
Korea						T						

Sources: Compiled by USITC staff from the U.S.-Jordan FTA, Annex 2.1; U.S.-Chile FTA, Annex 3.3 and Annex 3.18; U.S.-Singapore FTA, Annex 2.B; U.S.-Australia FTA, Annex 2-B and Annex 3-A; CAFTA-DR, Annex 3.3 and Annex 3.15; U.S.-Bahrain FTA, Annex 2-B; U.S.-Oman FTA, Annex 2-B; U.S.-Morocco FTA, Annex IV and Annex 3-A; U.S.-Peru FTA, Annex 2.3 and Annex 2.18; U.S.-Panama TPA, Annex 3.3 and Annex 3.17; U.S.-Colombia TPA, Annex 2.3 and Annex 2.18; KORUS, Annex 2.8 and Annex 3-A.

Notes: T = tariff-rate quota (TRQ), S = special safeguard measure (SSG). The number preceding the code indicates the number of TRQs or SSGs for different products (as listed by HS number) or product groups, as listed in the trade agreement, within the category. The U.S. meat TRQs are primarily on beef. The fruit and vegetable categories include all fresh, frozen, preserved, and processed items not otherwise listed in the trade agreement.

^a Sugar includes certain sugar-containing products.

^b The United States has two TRQs covering different parts of the year for avocados from Chile and Australia, respectively.

^c There is at least one permanent TRQ or SSG in this group.

^d Sugar was excluded from the U.S.-Australia FTA.

Appendix E: Chapter 2: Boxes, Figures, and Tables

Table E.2: Trade agreement partner country TRQs (T) and agricultural SSG (S) on exports from the United States, 2000–2012

Partner country	Beef	Poultry	Meat: Other	Cheese	Dairy: Other	Potatoes (fresh)	Onions (fresh)	Horticulture: Other	White corn	Wheat	Rice	Grains: Other	Sugar and sweeteners ^a	All other
Chile	T	T	4S								5S	3S	2T	3S
Costa Rica	S	T, S	T, S	T, S	4T, 5S	T ^b	T ^b	T, 5S	S		2T, 2S		S	S
Dominican Republic	2T	3T, 2S	2T, S	3T, 3S	5T, S	S	S	T, 2S			2T, 3S		T, 2S	T, S
El Salvador	T	T, S	T, 2S	T, S	6T, 6S			S	T ^b		2T, 3S	2T, S	S	S
Guatemala	T	T, S	T, S	T, S	4T, 5S	S	S	3S	T ^b		2T, 2S	T	S	S
Honduras		T, S	T, 2S	T, S	4T, 5S		S		T ^b		2T, 2S	T	S	2S
Nicaragua	S	T, S	T	T, S	4T, 5S		S	S	T ^b		2T, 2S	T, 2S	S	
Morocco ^c	2T ^b	4T, 2S ^b						2T, 4S		4T ^b			2T	
Peru	2T, S	T, S		T, S	5T, 2S						T, S	T		T
Panama	S	T, S	2T, S	2T, 2S	7T, 7S	T ^b	T ^b	3T, S			2T, 2S	T		2T, 2S
Colombia	T, S	2T, 2S	T	T	5T			T, S	T		T, S	2T	T	3T
Korea ^d	S		S	T	4T ^b	T ^b	S	2T ^b , 9S				2T, 7S	2T, 2S	4T, 9S

Sources: Compiled by USITC staff from the U.S.-Chile FTA, Annex 3.3 and Annex 3.18; CAFTA-DR, Annex 3.3 and Annex 3.15; U.S.-Morocco FTA, Annex IV and Annex 3-A; U.S.-Peru FTA, Annex 2.3 and Annex 2.18; U.S.-Panama TPA, Annex 3.3 and Annex 3.17; U.S.-Colombia TPA, Annex 2.3 and Annex 2.18; KORUS, Annex 2.8 and Annex 3-A.

Notes: T = tariff-rate quota (TRQ), S = special safeguard measure (SSG). The number preceding the code indicates the number of TRQs or SSGs for different products (as listed by HS number) or product groups, as listed in the trade agreement, within the category. The categories for meat, dairy, horticulture, and grains include fresh, frozen, minimally processed, and/or preserved products, as applicable. Jordan, Singapore, Australia, Bahrain, and Oman are not listed in the table because they have no TRQs or SSGs on U.S. agricultural products.

^a The sugar and sweeteners includes certain sugar-containing products.

^b There is at least one permanent TRQ or SSG in this group.

^c Morocco has one permanent TRQ on standard beef and one temporary TRQ on high-quality beef. Morocco may maintain a permanent SSG on chicken leg quarters and wings from the United States.

^d Korea has permanent TRQs on one group of dairy products (powders or evaporated milk, cream, and buttermilk); two horticulture products (oranges and fresh potatoes); one sweetener (honey); and one other (soybeans for human consumption).

Box E.1: Determining Origin in U.S. Free Trade Agreements

Preferential rules of origin in U.S. trade agreements can be met by fulfilling the relatively simple “wholly obtained or produced” criteria, or by meeting the alternative standards for eligibility that were negotiated, based on fulfilling one or more of the following three criteria:

1. Change of tariff classification at 2-, 4-, 6- or 8-digit levels,
2. Use of a specific manufacturing process, such as a chemical process, and/or
3. Attainment of a specific minimum percentage of local or regional value content computed by one of the methods specified.

The applications of these criteria vary by agreement and by product. For example, under the U.S.-Israel agreement, most products are subject to a 35 percent regional value content rule, whereas NAFTA’s regional value content rule varies from 50 to 60 percent. De minimis rules allow a certain percentage of non-originating materials to be used without affecting the origin of the final product, but goods of some sectors may be excluded or have different ceilings.

Many U.S. agreements use the following equations to calculate the regional content value percentages:^a

Build-down method: $RVC = (AV - VNM)/AV \times 100$

Build-up method: $RVC = (VOM/AV) \times 100$

Transaction value method: $RVC = (TV - VNM)/TV \times 100$

Net cost method: $RVC = (NC - VNM)/NC \times 100$

- RVC: Regional value content of the good, expressed as a percentage
- AV: Adjusted value of the good (which can include costs for sales marketing, royalties, profit, shipping, and after-sales product costs).
- VOM: Value of originating materials, other than indirect materials, acquired or self-produced and used by the producer in the production of the good. Originating materials may also include costs of insurance, packing, transportation, and duties and taxes (other than those waived or recoverable), as well as costs for waste and spoilage.
- VNM: Value of non-originating materials, other than indirect materials, acquired or used by the producer in the production of the good. VNM does not include the value of the material that is self-produced. The costs of insurance, packing, transportation, and duties and taxes (other than those waived or recoverable), as well as costs of waste and spoilage, may be deducted from VNM.
- TV: Transaction value of the good adjusted to “free on board” basis.
- NC: Net cost of the good. Net cost excludes costs for sales, marketing, royalties, profit, shipping, and all other after-sales product costs.

Source: ^a CRS, *International Trade: Rules of Origin*, June 24, 2015.

Table E.3: Evolution of certain U.S. post-TBT Agreement TBT provisions in U.S. bilateral and regional trade agreements

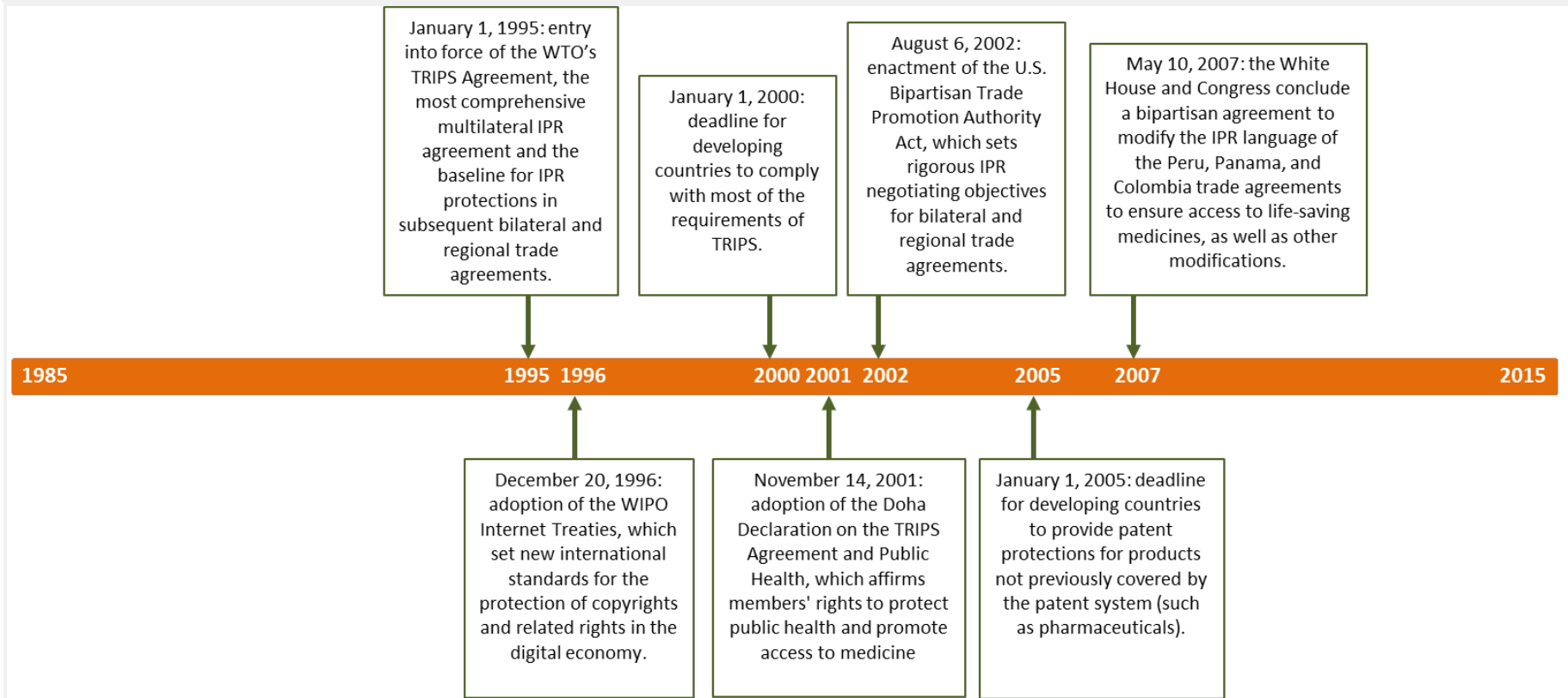
TBT Provision	CAFTA-										
	Chile	Singapore	Australia	Morocco	Bahrain	DR	Oman	Peru	Korea	Colombia	Panama
Requires the application of the principles set out in Decisions and Recommendations adopted by the (TBT) Committee G/TBT/1/Rev.7 28 November 2000, Section IX, in determining whether an international standard, guide, or recommendation within the meaning of Articles 2, 5, and Annex 3 of the TBT Agreement exists. ^a	●	○	●	●	●	●	●	●	●	●	●
Sets the 60-day requirement for comments on proposed technical regulations and conformity assessment procedures.	●	○	●	●	●	●	●	●	●	●	●
Recognizes a broad range of mechanisms to facilitate the acceptance of conformity assessment results.	●	○	●	●	●	●	●	●	●	●	●
Permits the persons of the other party to participate in the development of standards, technical regulations, and conformity assessment procedures on terms no less favorable than those accorded to its own persons. Likewise, recommends giving these same rights to persons of parties regarding nongovernmental standardizing bodies.	●	○	●	●	●	●	●	●	●	●	●
States that notification of proposed technical regulations and conformity assessments shall include an explanation of the objective of, and rationale for, a standard, a technical regulation, or a conformity assessment procedure.	○	○	●	●	●	●	●	●	○	●	●
States that notification of proposed measures are to include an explanation of the objective, and how the measure addresses those objectives.	○	○	○	○	○	○	○	○	●	○	○
Establishes a working group to further cooperate on matters related to the trade agreement's TBT chapter.	○	●	○	○	○	○	●	○	○	●	○
States that parties must immediately notify importers on occasions where a party detains a good originating in the territory of another party at a port of entry for a perceived failure to comply with a technical regulation.	○	○	○	○	○	○	○	○	●	●	●
States that parties must give favorable consideration to reasonable requests for extending the comment	○	○	○	○	○	○	○	●	●	●	○

TBT Provision	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	Korea	Colombia	Panama
period.											
States that parties must endeavor to respond to a request for information within 60 days.	○	○	○	○	○	○	○	●	●	●	●
States that parties must make every effort for consultations to lead to a mutually satisfactory solution within 60 days.	○	○	○	○	○	○	○	●	○	●	○

Sources: Compiled by USITC from the U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia, CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, and KORUS.

^a KORUS did not require the application of the decision, but rather, that parties “base its determination on” the principles.

Figure E.1: Intellectual property rights (IPR) milestones



Sources: Compiled by USITC. TRIPS= WTO Agreement on Trade-Related Aspects of Intellectual Property Rights; WIPO= World Intellectual Property Organization.

Table E.4: Evolution of selected IPR provisions in U.S. bilateral, regional, and multilateral trade agreements

	Israel	NAFTA	TRIPS	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	Korea	Colombia	Panama
Patents and regulated products provisions															
Mandates patent term extensions if unreasonable delay occurs.	○	○	○	●	●	●	●	●	●	●	●	○	●	○	○
Links generics marketing approval and patent status.	○	○	○	○	●	●	●	●	●	●	●	○	●	○	○
Gives at least 5 years' protection for pharm. test data; 10 years for ag. chem. data.	○	●	○	○	●	●	●	●	●	●	●	● ^a	●	● ^a	● ^a
Copyrights and related provisions															
Extends copyright term to 70 years.	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●
Prohibits altering digital rights mgt. information.	○	○	○	●	●	●	●	●	●	●	●	●	●	●	●
Prohibits circumvention technologies.	○	○	○	●	●	●	●	●	●	●	●	●	●	●	●
Has ISP liability and safe harbor provisions.	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●
Trademarks and related provisions															
Encourages use of trademark systems for GIs.	○	○	○	●	●	●	●	●	●	●	●	●	●	●	●
Offers domain name dispute resolution and access to contact details.	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●

Appendix E: Chapter 2: Boxes, figures, and tables

Sources: Compiled by USITC from TRIPS; IPR chapters of FTAs (U.S.-Israel FTA, NAFTA, U.S.-Jordan FTA, U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia, CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, and KORUS); and CRS, *Intellectual Property Rights and International Trade*, 2014, app. B.

Note: The table describes differences in IPR provisions highlighted in submissions to the Commission and the relevant literature. The U.S.-Canada FTA is not discussed because it only minimally addresses IPR issues. GIs = geographical indications; ISP = Internet service provider.

^aPeru, Panama, and Colombia provide at least 5 years of protection for pharmaceutical test data from the date of approval in the country of first filing if the new drug is granted approval within 6 months of filing.

Table E.5: Contents of e-commerce chapter or provisions in U.S. bilateral and regional trade agreements

U.S. FTA partner	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA	Oman	Peru	Korea	Colombia	Panama
Chapter has basic provisions on:												
Applicability of WTO rules to e-commerce	● ^a	○	●	●	●	●	●	●	●	●	●	●
Applicability of trade rules to the digital service supply	○	●	●	●	●	●	●	●	●	●	●	●
Duty-free moratorium on digital products	●	●	●	●	●	●	●	●	●	●	●	●
Nondiscrimination for digital products	○	●	●	●	●	●	●	●	●	●	●	●
Exceptions	○	●	●	●	●	●	●	●	●	●	●	●
Size (number of words)	287	869	660	993	663	575	1002	621	852	1303	852	760

Sources: Compiled by USITC from the U.S.-Jordan FTA, U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia FTA, CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, KORUS, and Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 194–97.

Notes: The U.S.-Israel FTA and NAFTA are not included, since these trade agreements predated official e-commerce trade discussions. This table describes the principal provisions shared in electronic commerce chapters across trade agreements.

^a Provisions from U.S.-Jordan Joint Statement on Electronic Commerce.

Table E.6: Deeper provisions on e-commerce in U.S. bilateral and regional trade agreements

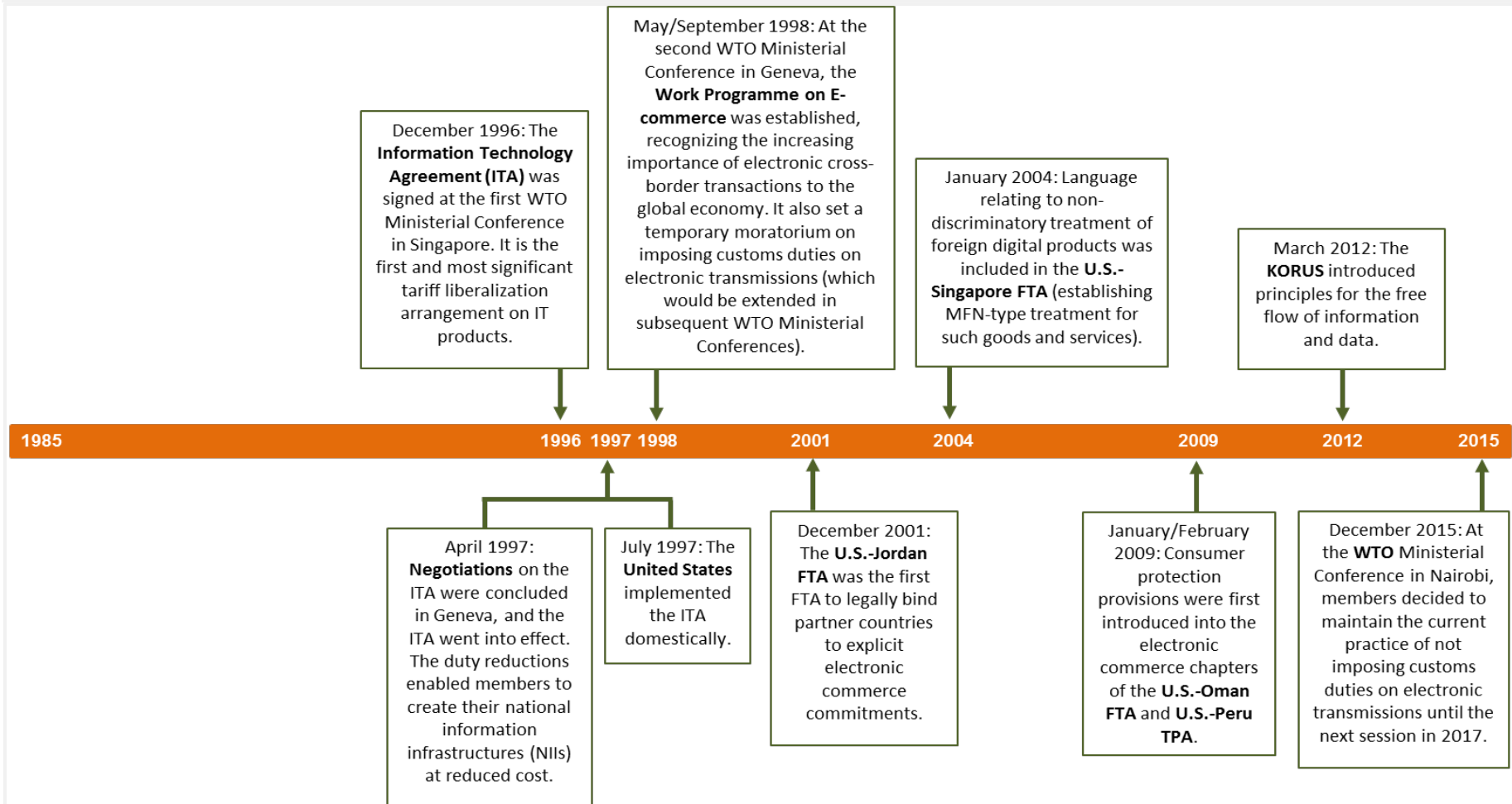
U.S. FTA partner	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA	Oman	Peru	Korea	Colombia	Panama
Chapter has further provisions on:												
Pledge for cooperation in the e-commerce and ICT area	● ^a	●	○	○	○	○	●	○	○	○	○	○
Pledge to avoid unnecessary regulatory barriers to e-commerce	●	●	●	●	●	●	●	●	●	●	●	●
Transparency	● ^a	○	○	○	○	○	●	○	●	○	●	●
Consumer protection	● ^a	○	○	●	○	○	○	●	●	●	●	●
Online personal data	● ^a	○	○	○	○	○	○	○	○	●	○	○
Authentication, certification, electronic signatures	● ^a	○	○	●	○	○	○	○	●	●	●	●
Free flow of information and data	○	○	○	○	○	○	○	○	○	●	○	○
Paperless trade administration and customs facilitation	● ^a	○	○	●	○	○	○	○	●	●	●	●

Sources: Compiled by USITC from the U.S.-Jordan FTA, U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia FTA, CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, KORUS, and Burri and Cottier, *Trade Governance in the Digital Age*, 2012, 194–97.

Notes: Israel and NAFTA are not included, since these trade agreements predated official e-commerce trade discussions. This table describes specific elements shared in electronic commerce provisions across trade agreements. ICT = information and communications technology.

^a Provisions from U.S.-Jordan Joint Statement on Electronic Commerce.

Figure E.2: E-commerce timeline



Sources: Compiled by USITC.

Table E.7: Labor provisions in U.S. bilateral and regional trade agreements

Provisions	Israel	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	Korea	Colombia	Panama
Labor rights covered														
Addresses freedom of association; collective bargaining; forced labor; child labor; discrimination in employment and occupation.	○	● ^a	●	●	●	●	●	●	●	●	●	●	●	●
Incorporates ILO Declaration of Fundamental Principles and Rights, 1998.	○	○ ^b	●	●	●	●	●	●	●	●	●	●	●	●
Strive to adopt/maintain high standards in domestic labor laws and regulations.	○	○ ^b	●	●	●	●	●	●	●	●	(^c)	(^c)	(^c)	(^c)
Must adopt high standards in domestic labor laws and regulations.	○	○	○	○	○	○	○	○	○	○	●	●	●	●
Consultation/cooperation														
Includes specific government agency contact on labor issues.	○	●	○	●	●	●	●	●	●	●	●	●	●	●
Includes labor affairs council.	○	○	○	●	○	○	○	●	●	●	●	●	●	●
Includes labor cooperation mechanism: technical assistance/capacity building.	○	○	○	●	●	○	●	●	●	●	●	●	●	●
Includes technical assistance/capacity building.	○	○	○	●	●	●	●	●	●	●	●	●	●	●
Enforcement/dispute resolution														
Provides for access to domestic tribunals or other judicial bodies with respect to labor laws.	○	○	○	●	●	●	●	●	●	●	●	●	●	●

Appendix E: Chapter 2: Boxes, figures, and tables

Provisions	Israel	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	Korea	Colombia	Panama
Makes all provisions enforceable using the agreement dispute settlement chapter.	○	○	●	○	○	○	○	○	○	○	●	●	●	●
Provides for monetary enforcement assessments.	○	○	○	●	●	●	●	●	●	●	●	●	●	●

Source: Compiled by Commission staff from U.S.-Israel FTA, U.S.-Jordan FTA, NAFTA, U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia FTA , CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, and KORUS.

Note: This table provides a summary of labor provisions contained in U.S. FTAs. It is organized by types of provisions as categorized by Commission staff. The categories and provisions are approximations and not specific text from the agreements.

^a The NAFTA side agreement provides broader coverage, including, for example, equal pay for men and women, compensation for work accidents, and protection for migrant workers.

^b Under the North American Agreement on Labor Cooperation, parties commit to ensure that labor laws and regulations meet “high standards.”

^c Not applicable.

Table E.8: Evolution of selected environment provisions in U.S. bilateral and regional trade agreements

Provision	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-DR	Oman	Peru	Korea	Colombia	Panama
Levels of protection	●	●	●	●	●	●	●	●	●	●	●	●	●
Application and enforcement of environmental laws	●	●	●	●	●	●	●	●	●	●	●	●	●
Procedural matters	●	○	●	●	●	●	●	●	●	●	●	●	●
Mechanisms to enhance environmental performance	○	○	○	○	●	●	●	●	●	●	●	●	●
Institutional arrangements	○	○	○	●	●	○	●	○	●	○	●	○	○
Environmental cooperation	●	○	●	●	●	●	●	●	●	●	●	●	●
Environmental consultations	●	○	●	●	●	●	●	●	●	●	●	●	●
Relationship to environmental agreements	●	○	●	●	●	●	●	●	●	●	●	●	●
Opportunities for public participation	○	○	●	●	○	●	●	●	●	●	●	●	●
Environmental affairs council	●	○	●	○	○	○	○	●	○	●	○	●	●
Submissions on enforcement matters	●	○	○	○	○	○	○	●	○	●	○	●	●
Factual records and related cooperation	●	○	○	○	○	○	○	●	○	●	○	●	●
Environmental roster	●	○	●	○	○	○	○	●	○	○	○	○	●
Annex on environmental cooperation	○	○	●	○	○	○	○	●	○	○	○	○	●
Principles of corporate stewardship	○	○	●	●	○	○	○	○	○	○	○	○	○
Multilateral environmental agreements covered in the trade agreement	○	○	○	○	○	○	○	○	○	●	●	●	●
Biological diversity	○	○	○	○	○	○	○	○	○	●	○	●	○

Appendix E: Chapter 2: Boxes, figures, and tables

Source: Compiled by USITC from NAFTA, U.S.-Jordan FTA, U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia FTA, U.S.-Morocco FTA, U.S.-Bahrain FTA, CAFTA-DR, U.S.-Oman FTA, U.S.-Peru FTA, KORUS, U.S.-Colombia TPA, and U.S.-Panama TPA.

Notes: The WTO Uruguay Round agreements, the U.S.-Israel FTA, and the U.S.-Canada FTA do not contain an environment chapter or other environment-related provisions.

The table summarizes the environmental provisions of each agreement, but may not include all of the provisions in each agreement.

The precise language of the provisions varies somewhat in each agreement, so the strength of the commitment is not the same in each agreement.

Table E.9: Government procurement provisions in U.S. bilateral and regional trade agreements

Countries/FTAs	NAFTA	Jordan	Chile	Singapore	Australia	Morocco	Bahrain	CAFTA-	Oman	Peru	Korea	Colombia	Panama
	(USA, Canada, Mexico)							DR					
GPA member?	Canada– Yes Mexico– No	No	No	Yes	No	No	No	No	No	No	Yes	No	No
Timely information (Articles XI & VI)	GPA -	n/a	GPA -	GPA +	GPA -	GPA -	GPA -	GPA -	GPA -	GPA	GPA +	GPA -	GPA -
Transparency (Articles XVI & XVII)	GPA -	n/a	GPA -	GPA	GPA	GPA	GPA	GPA -	GPA	GPA	GPA	GPA	GPA
Technical specifications (Article X)	GPA	n/a	GPA	GPA	GPA	GPA	GPA	GPA	GPA	GPA +	GPA +	GPA +	GPA +
Tender documentation (Article X)	GPA -	n/a	GPA -	GPA -	GPA -	GPA -	GPA -	GPA -	GPA -	GPA -	GPA -	GPA -	GPA -
Limited tender (Article XIII)	GPA +	n/a	GPA +	GPA +	GPA +	GPA	GPA	GPA	GPA	GPA +	GPA +	GPA	GPA
Tender treatment and awards (Article XV)	GPA	n/a	GPA -	GPA	GPA	GPA -	GPA	GPA -	GPA +	GPA	GPA	GPA	GPA -

Sources: Compiled by the USITC from the U.S.-Jordan FTA, NAFTA, U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia FTA, CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, and KORUS.

Notes: The WTO Government Procurement Agreement (GPA) is the original multilateral agreement on this subject. Its provisions and structure have been used as a model for U.S. trade agreements, usually with only small departures. This table shows whether the subheading's provisions are largely identical to those of the GPA (GPA), cover less than the GPA (GPA -), or cover more than the GPA (GPA +). In the case of Jordan, not applicable (n/a) is denoted in the table since the U.S.-Jordan FTA's government procurement provisions are limited to one Article (Article 9).

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Appendix F

Details of the Economic Models

Introduction

This appendix provides a technical description of the economic models used in chapter 3. It describes the data sources, methodology, sensitivity analysis, and technical caveats of the models.

Estimates of the Impacts on the Economy as a Whole

Impacts of the Agreements on Barriers to Cross-Border Trade in Goods and Services

This section gives a detailed description of one set of econometric models discussed in chapter 3, which estimate how the U.S. bilateral and regional trade agreements would affect barriers to cross-border trade in goods and services. Equation (F1), the econometric specification, is based on the panel data model in Baier and Bergstrand (2007).

$$\Delta \ln X_{sod} = \alpha_{so} + \beta_{sd} + \gamma_s (1 - \sigma_s) \Delta TA_{od} U_{od} + \delta_g (1 - \sigma_s) \Delta TA_{od} (1 - U_{od}) + \varepsilon_{sod} \quad (\text{F1})$$

$\Delta \ln X_{sod}$ is the change in the log of exports from country o to country d in sector s between 2004 and 2011. ΔTA_{od} is the change in an indicator of whether country o and country d have a bilateral or regional trade agreement. U_{od} is an indicator that is equal to one if country o or country d is the United States, and is equal to zero otherwise.

The sector-exporter-year and sector-importer-year fixed effects (α_{sot} and β_{sdt}) absorb the multilateral resistance terms of the gravity model. If the econometric model were specified in levels rather than differences, then it would also include a set of country-pair fixed effects to address the potential endogeneity of trade agreement formation, following Baier and Bergstrand (2007). In the differenced model in equation (F1), the country-pair fixed effects drop out and estimation is based on variation within each country pair and sector.

The parameters $\gamma_s (1 - \sigma_s)$ represent the average treatment effect of the trade agreement on trade flows of sector s , conditional on the sector-exporter-year and sector-importer-year effects. σ_s is the sector-specific elasticity of substitution. γ_s is the semi-elasticity of the tariff equivalent of the barriers to cross-border trade with respect to trade agreement status. The econometric estimation assumes that the value of γ_s is the same for all of the sectors within each of the groups of sectors in table 3.2 in chapter 3. Economic theory suggests that γ_s will be negative or zero: the trade agreements reduce, or have no effect on, the tariff equivalents of the barriers to cross-border trade.

The gravity models are estimated using Global Trade Analysis Project (GTAP) version 9 data for 2004 and 2011. The models include 120 GTAP regions. They do not include the GTAP regions that start with an “x.” These “x” regions are not specific countries; they are “rest of” categories like “rest of the world.”

The gravity models include 49 GTAP sectors. These include the traded goods and services sectors in table F.1, but not services that are essentially non-traded. The GTAP sectors that are not included in the econometric estimation are construction (cns); dwellings (dwe); electricity (ely); gas manufacture and distribution (gdt); public administration, defense, education, and health (osg); recreational and other services (ros); trade (trd); and water (wtr).

Table F.1: Groups of GTAP sectors used in the econometric estimations

Groups of sectors	GTAP sectors
Grains and crops	Sugarcane and sugar beet (c_b); cereal grains nec (gro); processed rice (pcr); paddy rice (pdr); plant-based fibers (pfb); crops nec (ocr); oilseeds (osd); vegetables, fruit, nuts (v_f); wheat (wht)
Livestock and meat	Bovine meat products (cmt); bovine cattle, sheep and goats, horses (ctl); animal products nec (oap); meat products nec (omt); raw milk (rmk); wool, silkworm cocoons (wol)
Mining and extraction	forestry (frs); fishing (fsh); coal (coa); gas (gas); oil (oil); minerals nec (omn)
Light manufacturing	beverages and tobacco products (b_t); metal products (fmp); leather products (lea); wood products (lum); dairy products (mil); motor vehicles and parts (mvh); food products nec (ofd); manufactures nec (omf); transport equipment nec (otn); paper products, publishing (ppp); sugar (sgr); textiles (tex); vegetable oils and fats (vol); wearing apparel (wap)
Heavy manufacturing	chemical, rubber, plastic products (crp); electronic equipment (ele); ferrous metals (i_s); metals nec (nfm); mineral products nec (nmm); machinery and equipment (ome); petroleum, coal products (p_c)
Tradable services	air transport (atp); communication (cmn); insurance (isr); business services nec (obs); financial services nec (ofi); transport nec (otp); water transport (wtp)

Source: GTAP Database. The abbreviation “nec” indicates not elsewhere classified.

The GTAP sectors that are included in the econometric analysis are divided into these six groups for pooling in the estimation of γ_S .

The data on whether there is a trade agreement between the two countries in the particular year come from Bergstrand’s Economic Integration Agreement database.⁷⁰⁸ TA_{od} is equal to one if the Economic Integration Agreement value of the two countries in the particular year is 3

⁷⁰⁸ Database on Economic Integration Agreements (September 2015).

or greater, and is equal to zero otherwise. The values for the sector-specific elasticity of substitution σ_s are from the default parameter file in version 9 of the GTAP database.

Table F.2 reports a separate estimate of γ_s for each group of sectors in a different row. The differences in equation (F1) are the changes from 2004 to 2011, the first and last years in version 9 of the GTAP data.

Table F.2: Estimates of the impact of the U.S. bilateral and regional trade agreements on selected sectors

Groups of GTAP sectors	Point estimate	Robust standard error	p value
Grains and crops	-0.0637	0.0260	0.014
Livestock and meat	-0.0591	0.0250	0.018
Mining and extraction	0.0272	0.0343	0.428
Light manufacturing	-0.0479	0.0123	0.000
Heavy manufacturing	-0.0416	0.0153	0.006
Tradable services	-0.0339	0.0132	0.010

Source: USITC estimates.

Economy-wide Effects of U.S. Bilateral and Regional Trade Agreements

This section describes the simulation analysis used in chapter 3 to estimate the economy-wide effects of the U.S. bilateral and regional trade agreements. The economy-wide impact of the trade agreements is simulated using a GTAP model based on version 9 of the GTAP database, aggregated into 45 sectors and 25 regions. It is a standard GTAP structural model that is extended to have a flexible aggregate labor supply, with an elasticity equal to 0.4 in the United States.

The shocks to the GTAP model are the percentage changes in the tariff equivalents of the barriers to cross-border trade, by country pair and sector, if the trade agreements were not in effect. The magnitude of these shocks is based on the average treatment effects estimated in the sector-level gravity models reported in table 3.2.

The GTAP model simulates the percentage changes in aggregate economic measures, including U.S. real GDP and aggregate employment, when moving from the baseline level (trade agreements in place) barriers to the counterfactual (absent the trade agreements). The model results are then converted into percentage changes when moving from counterfactual levels (absent the trade agreements) to the actual levels that prevailed (the baseline).

Estimates of the Effects on International Investment, Intellectual Property, and Merchandise Trade Balances

Impacts of Foreign Patent Protection on U.S. Intellectual Property Receipts

This section describes the details of the econometric model used to quantify the impact of foreign patent protection on U.S. intellectual property (IP) receipts in chapter 3. It describes the methodology used to generate those estimates and also presents sensitivity analyses to test the robustness of the results to changes in the model's specification.

Equation (F2) is the econometric specification used to relate IP receipts and patent protections.⁷⁰⁹

$$\ln IPReceipts_{ct} = \alpha \ln GDP_{ct} + \beta GP_{ct} + \gamma_c + \delta_t + \varepsilon_{ct} \text{ (F2)}$$

The variable $\ln IPReceipts_{ct}$ is the log of U.S. IP receipts from country c in year t , and $\ln GDP_{ct}$ is the log of the country's GDP. GP_{ct} is the value of the GP index for country c in year t .⁷¹⁰ The country fixed effects γ_c represent time-invariant factors like international distance, common language, and historical institutions that affect the level of patent protection.⁷¹¹ The year fixed effects δ_t control for any changes in the U.S. technology (or intellectual property) stock and effectively deflate the other variables.

⁷⁰⁹ The approach is similar to that used in Ivus, "Do Stronger Patent Rights Raise High-Tech Exports to the Developing World?" 2010, and Lippoldt and Schultz, "Uncovering Trade Secrets," 2014.

⁷¹⁰ Park, "Patent Index 1960–2010," n.d. (accessed February 22, 2016). Compiled by Ginarte and Park in 1997, the GP index measures patent rights for 60 countries between 1960 and 1990.

⁷¹¹ This is a conventional way to deal with endogeneity, following Baier and Bergstrand, "Do Free Trade Agreements Increase Members' International Trade?" 2007.

This analysis estimates the model for 30 economies using the three years (2000, 2005, and 2010) when there are both services trade data on U.S. IP receipts from the U.S. Department of Commerce’s Bureau of Economic Analysis (BEA) and GP index data.⁷¹² GDP data for 2000–2010 are from the International Monetary Fund.⁷¹³

Table F.3 reports the coefficient estimates for equation (F2) in the first specification. The coefficient of the GP index—the impact of patent protections on IP receipts—is positive and statistically significant. To examine the robustness of the estimates to changes in our model specification, several alternative specifications were considered.

The second specification has the log of all other U.S. cross-border exports of services as the dependent variable, instead of IP receipts. This specification can be used to look for omitted variable bias. Comparing specifications 1 and 2 provides a useful test of the assumption that the coefficient for the GP index is only capturing the effect of increases in the extent of patent protection, rather than other factors that might increase demand for imports of services into country *c*. If the assumption is correct, then the estimated coefficient for the GP index should have a significant positive effect in the model of IP receipts (specification 1 of table F.3), which is limited to U.S. IP receipts, but it should have no significant effect in the model of U.S. exports of other services to country *c* (specification 2 of table F.3). The estimates support the assumption.

Table F.3: Econometric estimates for different specifications of the IP model

Variables	1	2	3	4
Dependent variable	IP receipts	All other exports of services	IP receipts	IP receipts
Coefficient of GP index	0.3468 (0.1677)	0.0471 (0.1411)		0.3944 (0.1588)
Coefficient of GP index x Fraser			0.0319 (0.0135)	
Coefficient of Ln GDP	0.6555 (0.1870)	0.5549 (0.1522)	0.6677 (0.1851)	0.6523 (0.2022)
Country fixed effects	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included
Number of observations	90	90	88	81
Adjusted R-squared	0.9662	0.9724	0.9660	0.9708

Source: USITC estimates.

Notes: Robust standard errors in parenthesis.

⁷¹² The 30 individual economies in the BEA data on U.S. IP receipts are as follows: Argentina, Australia, Brazil, Canada, Chile, China, France, Germany, Hong Kong, India, Indonesia, Israel, Italy, Japan, South Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, and the United Kingdom. BEA, "Table 2.1," October 15, 2015. Although Venezuela is in both the BEA and GP datasets, it is dropped from the analysis due to unusual circumstances in that country: it is the one country in the dataset for which patent protections decreased during the time period. The analysis also drops Ireland, as only one year of IP receipt data are available for it.

⁷¹³ IMF, World Economic Outlook databases (accessed February 22, 2016).

The third specification focuses on the rule of law. Although the GP index measures patent protection, it is limited to *statutory* protection levels. Statutory rights, however, may have different impacts depending on the country's level of rule of law. Therefore, the third specification replaces the value of the GP index with the product of the GP index and the country-year value of the Fraser Institute's index of legal systems and property rights, following Hu and Png and Maskus and Yang.⁷¹⁴ Although this specification has the benefit of taking into account the effectiveness of legal institutions rather than simply measuring changes in legislative patent protections, the Fraser index does not focus specifically on the enforcement of patents or other IPRs, but on the rule of law more generally.⁷¹⁵ The estimate indicates that the patent protection measure had a significant positive impact on IP receipts. However, since adding the Fraser index does not improve the regression's adjusted R^2 , and the index does not focus specifically on IPR protection or enforcement, specification 1 is preferred, as it uses the most direct and simple measure of patent protection.

As a final sensitivity test, the IP model was estimated without four leading tax haven countries— Ireland, Hong Kong, the Netherlands, and Switzerland. Although Ireland was already excluded from all of the specifications because of incomplete data, Hong Kong, the Netherlands, and Switzerland are also excluded in this fourth specification to test whether their inclusion had a large effect on the econometric estimates.⁷¹⁶ In this case, the estimated coefficient on the value of the GP index is similar, 0.3944, with a robust standard error of 0.1588.

The final step of the analysis is to calculate the increase in IP receipts between 1995 and 2010 that is attributable to the increase in patent protection during the same time period. This calculation multiplies the increase in the GP value between 1995 and 2010 by the econometric estimate of β from specification 1, 0.3468. The result is the change in a country's $\ln IPReceipts_{ct}$ in 2010 that is attributable to increases in patent protections since 1995, holding the other variables constant.

For many of the countries, there was no increase in the GP index over this time period, so the estimated impact was zero. For other countries, the percentage increases implied by the models were large. Chapter 3 reports a dollar value for the impact on IP receipts of the changes in protections from 1995 through 2010, as well as the percentage increases in receipts. The percentage increase in IP receipts uses as the denominator the IP receipts that would have occurred in 2010 if GP index values had not increased since 1995. For example, the 107 for

⁷¹⁴ See Hu and Png, "Patent Rights," 2013, and Maskus and Yang, "The Impacts of Post-TRIPS," 2013.

⁷¹⁵ Fraser Institute, "Economic Freedom," 2015, 4.

⁷¹⁶ There is no precise definition of which countries are tax havens, which are not, or which have some characteristics of tax havens. For a discussion of this issue and relevant countries, see Gravelle, "Tax Havens," 2015.

China means that U.S. IP receipts from China were 107 percent higher in 2010 than they would have been if China's GP index had not increased since 1995. Or alternatively, if China's GP index value had not increased since 1995, IP receipts from China in 2010 would have been $100 - [100 / (100 + 107)] = 52$ percent lower than they actually were in 2010.

Impacts of U.S. Bilateral and Regional Trade Agreements on Foreign Direct Investment

This section describes the details of the econometric models used to quantify the impact of the bilateral and regional trade agreements on international investment in chapter 3. Equation (E3) is the econometric specification.

$$FDI_{ct} = \alpha \ln GDP_{ct} + \beta TA_{ct} + \gamma_c + \delta_t + \varepsilon_{ct} \text{ (F3)}$$

The variable FDI_{ct} is the stock of U.S. direct investment in country c in year t , and $\ln GDP_{ct}$ is the log of the country's GDP. TA_{ct} is an indicator variable that is equal to one if the United States and country c have a trade agreement in place in year t . The country fixed effects γ_c represents time-invariant factors like international distance, common language, and historical institutions that affect foreign direct investment (FDI).⁷¹⁷ The year fixed effects δ_t control factors that are common across the destination countries.

This specification is based on the fixed effects in Bergstrand and Egger (2007), with two important modifications. First, the model in equation (F3) includes year fixed effects that absorb the GDP term for the origin country, the United States. Second, the model includes country fixed effects that absorb the international distance and common language terms in Bergstrand and Egger (2007) but do not absorb the indicator variable for the trade agreement. The country fixed effects in equation (F3) are equivalent to country-pair fixed effects, since all of the country pairs in the estimation sample include a common country, the United States.

The sign of β is generally ambiguous, as noted in chapter 3. The investment provisions in the agreements could increase FDI. However, the reductions in barriers to cross-border trade in the agreements could make FDI less attractive and could make cross-border trade more attractive.

The measure of U.S. outbound FDI is from the BEA. It is the U.S. direct investment position abroad on a historical cost basis. The data are the latest 10 years of annual values available, by country from 2005 to 2014. The outbound model includes the 70 partner countries listed in table F.4.

⁷¹⁷ This is a conventional way to deal with endogeneity, following Baier and Bergstrand, "Do Free Trade Agreements Increase Members' International Trade?" 2007.

Table F.4: Countries included in the model

Country in model of outbound FDI	
Algeria	Korea
Argentina	Lebanon
Australia	Luxembourg
Austria	Malaysia
Bangladesh	Mexico
Belgium	Morocco
Bolivia	Netherlands
Brazil	New Zealand
Bulgaria	Nicaragua
Canada	Nigeria
Chile	Norway
China	Panama
Colombia	Peru
Costa Rica	Philippines
Cyprus	Poland
Czech Republic	Portugal
Denmark	Romania
Dominican Republic	Russia
Ecuador	Saudi Arabia
Egypt	Singapore
El Salvador	South Africa
Finland	Spain
France	Sweden
Germany	Switzerland
Guatemala	Taiwan
Honduras	Thailand
Hong Kong	Trinidad and Tobago
Hungary	Tunisia
India	Turkey
Indonesia	Ukraine
Ireland	United Arab Emirates
Israel	United Kingdom
Italy	Uruguay
Jamaica	Venezuela
Japan	Vietnam

Source: USITC estimates.

Since the United States is the source country for all of these investments, the model is estimating the average effect of trade agreements that involve the United States. The data on the GDPs of the host countries are from the World Bank's World Economic Outlook database.

Table F.5 reports the econometric estimates for the specification in equation (F3).

Table F.5: Econometric estimates for U.S. outbound foreign direct investment

Explanatory variables	All industries	Manufacturing	Services and mining
Trade agreement in place	-0.2336 (0.0735) [0.002]	-0.2392 (0.0614) [0.000]	-0.0804 (0.0883) [0.363]
Log of GDP	0.5518 (0.0883) [0.000]	0.7789 (0.1048) [0.000]	0.3991 (0.1043) [0.000]
Country fixed effects	Included	Included	Included
Year fixed effects	Included	Included	Included
Number of observations	818	785	777
R-squared statistic	0.9617	0.9528	0.9524

Source: USITC estimates.

Note: The table reports robust standard errors in parentheses and p-values in square brackets.

Table F.6 reports the econometric estimates for an alternative specification that replaces the FDI measure with a measure of foreign affiliate sales of services.

Table F.6: Econometric estimates for U.S. foreign affiliate sales of services

Explanatory variables	Foreign affiliate sales of services	U.S. affiliate sales of services
Trade agreement in place	-0.0724 (0.0464) [0.000]	0.1491 (0.4303) [0.729]
Log of GDP	0.5392 (0.0928) [0.119]	-0.1009 (0.2123) [0.635]
Country fixed effects	Included	Included
Year fixed effects	Included	Included
Number of observations	378	294
R-squared statistic	0.9889	0.9748

Source: USITC estimates.

Note: The table reports robust standard errors in parentheses and p-values in square brackets.

Effects on the Merchandise Trade Balance

Equation (F4) is the general econometric specification.

$$TB_{ct} = \alpha TA_{ct} + \beta TA_{ct} GDP_{ct} + \gamma GDP_{ct} + \delta_c + \pi_t + \varepsilon_{ct} \quad (F4)$$

The variable TB_{ct} is the U.S. bilateral trade balance with country c in year t , TA_{ct} is an indicator that is equal to one if there is a trade agreement in force between the United States and country c and is zero otherwise, and GDP_{ct} is a measure of the size of the economy of country c . The variables δ_c and π_t are a country fixed effect and a year fixed effect, and ε_{ct} is the error term. The interaction term allows the effects of the trade agreements on bilateral trade balances to vary with country size.

The first version of the econometric specification assumes that $\beta = \gamma = 0$ but imposes no restrictions on the other parameters of the model. The second specification imposes no restrictions on any of the parameter values. Table F.7 presents the econometric parameter estimates for these two versions of the model.

Table F.7: Econometric estimates of the effect on the merchandise trade balance

Explanatory variables	More restricted model	Less restricted model
Trade agreement in force	2.964 (0.493)	0.429 (0.714)
Trade agreement interacted with country size		0.010 (0.004)
Country size		-0.023 (0.002)
Country fixed effects	Included	Included
Year fixed effects	Included	Included
Number of observations	3,740	3,672
Adjusted R-squared statistic	0.8213	0.9161

Source: USITC estimates.

Note: The dependent variable is the U.S. bilateral trade balance with a country each year. Robust standard errors are reported in parentheses.

The effects on trade balances reported in table 3.8 are based on the following formula:

$$\Delta TB_{ct} = \alpha + \beta GDP_{ct} \quad (F5)$$

Estimates of the Consumer Benefits of the Agreements

Impacts of the Agreements on the Variety of Products Imported into the United States

This section describes the econometric analysis of the effects of the U.S. trade agreements on the variety of imports in chapter 3. The econometric models predict whether a particular product is imported into the United States from a particular country each year, based on the following economically relevant factors: the global average transportation cost per mile of importing the product in the year; the growth rate of real income in the United States and the log of real GDP; the number of countries exporting the industry's products to the United States in the year, as a proxy for the level of market competition at the beginning of the period when firms are making their export decisions; indicators for whether the country has joined the GATT and the URAs; indicators for whether the country has a bilateral trade agreement with the

United States; and other industry, country, and year-specific factors that are included as fixed effects.⁷¹⁸

An extension of the model tries to determine whether the increase in product variety imported from partner countries is coming at the expense of imports from non-partner countries. That is, the analysis investigates if the increase in product variety is a net increase in overall product variety and not simply a diversion of trade from non-signatory countries to signatory countries. Finally, the models investigate whether the trade agreements affect industrial sectors differently by estimating a separate model for each, allowing the models to capture heterogeneity in the effects of the trade agreements across industrial sectors. The models incorporate the definitions of industrial sectors found in the data manual of the Harmonized Tariff Schedule of the United States (HTS).⁷¹⁹

The tariff and import data come from the Commission's DataWeb database and cover the period 1990–2014.⁷²⁰ The macroeconomic variables for the United States come from the World Bank's World Development Indicators. The dates of implementation for each of the trade agreements come from the U.S. Trade Representative website, and data on the dates of entry into the Uruguay Round comes from the World Trade Organization website.

Across both specifications, NAFTA increases the probability of importing products from NAFTA countries. The enactment of the agreement increases the probability of importing products, across all sectors, by 0.3 percent. Since NAFTA has no statistically significant effect on the probability of importing goods from non-NAFTA countries, the positive direct effect on imports from NAFTA countries represents a net increase in the global product variety in U.S. imports and not a diversion of trade from non-NAFTA import partners to Mexico and Canada.

⁷¹⁸ The trade agreement dummy variables are interacted with the country dummy variable for each signatory country. In the case of NAFTA, the dummy variable is equal to one for imports coming from Canada or Mexico after 1995. By construction, these trade agreement dummy variables capture the effect of the agreements on the decision by the participating country (countries) to export to the United States after the trade agreement enters into force.

⁷¹⁹ The 17 sectors are listed in the HTS data manual: (1) live animals; animal products; (2) vegetable products; (3) animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes; (4) prepared foodstuffs; beverages, spirits, and vinegar; tobacco and manufactured tobacco substitutes; (5) mineral products; (6) products of the chemical or allied industries; (7) plastics and articles thereof; rubber and articles thereof; (8) raw hides and skins, leather, fur skins and articles thereof; saddlery and harness . . . ; (9) wood and articles of wood; wood charcoal; cork and articles of cork . . . ; (10) pulp of wood or of other fibrous cellulosic material; . . . ; (11) textile and textile articles; (12) footwear, headgear, umbrellas, sun umbrellas, walking sticks, seat sticks, whips . . . ; (13) articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware; (14) natural or cultured pearls, precious or semiprecious stones . . . ; (15) base metals and articles of base metal; (16) machinery and mechanical appliances; electrical equipment; parts thereof; . . . ; and (17) vehicles, aircraft, vessels and associated transport equipment.

⁷²⁰ USITC DataWeb/USDOC (accessed December 10, 2015).

When the model analyzes the effect of NAFTA across the 17 HTS industry sectors, the effect is positive on the variety of products from NAFTA countries for live animals and animal products (sector 1) and footwear (sector 12). The magnitudes of the increases in the probability of importing range from 2.1 percent to 6.0 percent. Additionally, the enactment of NAFTA increases the probability of importing products from non-NAFTA countries from sector 2 (vegetable products), but decreases the probability of importing goods from sector 10 (pulp of wood, etc.). These results indicate that the NAFTA agreement increased product variety imported from NAFTA countries without diverting trade from non-NAFTA countries.

In contrast, joining the Uruguay Round on average has no statistically significant impact on product variety. However, joining the GATT increased the probability of importing goods by 0.6 percent, though the effect varies across industry sectors.

Tariff Savings from the Bilateral and Regional Trade Agreements

This section describes the details of the calculations presented in chapter 3 of the savings to U.S. consumers from the tariff reductions associated with the U.S. trade agreements. The tariff savings are calculated for each trade agreement in 2014 for each tariff line and source country. The first step is to identify the U.S. import shipments that entered under the trade agreement programs. The second step is to estimate the tariff rate that these imports would have faced absent the trade agreement. If there are non-program imports in the same tariff line from the same country in 2014, then the tariff rate on those imports serves as this alternative rate. Non-program imports are imports that did not enter the United States under a special import program like a trade agreement or the General System of Preferences. A tariff line is defined as an HTS 8-digit code. If there are no non-program imports in the same tariff line from the same country in 2014, then a weighted average rate for non-program imports in the same tariff line from other source countries serves as the alternative rate. Tariff savings are calculated as the customs value of the trade agreement imports multiplied by the difference between the alternative tariff rate and the trade agreement tariff rate.

The trade and tariff data are from the USITC's DataWeb.⁷²¹ The consumer expenditure data are from the Consumer Expenditure Survey of the U.S. Bureau of Labor Statistics.⁷²²

⁷²¹ USITC DataWeb/USDOC (accessed December 10, 2015).

⁷²² Current aggregate expenditure shares for 2014. The data are publicly available at U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, Current Aggregate Expenditure Shares Tables.

Estimates of the Impacts of Industry-Specific Agreements in the URAs

Effects of the Information Technology Agreement on U.S. Exports

This section describes the details of the econometric model presented in chapter 3 estimating the impact of the ITA on U.S. exports of information and communication technology products. Equation (F6) is the econometric specification.

$$\ln X_{jc} = \alpha_j + \beta ITA_c POSLIST_j + \gamma_c + \varepsilon_{jc} \text{ (F6)}$$

$\ln X_{jc}$ is the log of the value of U.S. exports of product j to country c in the year. ITA_c is an indicator variable equal to one if country c has fully implemented the ITA in the year, and is equal to zero otherwise. $POSLIST_j$ is an indicator variable that is equal to one if product j is a product on the list of HTS codes covered by the ITA. The fixed effects control for many factors that are difficult to measure but should not be otherwise omitted from the regressions. α_j is an industry fixed effect that controls for supply-side factors like new product development and the entry of new competitors like China into the global market. γ_c is a destination country fixed effect that controls for demand-side factors in the destination country c , including aggregate demand in the country, its distance from the United States, and its exchange rate with the U.S. dollar. ε_{jc} is the error term.

The econometric model in equation (F6) was estimated separately for 2000, 2005, and 2010. Table F.8 reports the econometric estimates of β for these years. The econometric analysis indicates that the ITA has had a positive and statistically significant impact on U.S. exports of the covered products to the ITA member countries.

Table F.8: Econometric estimates of the effects of the ITA on U.S. Exports

Econometric estimates	Model for 2000	Model for 2005	Model for 2010
Point estimate of β	0.777	0.933	0.4478
Robust standard error	0.050	0.049	0.0485
P value	0.000	0.000	0.000
Number of observations	141,687	140,900	141,828
R-squared statistic	0.5807	0.5774	0.5916

Source: USITC estimates.

The calculations of the dollar values of the impacts of the ITA on U.S. exports of the covered products in 2000, 2005, and 2010 are based on the econometric estimates of β in table F.9. The calculations multiply the absolute value of $\frac{1 - \exp(\beta)}{\exp(\beta)}$ for each year by the value of U.S. exports of

the covered products to countries that have already fully implemented the ITA in that year. In total, the estimated impact on U.S. exports was \$29.2 billion in 2000, \$30.3 billion in 2005, and \$34.4 billion in 2010 (all in current dollars).

Effects of the Trade Agreements on U.S. Steel Imports

This section describes the details of the econometric model presented in chapter 3 estimating the impact of NAFTA and Uruguay Round tariff reductions on U.S. imports of steel mill products. The model focuses on U.S. imports of steel mill products from 44 WTO member countries between 1990 and 2000.⁷²³ The steel mill products include HTS codes 7206.10.00 through 7301.10.00, 7302.10.10 through 7302.90.90, and 7304.10.10 through 7306.90.50.

Equation (F8) is the econometric specification.

$$\ln q_{jct} = \delta_{jt} + (-\lambda)(\ln p_{jct} + \ln charges_{jct}) + \eta_{jct} \text{ (F8)}$$

The variable $\ln q_{jct}$ is log of the quantity of the U.S. imports of steel product j from country c in year t , and $\ln p_{jct}$ is log of the producer price of the steel imports. The specification assumes a constant price elasticity of demand. The variable $\ln charges_{jct}$ is the log of the measure of import charges. The measure of import charges is the ratio of the landed duty-paid value of the imports to their customs value. This ratio, which is greater than one, includes freight costs as well as general tariffs. The variable δ_{jt} controls for fluctuations over time in total expenditures in the U.S. market for steel product j , as well as fluctuations in the price index that includes all suppliers in the U.S. market. The variable η_{jct} represents any additional demand factors that are specific to the product, country, and year.

Equation (F9) represents the corresponding import supply.

$$\ln q_{jct} = \theta \ln p_{jct} + \mu_{jc} + \omega_{jct} \text{ (F9)}$$

The variable μ_{jc} controls for country c 's capacity to manufacture steel product j , and ω_{jct} represents any additional supply factors that are specific to the product, country, and year.

Equation (F8) and (F9) imply the equilibrium exporter price in equation (F10).

⁷²³ The 44 countries are as follows: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Costa Rica, Denmark, the Dominican Republic, Ecuador, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, the Philippines, Poland, Portugal, Romania, Singapore, Spain, Sweden, Switzerland, Thailand, Trinidad and Tobago, Turkey, the United Kingdom, and Venezuela.

$$\ln p_{jct} = \frac{(-\lambda) \ln \text{charges}_{jct}}{\theta + \lambda} + \frac{\eta_{jct} + \delta_{jt} - \mu_{jc} - \omega_{jct}}{\theta + \lambda} \quad (\text{F10})$$

Equation (F11) decomposes the log of the value of the imports of product j from country c in year t , $\ln V_{jct}$, into the sum of the log of the price and the log of the quantity of imports.

$$\ln V_{jct} = \ln p_{jct} + \ln q_{jct} \quad (\text{F11})$$

Equations (F9), (F10), and (F11) imply the reduced-form model for the value of the imports in equation (F12).

$$\ln V_{jct} = \alpha_{jt} + \beta \ln \text{charge}_{jct} + \gamma_{jc} + \varepsilon_{jct} \quad (\text{F12})$$

This is the econometric specification. In terms of the underlying parameters of the model:

$$\beta = \frac{(\theta + 1)(-\lambda)}{\theta + \lambda} \quad (\text{F13})$$

$$\alpha_{jt} = \frac{(\theta + 1)}{\theta + \lambda} \delta_{jt} \quad (\text{F14})$$

$$\gamma_{jc} = \frac{\lambda - 1}{\theta + \lambda} \mu_{jc} \quad (\text{F15})$$

$$\varepsilon_{jct} = \left(\frac{\lambda - 1}{\theta + \lambda} \right) \omega_{jct} + \left(\frac{\theta + 1}{\theta + \lambda} \right) \eta_{jct} \quad (\text{F16})$$

Table F.9 reports the econometric estimates of β for two versions of the model. The first specification restricts the country fixed effects to be the same across all of the steel mill products. The second specification allows the country fixed effects to vary by product. In both versions, the estimated coefficient on the log of import charges is significantly less than zero at the 1 percent level.

Table F.9: Econometric estimates for the model of U.S. steel imports

Dependent variable: Log of the value of imports	Version 1	Version 2
Coefficient on the log of the import charges	-3.2333 (.5000)	-3.1207 (.4950)
Industry-year fixed effects	Included	Included
Country fixed effects	Included	Not included
Country-industry fixed effects	Not included	Included
Number of observations	7,007	7,007
Adjusted R-squared	0.5052	0.5845

Source: USITC estimates.

Note: Robust standard errors in parentheses.

The second version, which is less restricted, is a better fit for the data, according to the adjusted R-squared statistic.

Equation (F17) is the formula for the impact of the tariff reductions on the annual value of these U.S. imports of the steel mill products.

$$IMPACT_{jc} = \beta (\ln(1) - \ln(tar_{jc,1990})) V_{jct} \text{ (F17)}$$

The estimate of β is from the second version of the model in table F.9. The variable $tar_{jc,1990}$ is equal to one plus the average tariff rate on imports of product j from country c in 1990.

Employment Changes in the U.S. Textiles and Apparel Industries

This section describes the data and methodology used in the analysis of employment changes in the U.S. textile and apparel industries following the Agreement on Textiles and Clothing and other changes in trade policy related to textiles and apparel presented in chapter 3.

The data on the annual value of shipments and employment of U.S. producers in NAICS industries 313, 314, and 315 are from the Annual Survey of Manufactures and the Economic Census for 1997 through 2014.⁷²⁴ The data on the annual value of U.S. imports and exports in these three-digit industries are from the Commission's DataWeb.⁷²⁵ They are the landed duty-paid value of U.S. imports for consumption and the free alongside ship value of U.S. domestic exports of these industries from 1997 to 2014.

⁷²⁴ Available at U.S. Census, Annual Survey of Manufacturing, historical data (accessed January 17, 2016).

⁷²⁵ USITC DataWeb/USDOC (accessed January 17, 2016).

Equation (F18) represents the value of output per worker in industry j in year t .

$$Y_{jt} = \frac{X_{jt} + C_{jt} - M_{jt}}{L_{jt}} \quad (\text{F18})$$

The numerator in equation (F18), exports X_{jt} plus total U.S. consumption C_{jt} minus U.S. imports M_{jt} , is equal to U.S. domestic shipments in the industry. L_{jt} is industry employment. The expression for industry employment in equation (F19) simply inverts equation (F18).

$$L_{jt} = \frac{1}{Y_{jt}} (X_{jt} + C_{jt} - M_{jt}) \quad (\text{F19})$$

To think about the determinants of the value of output per worker, it is helpful to consider the simple case in which the industry has a Cobb-Douglas production function that includes capital and labor, a labor cost share equal to β_{jt} , and a competitive labor market with wage w_{jt} . In this case,

$$w_{jt}L_{jt} = \beta_{jt} (X_{jt} + C_{jt} - M_{jt}) \quad (\text{F20})$$

and

$$Y_{jt} = \frac{w_{jt}}{\beta_{jt}} \quad (\text{F21})$$

As industry j becomes more capital-intensive, β_{jt} declines and output per worker rises. The Cobb-Douglas case in equations (F20) and (F21) is one example based on a common set of modeling assumptions. In general, output per worker increases as workers become more productive, due to either increased capital investment, increased training, or technological innovation.

Equation (F22) is a decomposition of the growth in industry employment based on a log-linearization of equation (F19).

$$\hat{L}_{jt} \cong -\hat{Y}_{jt} + \left(\frac{X_{j,t-1}}{X_{j,t-1} + C_{j,t-1} - M_{j,t-1}} \right) \hat{X}_{jt} + \left(\frac{C_{j,t-1}}{X_{j,t-1} + C_{j,t-1} - M_{j,t-1}} \right) \hat{C}_{jt} + \left(\frac{-M_{j,t-1}}{X_{j,t-1} + C_{j,t-1} - M_{j,t-1}} \right) \hat{M}_{jt} \quad (\text{F22})$$

The variable \hat{L}_{jt} is the growth rate of employment in industry j from year $t - 1$ to year t , $\frac{L_{jt} - L_{j,t-1}}{L_{j,t-1}}$. The variables \hat{Y}_{jt} , \hat{X}_{jt} , \hat{C}_{jt} , and \hat{M}_{jt} are also defined as the growth rates of these factors from year $t - 1$ to year t . According to equation (F22), the annual growth rate of industry employment is approximately equal to a sum of four terms that reflect the growth rates of

output per worker in the industry, U.S. export in the industry, total U.S. consumption of the products of the industry, and the U.S. imports of these products.⁷²⁶ By calculating the value of each of the four terms, the decomposition quantifies the contributions of each of these four factors to the historical declines in industry employment. The sum of the terms on the right-hand side of equation (F22) is an approximation, since equation (F19) is not exactly log-linear.⁷²⁷

⁷²⁶ The decomposition in equation (F22) is based on the accounting identity in equation (F19). This growth accounting is not an analysis of causality.

⁷²⁷ The approximation is more exact when changes are small, and so it works well in this case.

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Appendix G

Chapter 4: Tables and Additional Information

Table G.1: Express delivery and customs administration and trade facilitation provisions in U.S. bilateral and regional trade agreements

Country or region	Year	Cross-border trade											
		in services		Customs administration and trade facilitation									
		Postal monopoly	Transport services	Release of goods	Express shipment	Risk Assess.	Publ. & notif.	Admin.	Advance rulings	Rev. & appeal	Automation	Technical cooperation	Capacity building
Israel	1985	○	○	○	○	○	○	○	○	○	○	○	○
NAFTA	1994	○	● (land)	○	○	○	○	○	●	●	○	●	○
Jordan	2001	○	○	○	○	○	○	○	○	○	○	○	○
Chile	2004	●	○	●	●	●	●	○	●	●	○	●	○
Singapore	2004	○	○	●	●	●	●	●	●	●	○	○	○
Australia	2005	●	○	●	●	●	●	●	●	●	○	●	○
Bahrain	2006	●	○	●	●	●	●	○	●	●	●	●	○
CAFTA	2006	●	○	●	●	●	●	○	●	●	●	●	●
Morocco	2006	●	○	●	●	●	●	○	●	●	●	●	○
Oman	2009	●	○	●	●	●	●	○	●	●	●	●	○
Peru	2009	●	○	●	●	●	●	○	●	●	●	●	○
Colombia	2012	●	○	●	●	●	●	○	●	●	●	●	○
KORUS	2012	●	○	●	●	●	●	○	●	●	●	●	○
Panama	2012	●	○	●	●	●	●	○	●	●	●	●	○

Source: Compiled by Commission staff from U.S.-Israel FTA, NAFTA, U.S.-Jordan FTA, U.S.-Chile FTA, U.S.-Singapore FTA, U.S.-Australia FTA, CAFTA-DR, U.S.-Bahrain FTA, U.S.-Oman FTA, U.S.-Morocco FTA, U.S.-Peru FTA, U.S.-Panama TPA, U.S.-Colombia TPA, and KORUS.

Note: The column headings refer to disciplines in the agreements that affect express delivery providers. A filled circle (●) indicates that a given agreement contains such a discipline, while a hollow circle (○) indicates that it is lacking.

Disciplines on transportation services and competition between private express firms and national postal monopolies are included in the Cross-Border Trade in Services chapters in trade agreements. By contrast, disciplines that address, among other things, the release of goods and the treatment of express shipments at customs checkpoints are found in agreements' Customs Administration and Trade Facilitation chapters. In addition, publication and notification disciplines (abbreviated as publ. & notif.) in an agreement's Customs chapter require that trade agreement partner countries publish their customs laws, regulations, and administrative procedures on the Internet. Review and appeal disciplines (abbreviated as rev. & appeal) require that partner countries have access to administrative and judicial review procedures with respect to customs matters.

Table G.2: Mean value of SME^a exports as a share of destination country's GDP, 1996–2013

Year	Countries that are not U.S. trade agreement partners (mean)	Countries that are U.S. trade agreement partners (mean)	Difference in means	One-sided test of the difference in the group means (p-value)
2013	0.009	0.036	-0.026	0.0562
2006	0.007	0.051	-0.043	0.0108
2002	0.015	0.023	-0.008	0.3702
1996	0.017	0.028	-0.012	0.2983

Sources: U.S. Census, Profile of U.S. Importing and Exporting Companies, 2012–2013 (accessed November 24, 2015); Bergstrand and Baier, Database on Economic Integration Agreements, September 2015; World Bank, World Development Indicators database (accessed January 5, 2016). U.S. Census “Profile of U.S. Importing and Exporting Companies” data is published as Exhibits 5a and 5b, and typically data from Exhibit 5b is used in this analysis, since it appears 5b is the most updated series. GDP in market prices (current US\$) is the series used from the World Bank’s World Development Indicators.

Notes:

As a proxy for U.S. exports to the CAFTA-DR countries, this table uses U.S. Census data for U.S. exports to the Central American Common Market (CACM) countries: Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. This grouping is very similar to the CAFTA-DR countries, with the exception of the Dominican Republic. GDP is averaged for the five markets to estimate the scaled value of SME exports, and CACM is coded as having a trade agreement in 2006, since most of the CAFTA-DR countries implemented their trade agreements with the United States in that year.

Data on whether there is a trade agreement between the United States and an exporting country in the U.S. Census database are based on Bergstrand’s Economic Integration Agreement database, where “trade agreement” is equal to one if the Economic Integration Agreement value is 3 or greater, and is equal to zero otherwise. The following updates/changes were made to the dataset: all countries coded as having a trade agreement in 2012 were coded as having a trade agreement in 2013; Colombia was coded as having a trade agreement in 2012; and the Central American Common Market countries were coded as having a trade agreement in 2006.

There are variations in the total number of observations reported for each year from 1996 to 2013, as well as in the number of observations in each subgroup (countries that are not U.S. trade agreement partners vs. countries that are partners). In the 2013 calculation, for example, there are 24 total observations, with 9 observations in the trade agreement partner group (Australia, members of the Central American Common Market, Canada, Chile, Colombia, Israel, Korea, Mexico, and Singapore); data are not separately reported for other trade partner countries in that year.

^a SMEs (small and medium-sized enterprises) are defined as firms with less than 500 employees, following the definition used in previous Commission reports. The value of SME exports is calculated by adding up the export values for the five categories of company size with 499 employees or less, published by the U.S. Census.

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Appendix H

Findings from USITC Potential Economy-wide Effects Studies

Findings from USITC Potential Economy-wide Effects Studies

For the majority of the bilateral and regional trade agreements that the United States has entered into, the Commission has produced a report that details the likely impact the agreement will have on the U.S. economy and specific industry sectors.⁷²⁸ These forward-looking or *prospective* analyses use the explicit tariff reductions on traded goods in the agreement of interest, as well as information from industry representatives, to estimate aggregate effects on the United States, as well as sector-level changes, in an economy-wide simulation model. Specifically, the analysis in each of these reports estimates an agreement's impact on U.S. welfare, U.S. trade flows, and particularly affected industries.

Table H.1 summarizes the results of the modeling efforts for all agreements that the Commission has analyzed.⁷²⁹ While some reports estimated only minimal changes to imports and exports (Bahrain, Chile, Jordan, Panama), other estimated changes were relatively large (NAFTA, CAFTA-DR, Australia, KORUS). These estimates are largely based on the amount of trade already conducted with the trade agreement partner, the partner's size, and the degree to which tariffs and other barriers were to be reduced after an agreement entered into force. The same factors play an important role in estimating welfare changes, which range from a decrease of \$230.2 million to an increase of \$34.4 billion.

Table H.1: Commission projections of trade agreement impacts

Agreement with U.S.	Effects on U.S. welfare	Effects on total U.S. exports	Effects on total U.S. imports
<i>Agreements with projections requested under Section 332 of the Tariff Act of 1930</i>			
Jordan FTA (2001)	^(a)	Change in exports minimal	Change in imports negligible
NAFTA ^b (1994)	Increase of \$1.4 billion to \$34.4 billion ^c	Increase from \$24.2 billion to \$126.0 billion ^{c,d}	Increase from \$19.7 billion to \$89.4 billion ^{c,d}
<i>Agreements with projections requested under Section 2104(f) of the Trade Act of 2002</i>			
Australia FTA (2005)	Increase of \$490.8 million	Increase of \$1.5 billion	Increase of \$1.2 billion
Bahrain FTA (2006)	Increase of \$19.4 million at most	Changes to exports minimal	Changes to imports minimal
CAFTA-DR (2006)	Increase of \$135.3 million to \$248.2 million	Increase of \$1.9 billion	Increase of \$1.2 billion

⁷²⁸ These types of reports were not requested for the U.S.-Israel FTA (1984); the U.S.-Canada agreement, or CUSFTA (1989); and the Uruguay Round Agreements (1995).

⁷²⁹ These reports contain much more detailed information on the projected effects of their respective agreements than is provided in table H.1.

Agreement with U.S.	Effects on U.S. welfare	Effects on total U.S. exports	Effects on total U.S. imports
Chile FTA (2004)	From a decrease of \$23.0 million to an increase of \$345.3 million ^c	Change in exports negligible	Change in imports negligible
Colombia FTA (2012)	Increase of \$419 million	Increase of \$1.1 billion ^d	Increase of \$487 million ^d
KORUS (2012)	Increase of \$1.8 billion to \$2.1 billion	Increase of \$4.8 billion to \$5.3 billion ^d	Increase of \$5.1 billion to \$5.7 billion ^d
Morocco FTA (2006)	Increase of \$110.5 million to 131.6 million	Increase of \$267.4 million	Increase of \$237.9 million
Oman FTA (2009)	Changes to welfare negligible	Change in exports negligible	Change in imports negligible
Panama TPA (2012)	(^a)	Change in exports minimal	Change in imports minimal
Peru TPA (2009)	Increase of \$346 million	Increase of \$640.1 million	Increase of \$736.8 million
Singapore FTA (2004)	Decrease of \$230.2 million to a decrease of less than \$115.1 million ^c	Increase of \$144.7 million to \$361.9 million ^c	Increase of \$251.9 million to \$629.7 million ^c

Note: Effects that are relatively small but still large enough to be noticed are noted as minimal. Effects that are small enough to be hardly noticed (and potentially considered no different from a zero change) are noted as negligible. In addition to these reports, the Commission published a similar study on the effects of the Uruguay Round Agreements (*Potential Impact on the U.S. Economy and Industries*, 1994); however the study is not included in table H.1 as it does not provide estimated impacts on U.S. welfare, total U.S. exports, or total U.S. imports.

Source: The following USITC reports: *U.S.-Australia Free Trade Agreement*, 2004; *U.S.-Bahrain Free Trade Agreement*, 2004; *U.S.-Central America-Dominican Republic Free Trade Agreement*, 2004; *U.S.-Chile Free Trade Agreement*, 2003; *U.S.-Colombia Trade Promotion Agreement*, 2006; *Economic Impact on the United States of a U.S.-Jordan*, 2000; *U.S.-Korea Free Trade Agreement*; 2007; *U.S.-Morocco Free Trade Agreement*, 2004; *Economy-wide Modeling of the Economic Implications of a FTA with Mexico and a NAFTA*, 1992; *U.S.-Oman Free Trade Agreement*, 2006; *U.S.-Panama Trade Promotion Agreement*, 2007; *U.S.-Peru Trade Promotion Agreement*, 2006; *U.S.-Singapore Free Trade Agreement*, 2003.

^a This report uses a partial equilibrium analysis to estimate impacts of the agreement on specific products and industries that were expected to experience significant impacts; aggregate welfare effects were not reported.

^b The NAFTA report presented modeling results from the literature, rather than the Commission's own estimates.

^c USITC calculation based on percentage impacts provided in the respective report and U.S. GDP, imports, and exports for the year before the agreement's entry into force. GDP from World Bank, World Development Indicators database (accessed April 25, 2016). Trade data from USITC DataWeb/USDOC (accessed April 25, 2016).

^d Value reported applies to bilateral trade with the FTA partner, as opposed to the change in total imports or exports. The effect on total exports or total imports may be smaller as a result of trade diversion (i.e., the new trade to the FTA partner is partially the result of reduced trade with other partners, and change in total trade is the sum of these two effects).

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Appendix I

Data Tables for Figures

Table I.1: Uruguay Round and U.S. bilateral and regional agreements: Date entered into force

Country/Agreement	In Force
Israel	8/19/1985
Canada	1/1/1989
NAFTA (Mexico & Canada)	1/1/1994
Uruguay Round Agreements	1/1/1995
Jordan	12/17/2001
Singapore	1/1/2004
Chile	1/1/2004
Australia	1/1/2005
Morocco	1/1/2006
Bahrain	1/11/2006
CAFTA-DR/El Salvador	3/1/2006
CAFTA-DR/Honduras	4/1/2006
CAFTA-DR/Nicaragua	4/1/2006
CAFTA-DR/Guatemala	7/1/2006
CAFTA-DR/Dominican Rep.	3/1/2007
CAFTA-DR/Costa Rica	1/1/2009
Oman	1/1/2009
Peru	2/1/2009
Korea	3/15/2012
Colombia	5/12/2012
Panama	10/31/2012

Sources: For agreements with Australia, Bahrain, Chile, Colombia, Korea, Morocco, Oman, Panama, Peru, and Singapore, dates are from USTR, “Free Trade Agreements,” <https://ustr.gov/trade-agreements/free-trade-agreements>; for the agreement with Jordan, date is from USTR, “Countries and Regions,” <https://ustr.gov/countries-regions/europe-middle-east/middle-east/north-africa/jordan>; for agreements with Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, and Nicaragua, dates are from USDOS, “Benefits of U.S. Trade Agreements,” <http://www.state.gov/e/eb/tpp/bta/fta/c26474.htm>; for agreements with Canada, with Mexico and Canada (NAFTA), and with Israel, dates are from USITC, Impact of Trade Agreements: Effect, 2003. The date for the Uruguay Round agreements is from the WTO website, “The Uruguay Round,” https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact5_e.htm (all websites accessed May 2, 2016). Several of the individual agreements from the Uruguay Round entered into force at later dates. Table corresponds to **Figure 1.1**.

Table I.2: U.S. trade as a percentage of U.S. GDP, 1984–2014

Year	Trade as a percentage of U.S. GDP
1984	17.5
1985	16.6
1986	16.9
1987	17.9
1988	19.0
1989	19.4
1990	19.8
1991	19.7
1992	19.9
1993	20.0
1994	21.0
1995	22.4
1996	22.6
1997	23.3
1998	22.8
1999	23.2
2000	25.0
2001	22.8
2002	22.1
2003	22.5
2004	24.3
2005	25.5
2006	26.9
2007	28.0
2008	29.9
2009	24.8
2010	28.2
2011	30.9
2012	30.7
2013	30.0
2014	29.9

Source: World Bank, World Development Indicators database (accessed April 18, 2016). Table corresponds to **Figure 1.2**.

Table I.3: U.S. pharmaceutical imports: Total imports and three import subcategories entered under the Pharmaceutical Zero-for-Zero Initiative, 1996–2015 (billion dollars)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Pharma	11.21	14.20	17.96	23.78	29.11	33.96	40.70	49.29	52.68	56.11	65.23	71.78	79.95	82.42	86.47	93.02	89.36	85.55	92.51	109.82
HTS Ch. 30 (Formulated pharma)	4.92	6.80	8.97	11.47	12.17	15.96	21.70	28.55	32.25	35.57	42.38	48.44	52.80	56.03	61.96	65.88	64.78	63.25	73.77	88.75
K Code (Bulk pharma)	3.02	4.27	5.52	9.04	13.58	14.44	14.45	14.95	15.10	14.53	17.24	17.43	19.10	20.81	19.51	21.85	18.57	16.57	13.07	12.48
4 HTS Ch. 29 headings (Bulk pharma)	2.21	1.97	1.92	2.29	2.50	2.65	3.56	4.38	4.21	4.03	3.96	4.71	6.95	4.14	3.44	3.85	4.21	3.77	3.42	3.59

Source: USITC DataWeb/USDOC (accessed October 23, 2015, and February 12, 2016). Table corresponds to **Figure 2.2**.

Table I.4: Growing demand for avocados 1990-2014

Year	U.S. production	Total imports	Apparent consumption
1990	328.6	37.6	356.1
1991	326.4	53.2	365.8
1992	576.8	18.1	561.2
1993	318.0	52.8	349.5
1994	348.0	41.0	360.1
1995	389.0	56.0	424.5
1996	382.0	58.8	431.6
1997	354.0	133.7	477.4
1998	316.6	121.7	424.4
1999	374.6	173.3	542.5
2000	472.6	162.1	630.8
2001	462.7	262.4	721.0
2002	398.7	311.1	707.2
2003	466.8	320.3	783.6
2004	358.7	582.5	938.3
2005	624.8	424.8	1,035.1
2006	293.0	769.1	1,057.2
2007	386.2	694.1	1,066.6
2008	231.9	951.8	1,178.3
2009	597.0	760.6	1,316.9
2010	348.7	915.6	1,248.1
2011	525.9	1,108.0	1,603.5
2012	566.0	1,260.7	1,777.2
2013	366.2	1,607.5	1,948.4
2014	394.9	1,707.6	2,080.4

Source: USDA, ERS, 2015 Fruit and Tree Nuts Yearbook, October 30, 2015 table G-3. 2014 data are preliminary. Table corresponds to **Figure 4.1**.

Table I.5: Evolution of U.S. market access for Mexican avocados and U.S. imports (1990-2014)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mexico	21	333	860	487	617	690	1,791	4,128	9,277	11,859	13,084	12,856	27,167	35,014	38,676	134,316	108,975	219,364	234,507	300,607	266,645	318,938	431,319	509,771	604,634
RoW	13,356	16,703	23,289	7,742	23,315	17,886	23,640	22,548	51,362	43,416	65,449	60,680	91,845	106,138	106,628	129,891	83,703	129,494	80,331	131,127	78,365	96,368	71,247	62,056	124,508
Mexican access timeline						1993 Alaska only			1997 Northeast U.S. states in winter months					2001 32 U.S. states Oct-Apr.		2005 47 states year round				2007 Full market access year round					

Source: GTIS, Global Trade Atlas database (January 14, 2016); 69 Fed. Reg. 69748 (November 30, 2004). Table corresponds to **Figure 4.2**.

Appendix I: Data Tables for Figures

Table I.6: Korea's monthly imports of fresh blueberries from Chile and the United States (dollars)

Month and Year	Chile	United States
01/2011	0	0
02/2011	0	0
03/2011	0	17
04/2011	0	0
05/2011	0	0
06/2011	0	0
07/2011	0	0
08/2011	0	10
09/2011	0	0
10/2011	0	0
11/2011	0	0
12/2011	0	0
01/2012	0	0
02/2012	0	0
03/2012	0	0
04/2012	0	17
05/2012	0	0
06/2012	0	0
07/2012	0	265,567
08/2012	0	523,031
09/2012	0	257,895
10/2012	77,238	0
11/2012	248,998	0
12/2012	1,018,773	0
01/2013	1,507,265	0
02/2013	855,268	0
03/2013	751,867	0
04/2013	0	0
05/2013	0	0
06/2013	0	46,408
07/2013	0	776,869
08/2013	0	1,408,845
09/2013	0	95,727
10/2013	27,317	0

Month and Year	Chile	United States
11/2013	900,564	65
12/2013	1,441,842	0
01/2014	2,688,640	0
02/2014	2,091,974	0
03/2014	1,346,708	5
04/2014	153,097	20
05/2014	0	0
06/2014	0	362,874
07/2014	0	1,646,942
08/2014	0	2,051,061
09/2014	0	175,780
10/2014	228,304	641
11/2014	2,025,627	191
12/2014	2,441,834	164
01/2015	4,731,354	5
02/2015	2,585,680	264
03/2015	1,761,148	51
04/2015	0	0
05/2015	0	0
06/2015	0	689,285
07/2015	0	2,655,874
08/2015	0	1,636,345
09/2015	0	92,001
10/2015	1,236,927	0
11/2015	1,102,297	11

Source: GTIS, Global Trade Atlas database (accessed January 12, 2016). Table corresponds to **Figure 4.3**.

Table I.7: Korea's imports of U.S. fresh blueberries, cranberries, and related fruits, 2011–14 (metric tons)

	2011	2012	2013	2014	2015
United States	0	89	295	530	621

Source: Table corresponds to **Figure 4.4**.

Table I.8: Annual U.S. employment in motor vehicle and parts manufacturing, 1990–2014

Year	Annual employment (thousands)
1990	1,054.2
1991	1,017.6
1992	1,047.0
1993	1,077.8
1994	1,168.5
1995	1,241.5
1996	1,240.3
1997	1,253.9
1998	1,271.5
1999	1,312.5
2000	1,313.6
2001	1,212.9
2002	1,151.2
2003	1,125.3
2004	1,112.8
2005	1,096.7
2006	1,070.0
2007	994.2
2008	875.5
2009	664.1
2010	678.5
2011	717.7
2012	777.3
2013	824.8
2014	876.8

Source: DOL, BLS, "Current Employment Statistics," (accessed November 6, 2015). Table corresponds to **Figure 4.5**.

Table I.9: U.S.-headquartered and transplant production in the United States, 1995–2014

	U.S.-headquartered	Transplant
1995	9,438,956	1,810,438
1996	9,258,563	1,872,172
1997	9,500,314	1,936,769
1998	9,200,797	1,976,609
1999	10,123,406	2,024,794
2000	9,768,985	2,273,912
2001	8,609,032	2,215,548
2002	9,257,899	2,376,063
2003	8,734,767	2,641,074
2004	8,287,445	2,852,016
2005	7,729,291	3,168,152
2006	6,930,972	3,205,736
2007	6,482,875	3,345,588
2008	4,901,569	3,005,011
2009	2,988,561	2,160,998
2010	4,172,079	3,180,093
2011	4,883,154	3,463,668
2012	5,337,777	4,645,546
2013	5,861,378	5,016,111
2014	6,153,452	5,288,224

Source: Table corresponds to **Figure 4.6**.

Table I.10: European Union and East Asian shares of value added in U.S. exports of motor vehicles, parts, and trailers, 1995–2011

	1995	2000	2005	2008	2009	2010	2011
European Union	8%	8%	9%	12%	11%	12%	12%
East Asia	5%	6%	7%	8%	7%	7%	8%

Source: OECD, Trade in Value Added database (TiVA), “Origin of Value Added in Gross Exports” (accessed December 3, 2015).
Table corresponds to **Figure 4.7**.

Table I.11: U.S. imports of automotive parts from China, 1997–2014 (billion constant 2009 dollars)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Deflated Chinese imports	4.0	5.5	7.5	10.0	11.3	15.0	19.1	26.5	35.0	45.6	54.4	55.4	47.2	68.1	76.7	87.9	96.8	110.8

Source: USITC DataWeb/USDOC (accessed December 1, 2015); White House, *Economic Report of the President*, 2015, table B-3. Table corresponds to **Figure 4.8**.

Table I.12: Total U.S. motor vehicles and parts trade with NAFTA partner countries, billion constant 2009 dollars

Type	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Imports	88.4	92.8	110.1	114.8	105.1	107.3	105.2	112.2	113	115.7	114.2	93.4	67.4	98.8	108	123.3	126.8	135.2
Exports	55.9	56	60	62.4	56.1	59.2	57.9	60.3	62.4	64.8	68.6	60.2	42.4	57.5	62.3	66.7	68.8	68.6

Source: USITC DataWeb/USDOC (accessed December 3, 2015); White House, 2015 Economic Report of the President, 2015, Table B-3, 2015. Table corresponds to **Figure 4.9**.

Table I.13: U.S. and Mexico shares of value-added content in North American final demand

	1995	2000	2005	2008	2009	2010	2011
United States	63%	57%	50%	43%	48%	44%	43%
Mexico	4%	7%	7%	9%	8%	9%	9%

Source: OECD, TiVA, Origin of Value-added in Final Demand (accessed December 2, 2015). Table corresponds to **Figure 4.10**.

Table I.14: U.S. textile mills, value of shipments, 2000–2014

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of shipments (million \$)	51,994	45,705	45,546	42,709	40,872	42,391	38,883	36,146	31,958	26,395	29,376	30,917	30,260	31,316	31,342

Source: U.S. Census, “Current Data” (accessed January 5, 2016). Table corresponds to **Figure 4.11**.

Table I.15: CAFTA-DR share of U.S. textile exports, compared to NAFTA and ROW 2000–15

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CAFTA	10%	21%	27%	29%	30%	29%	29%	31%	32%	29%	30%	34%	30%	27%	28%	28%
NAFTA	62%	55%	52%	49%	48%	48%	46%	44%	42%	43%	42%	40%	43%	44%	45%	46%
ROW	27%	24%	21%	22%	21%	23%	25%	25%	27%	28%	28%	26%	27%	28%	27%	26%

Source USITC DataWeb/DOC (accessed March 6, 2016). Table corresponds to **Figure 4.12**.

Table I.16: Share of U.S. imports of apparel by selected supplier (% trade by value, 2000–15)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CAFTA	14%	15%	15%	14%	14%	12%	11%	10%	10%	9%	9%	10%	10%	9%	9%	9%
China	13%	14%	15%	17%	19%	26%	29%	33%	34%	39%	41%	39%	39%	39%	38%	37%
Vietnam	0%	0%	1%	4%	4%	4%	4%	6%	7%	8%	8%	8%	9%	10%	11%	12%
Mexico	14%	13%	12%	11%	10%	8%	7%	6%	6%	5%	5%	5%	5%	5%	5%	5%
ROW	58%	59%	57%	55%	54%	50%	49%	45%	43%	39%	37%	38%	37%	37%	37%	37%

Source USITC DataWeb/DOC (accessed March 6, 2016). Table corresponds to **Figure 4.13**.

Appendix I: Data Tables for Figures

Table I.17: U.S. steel mill products imports, exports and shipments, 1990-2014

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	<i>Million Short Tons</i>																								
Shipments	85	79	82	89	95	97	101	106	102	106	109	99	100	106	111	105	110	106	98	62	83	92	96	95	98
Imports	16	15	16	18	28	23	29	32	42	36	38	30	33	23	36	32	46	33	32	16	24	28	33	32	44
Exports	2	2	2	2	2	3	5	6	6	5	7	6	6	8	8	9	10	11	14	9	12	13	14	13	12

Sources: AISI, Selected Statistical Highlights, 2002–2014 (years 1990-2001 where found in the 2002 edition); USITC DataWeb/USDOC (accessed May 5, 2016). Table corresponds to **Figure 4.14**.

Table I.18: U.S. steel total employment and labor productivity, 1990-2014

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total Employment (1,000 employees)	258	246	234	225	224	226	224	220	218	212	210	190	171	164	157	161	160	162	162	137	140	150	154	153	155
Labor Productivity (\$1,000 per employee)	344	314	330	361	401	418	410	426	417	390	391	351	405	414	642	654	698	732	872	520	764	857	790	756	

Source: Bureau of Labor Statistics, Labor Productivity and Costs, Industry Productivity and Department of Commerce, U.S. Bureau of Economic Analysis. Table corresponds to **Figure 4.15**.

Note: Total employment and labor productivity calculations include all employees.

Appendix I: Data Tables for Figures

Table I.19: U.S. steel mill products trade with NAFTA (Canada and Mexico), 1990–2014 millions net tons

NAFTA	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Imports	4	3	4	5	6	7	8	8	8	9	9	8	10	9	10	10	10	10	10	6	9	9	8	8	10
Exports	1	1	1	1	1	1	3	5	5	5	6	5	5	6	7	8	8	9	10	7	9	10	11	11	10

Source: USITC DataWeb/USDOC (accessed May 5, 2016). Table corresponds to **Figure 4.16**.

Table I.20: U.S. steel trade with URA partners (excluding Canada and Mexico), 1990-2014, million short tons

URA	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Imports	9.54	8.59	8.26	9.46	13.42	8.66	12.22	11.69	17.39	12.73	11.95	10.40	8.82	6.08	8.60	8.67	10.81	8.46	8.02	4.98	7.48	8.67	11.15	10.75	14.71
Exports	0.33	0.44	0.18	0.17	0.09	0.40	0.53	0.31	0.25	0.25	0.35	0.24	0.22	0.75	0.30	0.52	0.47	1.02	0.97	0.42	0.55	0.68	0.62	0.42	0.38

Source: USITC DataWeb/USDOC (accessed May 5, 2016). Table corresponds to **Figure 4.17**.

Appendix I: Data Tables for Figures

Table I.21: U.S. supply of unwrought refined copper for domestic consumption and imports as a share of domestic consumption, 1990–2014, millions of metric tons

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014p
Solvent extraction-electrowon (SX-EX) production	0.39	0.44	0.51	0.49	0.49	0.54	0.57	0.59	0.61	0.59	0.56	0.63	0.60	0.59	0.58	0.55	0.53	0.50	0.51	0.48	0.43	0.45	0.47	0.48	0.51
Primary refinery production from blister and anode	1.49	1.50	1.53	1.64	1.61	1.61	1.63	1.72	1.73	1.46	1.16	1.09	0.84	0.66	0.67	0.65	0.67	0.78	0.72	0.63	0.63	0.55	0.49	0.52	0.54
Secondary refinery production from scrap	0.14	0.05	0.10	0.12	0.12	0.14	0.15	0.16	0.15	0.07	0.08	0.07	0.07	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.05
Imports	0.26	0.29	0.29	0.34	0.46	0.43	0.62	0.65	0.72	0.92	1.02	1.20	1.06	0.69	0.70	0.98	1.07	0.83	0.72	0.66	0.61	0.67	0.63	0.73	0.62
Exports	-0.21	-0.27	-0.19	-0.22	-0.16	-0.22	-0.17	-0.09	-0.09	-0.03	-0.10	-0.02	-0.03	-0.12	-0.13	-0.05	-0.06	-0.05	-0.02	-0.08	-0.08	0.00	-0.16	-0.11	-0.13
Import share of consumption	0.12	0.14	0.13	0.15	0.17	0.17	0.24	0.23	0.25	0.31	0.34	0.46	0.45	0.30	0.29	0.43	0.51	0.39	0.36	0.40	0.34	0.38	0.36	0.40	0.35

Source: Table corresponds to **Figure 4.18**.

Table I.22: U.S. supply of semi-fabricated copper for domestic consumption and imports as a share of domestic consumption, 1990–2014

Year	Domestic production (million metric tons)	Imports (million metric tons)	Exports (million metric tons)	Imports share of domestic market (percent)
1990	3.22	0.26	-0.16	0.08
1991	3.16	0.21	-0.18	0.07
1992	3.33	0.22	-0.20	0.07
1993	3.48	0.25	-0.24	0.07
1994	3.90	0.31	-0.24	0.08
1995	3.80	0.35	-0.29	0.09
1996	3.95	0.36	-0.30	0.09
1997	4.18	0.42	-0.36	0.10
1998	4.32	0.49	-0.38	0.11
1999	4.49	0.57	-0.38	0.12
2000	4.50	0.72	-0.43	0.15
2001	3.88	0.55	-0.41	0.14
2002	3.65	0.51	-0.38	0.13
2003	3.66	0.51	-0.38	0.13
2004	3.88	0.59	-0.41	0.14
2005	3.89	0.58	-0.45	0.15
2006	3.64	0.62	-0.46	0.16
2007	3.31	0.57	-0.42	0.17
2008	2.96	0.51	-0.40	0.17
2009	2.46	0.37	-0.32	0.15
2010	2.53	0.43	-0.39	0.17
2011	2.46	0.43	-0.38	0.17
2012	2.49	0.45	-0.37	0.17
2013	2.56	0.46	-0.41	0.17
2014p	2.56	0.47	-0.40	0.18

Source: Table corresponds to **Figure 4.19**.

Note: p = Preliminary..

Table I.23: Annual U.S. domestic exports of mining equipment, 2009 dollars

	Total
2000	1,058,070,000
2001	1,000,132,000
2002	859,068,000
2003	1,000,126,000
2004	1,214,635,000
2005	1,441,243,000
2006	1,914,117,000
2007	2,163,910,000
2008	2,787,366,000
2009	2,325,886,000
2010	2,896,515,000

Sources: USITC DataWeb/USDOC, domestic exports (accessed April 9, 2016); White House, Economic Report of the President, 2015, table B-3. Table corresponds to **Figure 4.20**.

Table I.24: Annual exports of U.S. mining machinery to Chile and Peru (USD), 2000–2014

	Peru inflation adjusted	Chile inflation adjusted
2000	19,968,981.65	27,116,636.34
2001	16,303,698.93	36,559,447.91
2002	11,057,279.60	21,172,638.44
2003	10,573,586.21	29,964,835.42
2004	39,282,989.23	58,370,736.09
2005	2,936,687.39	50,604,426.66
2006	44,488,155.76	47,271,499.99
2007	30,227,970.86	62,193,205.05
2008	36,906,273.30	96,170,122.73
2009	33,915,000.00	102,221,000.00
2010	53,441,479.53	91,695,399.18
2011	82,476,212.60	132,437,010.58
2012	89,353,022.84	163,980,754.24
2013	75,587,681.41	115,432,902.66
2014	96,137,505.54	97,950,531.99

Sources: USITC DataWeb/USDOC (accessed April 9, 2016); White House, Economic Report of the President, 2015, table B-3.

Table corresponds to **Figure 4.21**.

Table I.25: Five-year average annual growth rates for U.S. mining machinery exports by country, before and after agreements, percent (1999–2013, adjusted for inflation).

Yearly U.S. mining machinery export growth rates before and after agreements	Chile	Peru
Yearly Export Growth Rate Before Agreement	-5.32	-1.21
Yearly Export Growth Rate After Agreement	12.95	24.57

Sources: USITC DataWeb/USDOC (accessed April 9, 2016), White House, Economic Report of the President, 2015, table B-3. Table corresponds to **Figure 4.22**.

Table I.26: U.S. machinery exports to Chile and Peru as a share of total U.S. machinery exports, percent

	U.S. exports to Chile as percent of overall exports	U.S. Exports to Peru as percent of overall exports
2000	1.55	2.1
2001	1.37	3.06
2002	1.09	2.1
2003	0.92	2.6
2004	2.88	4.28
2005	1.46	3.23
2006	2.2	2.34
2007	1.36	2.8
2008	1.31	3.42
2009	1.46	4.39
2010	1.87	3.2
2011	2.34	3.75
2012	2.37	4.35
2013	2.24	3.43
2014	3.16	3.22

Sources: USITC DataWeb/USDOC (accessed April 9, 2016), White House, Economic Report of the President, 2015, table B-3.
Table corresponds to **Figure 4.23**.

